

CONTRACT DOCUMENTS FOR:



ITB #19-017

**SEAWALL REPAIRS
TURTLE KRAALS TO CONCH REPUBLIC
KEY WEST HISTORIC SEAPORT**

MAY 2019

CITY OF KEY WEST

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CITY OF KEY WEST

CAROLINE STREET AND BAHAMA VILLAGE
COMMUNITY REDEVELOPMENT AGENCY (CRA)

KEY WEST, FLORIDA

DOCUMENTS

for

**SEAWALL REPAIRS
TURTLE KRAALS TO CONCH REPUBLIC
KEY WEST HISTORIC SEAPORT**

CONSISTING OF:

PROCUREMENT REQUIREMENTS
CONTRACT FORMS
CONDITIONS OF THE CONTRACT
TECHNICAL SPECIFICATIONS
SUPPLEMENTAL INFORMATION

KEY WEST HISTORIC SEAPORT (KWHS)

MAY 2019

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PART 1

PROCUREMENT REQUIREMENTS

INVITATION TO BID

Sealed Bids for City of Key West Caroline Street and Bahama Village Community Redevelopment Agency (CRA) “**SEAWALL REPAIR – TURTLE KRAALS TO CONCH REPUBLIC – KEY WEST HISTORIC SEAPORT**,” addressed to the City of Key West, will be received at the office of the City Clerk, 1300 White Street, Key West, Florida until **3:00 p.m.**, local time, on the **6th day of June 2019**, and then will be publicly opened and read. Any bids received after the time and date specified will not be considered.

Please submit one (1) original bid package and two (2) electronic copies on USB drives with a single PDF file of the entire bid package. Bid package shall be enclosed in a sealed envelope, clearly marked on the outside “**ITB #19-017 SEAWALL REPAIR – TURTLE KRAALS TO CONCH REPUBLIC – KEY WEST HISTORIC SEAPORT**” addressed and delivered to the City Clerk at the address noted above.

The CRA is seeking BIDS from qualified individuals or firms for seawall replacement and repairs, debris removal, installation of utility hangers, utility modifications, electrical modifications, replacement of water/fire valves and other associated work as depicted on the plans and in the Scope of Work.

The full Invitation to Bid may be obtained from Demand Star by Onvia and The City of Key West website. Please contact Demand Star at www.demandstar.com or call 1-800-711-1712 or www.cityofkeywest-fl.gov

A **Mandatory pre-bid meeting** will be held in the conference room at the KWHS Port and Marine Services Offices, 201 William Street, Key West, Florida on **May 21, 2019 at 2:30 p.m.**

EACH BID MUST BE SUBMITTED ON THE PRESCRIBED FORM AND ACCOMPANIED BY BID SECURITY AS PRESCRIBED IN THE INSTRUCTIONS TO BIDDERS, PAYABLE TO THE CITY OF KEY WEST, FLORIDA, IN AN AMOUNT NOT LESS THAN FIVE (5) PERCENT OF THE AMOUNT BID.

THE BIDDER MUST BE A LICENSED CONTRACTOR BY THE STATE OF FLORIDA AND SUBMIT PROOF OF SUCH WITH THE BID.

The Bidder shall furnish documentation showing that they are in compliance with the licensing requirements of the State and the provisions of Chapter 66 Section 87 of the Code of Ordinances of the City of Key West; within 10 days the following the Notice of Award and must demonstrate that he holds at a minimum, the following licenses & certificates;

- A. City of Key West License, as defined in Code of Ordinances, Chapter 66, enabling the Contractor to perform the work stated herein.
- B. City of Key West Business Tax License Receipt

All bid bonds, contract bonds, insurance contracts, and certificates of insurance shall be either executed by or countersigned by a licensed resident agent of the Surety or Insurance Company having

his place of business in the State of Florida, and in all ways complying with the insurance laws of the State of Florida. Further, the said Surety or Insurance Company shall be duly licensed and qualified to do business in the State of Florida.

Before a Contract will be awarded for the work contemplated herein, the CRA will conduct such investigation as is necessary to determine the performance record and ability of the apparent low Bidder to perform the size and type of work specified under this Contract. Upon request, the Bidder shall submit such information as deemed necessary by the CRA to evaluate the Bidder's qualifications.

The CRA hereby notifies all Bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, Disadvantaged Business Enterprise will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, gender, religion, age, disability, marital status or national origin in consideration for an award.

For information concerning the proposed work please contact Karen Olson, Deputy Director, Port and Marine Services by email at kolson@cityofkeywest-fl.gov. Verbal communications, per the City's "Cone of Silence" ordinance are not allowed.

As stated above at the time of the BID submittal the Bidder must provide satisfactory documentation of State Licenses. The Bidder shall furnish documentation showing that he is in compliance with the licensing requirements of County, and City licenses as would be required within ten days of the award. The successful Bidder must also be able to satisfy the City Attorney as to such insurance coverage and legal requirements as may be demanded by the Proposal in question. The CRA may reject BID for any and/or all of the following reasons: (1) for budgetary reasons, (2) if the proposer misstates or conceals a material fact in its bid, (3) if the proposal does not strictly conform to the law or is non-responsive to the bid requirements, (4) if the proposal is conditional, or (5) if a change of circumstances occurs making the purpose of the proposal unnecessary to the CRA. (6) if such rejection is in the best interest of the CRA. The CRA may also waive any minor formalities or irregularities in any proposal.

The CRA retains the right to award bid to the bidder that best meet the needs of the City.

* * * * *

INSTRUCTIONS TO BIDDERS

1. CONTRACT DOCUMENTS

A. FORMAT

The Contract Documents are divided into parts, divisions, and sections for convenient organization and reference. Generally, there has been no attempt to divide the Specification sections into work performed by the various building trades, work by separate subcontractors, or work required for separate facilities in the Project.

B. DOCUMENT INTERPRETATION

Separate sections contained within these Contract Documents are intended to be mutually cooperative and provide all details reasonably required for the execution of proposed work.

Should there be any doubt as to the meaning or intent of said Contract Documents, the Bidder should request of the Deputy Port and Marine Services Director, in writing (**no later than EOB, May 28, 2019**) an interpretation thereof. Any interpretation or change in said Contract Documents will be made only in writing in the form of Addenda to the Documents, which will be furnished to all registered holders of Contract Documents. Bidders shall submit with their Bids, or indicate receipt of all Addenda. The Owner will not be responsible for any other explanation or interpretations of said Documents.

2. SCOPE OF SERVICES

A general description of the work to be done is contained in the Scope of Services section.

3. REQUIRED QUALIFICATIONS

The prospective Proposers must meet the statutorily prescribed requirements before award of Contract by the CRA. Proposers must hold or obtain all licenses and/or certificates as required by the State and Local Statutes in order to bid and perform the work specified herein. Additionally, all proposers must meet the minimum qualifications as described in Required Qualifications section.

4. BIDDER'S UNDERSTANDING

Each Proposer must inform himself of the conditions relating to the execution of the work and make himself thoroughly familiar with all the Contract Documents. Failure to do so will not relieve the successful Proposer of his obligation to enter into a Contract and complete the contemplated work in strict accordance with the Contract Documents.

Each Proposer shall inform himself of, and the Proposer awarded a Contract shall comply with, federal, state, and local laws, statutes, and ordinances relative to the execution of the work. This requirement includes, but is not limited to, applicable regulations concerning minimum wage rates, nondiscrimination in the employment of labor, protection of public and employee safety and health, environmental protection, the protection of natural resources, fire protection, permits, fees, and similar subjects.

5. TYPE OF BID

UNIT PRICE

The Proposal for the work is to be submitted on a unit price basis. All items required to complete the work specified or shown on the Drawings but not included in the Proposal shall be considered incidental to those set forth in the Proposal. Payment to the Contractor will be made on the measurement of the work actually performed by the Contractor, as specified in the Contract Documents.

The Bidder further proposes to accept as full payment for the Work proposed herein, the amounts computed under the provisions of the Contract Documents and based on the following unit price amounts. The Bidder agrees that the unit prices include all allowances for overhead and profit for each type and unit of work called for in these Contract Documents.

Total allowable cost for Mobilization, General/Supp Conditions and Demobilization (bid schedule line item 1) shall be 10% maximum of total construction costs (bid schedule line items 4 through 49).

6. PREPARATION OF BIDS

A. GENERAL

All blank spaces in the BID form must be filled in for all schedules and associated parts, as required, preferably in BLACK INK. All price information shall be clearly shown in both words and figures where required. No changes shall be made in the phraseology of the forms. Written amounts shall govern in case of discrepancy between the amounts stated in writing and the amounts stated in figures. In case of discrepancy between unit prices and extended totals, unit prices shall prevail.

Any BID shall be deemed informal which contains omissions, erasures, alterations, or additions of any kind, or prices uncalled for, or in which any of the prices are obviously unbalanced, or which in any manner shall fail to conform to the conditions of the published Invitation to BID.

Only one BID from any individual, firm, partnership, or corporation, under the same or different names, will be considered. Should it appear to the Owner that any Bidder is interested in more than one BID for work contemplated; all Bids in which such Bidder is interested will be rejected.

B. SIGNATURE

The Bidder shall sign his BID in the blank space provided therefor. If Bidder is a corporation, the legal name of the corporation shall be set forth above together with the signature of the officer or officers authorized to sign Contracts on behalf of the corporation. If Bidder is a partnership, the true name of the firm shall be set forth above together with the signature of the partner or partners authorized to sign Contracts in behalf of the partnership. If signature is by an agent, other than an officer of a corporation or a member of a partnership, a notarized

power-of-attorney must be on file with the Owner prior to opening of Bids or submitted with the Bid otherwise the Bid will be regarded as not properly authorized.

C. SPECIAL BIDDING REQUIREMENTS

The Bidder's attention is brought to the hiring practices and licenses and permits of the City of Key West. These are defined in the addition to Article 39, ORDINANCES, PERMITS, AND LICENSES, as set forth in the Supplementary Conditions.

The Bidder shall submit with his Bid his experience record showing his experience and expertise in site construction and related work. Such experience record shall provide at least five current or recent projects of similar work, not more than 5 years old within the State Florida and preferably Monroe County. For each project the following information shall be provided:

1. Description and location of work.
2. Contract amount.
3. Dates work was performed.
4. Owner.
5. Name of Owner's contact person and phone number.
6. Engineer.
7. Name of Engineer's contact person and phone number.

The bidder shall submit at least 3 references from the above work experience.

The bidder shall submit with his bid a list of items to be performed by his own labor and that performed by subcontractors or others.

D. ATTACHMENTS

Bidder shall complete and submit the following forms with his bid:

1. Anti-Kickback Affidavit
2. Public Entity Crimes Form
3. City of Key West Indemnification Form
4. Equal Benefits for Domestic Partners Affidavit
5. Cone of Silence
6. Local Vendor Certification
7. Non-Collusion Affidavit
8. Proof of Required Insurance

E. CITY OF KEY WEST LICENSE REQUIRED

Contractor is required to have a Certified or Registered General Contractors City of Key West license. License fees not to exceed \$410.00. License shall be obtained within ten (10) days of Notice of Award.

7. STATE AND LOCAL SALES AND USE TAXES

Unless the Supplementary Conditions contains a statement that the CITY is exempt from state sales tax on materials incorporated into the work due to the qualification of the work under

this Contract, all state and local sales and use taxes as required by the laws and statutes of the state and its political subdivisions shall be paid by the Contractor. Prices quoted in the Bid shall include all nonexempt sales and use taxes, unless provision is made in the Bid form to separately itemize the tax.

8. SUBMISSION OF BID

All BIDS must be submitted no later than the time prescribed, at the place, and in the manner set forth in the Invitation to Bid. Bids must be made on the Bid forms provided herewith **submit one (1) ORIGINAL bid package and two (2) FLASH DRIVES containing a single PDF file of the entire bid package.**

Each Bid must be submitted in a sealed envelope, so marked as to indicate the Bidder's name and its contents without being opened, and addressed in conformance with the instructions in the Invitation to Bid.

9. MODIFICATION OR WITHDRAWAL OF BID

Prior to the time and date designated for receipt of Bids, any Bid submitted may be withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the signature of the Bidder or by telegram. If by telegram, written confirmation over the signature of the Bidder shall be mailed and postmarked on or before the date and time set for receipt of Bids. No Bid may be withdrawn after the time scheduled for opening of Bids unless the time specified in paragraph AWARD OF CONTRACT of these Instructions to Bidders shall have elapsed.

10. BID SECURITY

BIDS must be accompanied by cash, a certified check, or cashier's check drawn on a bank in good standing, or a bid bond issued by a Surety authorized to issue such bonds in the state where the work is located, in the amount of five (5) percent of the total amount of the Proposal submitted. This bid security shall be given as a guarantee that the Bidder will not withdraw his BID for a period of ninety (90) days after bid opening, and that if awarded the Contract, the successful Bidder will execute the attached Contract and furnish properly executed Performance and Payment Bonds, each in the full amount of the Contract price within the time specified. Agent and Surety phone numbers must be provided.

The Attorney-in-Fact who executes this bond in behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond. Where State Statute requires, certification by a resident agent shall also be provided.

If the Bidder elects to furnish a Bid Bond, he shall use the Bid Bond form bound herewith, or one conforming substantially thereto in form and content.

11. RETURN OF BID SECURITY

Within 15 days after the award of the Contract, the CITY will return the bid securities to all Bidders whose BIDS are not to be further considered in awarding the Contract. Retained bid securities will be held until the Contract has been finally executed, after which all bid

securities, other than Bidders' bonds and any guarantees, which have been forfeited, will be returned to the respective Bidders whose Proposals they accompanied.

12. AWARD OF CONTRACT

The Award will be made under one Contract by the Owner on the basis of the Bid from the lowest, responsive, responsible Bidder. The Owner may award entire Bid or selected line items based on the CRA's best interest and available funds at time of Award.

Within 90 calendar days after the opening of Bids, the Owner will accept one of the Bids or will act in accordance with the following paragraphs. The acceptance of the Bid will be by written notice of award, mailed to the office designated in the Bid, or delivered to the Bidder's representative. In the event of failure of the lowest responsive, responsible Bidder to sign the Contract and provide an acceptable Performance Bond, Payment Bond, insurance certificate(s) and evidence of holding required licenses and certificates, the Owner may award the Contract to the next lowest responsive, responsible Bidder. Such award, if made, will be made within 120 days after the opening of Bids. Bidders will guarantee their Bid price(s) for up to 120 calendar days after Bid opening.

The CRA reserves the right to accept or reject any or all Bids and to waive any formalities and irregularities in said Bids.

13. BASIS OF AWARD

The award will be made by the Owner on the basis of the BID from the lowest, responsive, responsible BIDDER which, in the Owner's sole and absolute judgment will best serve the interest of the Owner.

14. EXECUTION OF CONTRACT

The successful Bidder shall, within 10 working days after receiving Notice of Award, sign and deliver to the Owner a Contract in the form hereto attached together with the insurance certificate examples of the bonds as required in the Contract Documents and evidence of holding required licenses and certificates. Within 10 working days after receiving the signed Contract from the successful Bidder, the Owner's authorized agent will sign the Contract. Signature by both parties constitutes execution of the Contract.

15. CONTRACT BONDS

A. PERFORMANCE AND PAYMENT BONDS

The successful Bidder shall file with the CITY, at the time of delivery of the signed Contract, a Performance Bond and Payment Bond on the form bound herewith, each in the full amount of the Contract price in accordance with the requirements of Florida Statutes Section 255.05 or 713.23, as applicable, as security for the faithful performance of the Contract and the payment of all persons supplying labor and materials for the construction of the work, and to cover all guarantees against defective workmanship or materials, or both, during the warranty period following the date of final acceptance of the work by the CITY. The Surety furnishing this bond shall have a sound financial standing and a record of service satisfactory to the CITY, shall be

authorized to do business in the State of Florida, and shall be listed on the current U.S. Department of Treasury Circular Number 570, or amendments thereto in the Federal Register, of acceptable Sureties for federal projects. The CONTRACTOR shall supply the OWNER with phone numbers, addresses, and contacts for the Surety and their agents. Pursuant to Section 255.05(7), Florida Statutes, in lieu of the bond required by law, the contractor may file with the city an alternative form of security in the form of cash, a money order, a certified check, a cashier's check or an irrevocable letter of credit.

C. POWER-OF-ATTORNEY

The Attorney-in-Fact (Resident Agent) who executes this Performance and Payment Bond in behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond. All Contracts, Performance and Payment Bonds, and respective powers-of-attorney will have the same date.

16. FAILURE TO EXECUTE CONTRACT AND FURNISH BOND

The Bidder who has a Contract awarded to him and who fails to promptly and properly execute the Contract or furnish the required Bonds shall forfeit the bid security that accompanied his bid, and the bid security shall be retained as liquidated damages by the CITY, and it is agreed that this said sum is a fair estimate of the amount of damages the CITY will sustain in case the Bidder fails to enter into a Contract or furnish the required Bonds. Bid security deposited in the form of cash, a certified check, or cashier's check shall be subject to the same requirement as a Bid Bond.

17. TIME OF COMPLETION

The time of completion of the work to be performed under this Contract is the essence of the Contract. Delays and extensions of time may only be allowed in accordance with the provisions stated in the General Conditions. Time allowed for completion of the work authorized is stated in Bid.

When the Contractor receives a Notice to Proceed, he shall commence work as soon as possible and shall complete all work within the number of calendar days stipulated in the Contract.

The term of this contract will be one hundred-fifty **(150)** calendar days.

Contractor shall not work during Fantasy Fest, October 18 – 27, 2019.

18. PUBLIC RECORDS REQUIREMENTS

In addition to other contract requirements provided by law, each public agency contract for services must include a provision that requires the contractor to comply with public records laws, specifically to (a) keep and maintain public records that ordinarily and necessarily would be required by the public agency in order to perform the service; (b) provide the public with access to public records on the same terms and conditions that the public agency would provide the records and at a cost that does not exceed the cost provided in

this chapter or as otherwise provided by law; (c) ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law; and (d) meet all requirements for retaining public records and transfer, at no cost, to the public agency all public records in possession of the contractor upon termination of the contract and destroy any duplicate public records that exempt or confidential and exempt from public records disclosure requirements. All records stored electronically must be provided to the public agency in a format that is compatible with the information technology systems of the public agency. If a contractor does not comply with a public records request, the public agency shall enforce the contract provisions in accordance with the contract.

19. PERMITS AND FEES

The Bidder awarded this project shall procure and pay all permits and licenses, charges, and fees, and give notices necessary and incidental to the due and lawful prosecution of the work, the cost of which shall be included in the fee received for the work, except where separately agreed.

20. BIDDER'S DECLARATION AND UNDERSTANDING

The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this Bid are those named herein, that this Bid is, in all respects, fair and without fraud, that it is made without collusion with any official of the Owner, and that the Bid is made without any connection or collusion with any person submitting another Bid on this Contract.

The Bidder further declares that he has carefully examined the Contract Documents and that this Bid is made according to the provisions and under the terms of the Contract Documents, which Documents are hereby made a part of this Bid.

21. SALES AND USE TAXES

The Bidder agrees that all federal, state, and local sales and use taxes are included in the stated unit prices for the work.

* * * * *

BID FORM

To: City of Key West, Florida

Address: 1300 White Street, Key West, Florida 33040

Project Title: **SEAWALL REPLACEMENT
TURTLE KRAALS TO CONCH REPUBLIC
KEY WEST HISTORIC SEAPORT**

Project No.: ITB #19-017

Bidder's person to contact for additional information on this Bid:

Company Name: _____

Contact Name & Telephone #: _____

Email Address: _____

BIDDER'S DECLARATION AND UNDERSTANDING

The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this Bid are those named herein, that this Bid is, in all respects, fair and without fraud, that it is made without collusion with any official of the Owner, and that the Bid is made without any connection or collusion with any person submitting another Bid on this Contract.

The Bidder further declares that he has carefully examined the Contract Documents, that he has personally inspected the Project, that he has satisfied himself as to the quantities involved, including materials and equipment, and conditions of work involved, including the fact that the description of the quantities of work and materials, as included herein, is brief and is intended only to indicate the general nature of the work and to identify the said quantities with the detailed requirements of the Contract Documents, and that this Bid is made according to the provisions and under the terms of the Contract Documents, which Documents are hereby made a part of this Proposal.

The Bidder further agrees that the Owner may “non-perform” the work in the event that the low bid is in excess of available funding. Non-performance will be determined prior to Notice of Award.

The intent of the Bid Documents is to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any work, materials, or equipment that may reasonably be inferred from the Contract Documents, as being required to produce the intended result shall be supplied, whether or not specifically called for in the Contract Documents.

CONTRACT EXECUTION

The Bidder agrees that if this Bid is accepted, he will, within 10 days, not including Sundays and legal holidays, after Notice of Award, sign the Contract in the form annexed hereto, and will at that time, deliver evidence of holding required licenses and certificates, and will, to the extent of his Bid, furnish

all machinery, tools, apparatus, and other means of construction and do the work and furnish all the materials necessary to complete all work as specified or indicated in the Contract Documents.

CERTIFICATES OF INSURANCE

Bidder agrees to furnish the Owner, before commencing the work under this Contract, the certificates of insurance as specified in these Documents.

Type of Insurance	Limits	Comments
Marine General Liability	\$2,000,000	The proposers may have these coverages combined in 1 policy
Watercraft Liability	\$1,000,000	
Business Automobile Liability	\$1,000,000	
Workers' Compensation	Statutory	
Employers Liability	\$1,000,000/\$1,000,000/\$1,000,000	
USL&H and Jones Act Coverage	\$1,000,000	

START OF CONSTRUCTION AND CONTRACT COMPLETION TIME

The Bidder agrees to begin work within fourteen (14) calendar days after the date of the Notice to Proceed and to fully complete all work under this contract within one hundred-fifty (150) calendar days, including construction of the foundation and assembly of the structure.

LIQUIDATED DAMAGES

In the event the Bidder is awarded the Contract and fails to complete the work within the time limit or extended time limit agreed upon, as more particularly set forth in the Contract Documents, liquidated damages shall be paid to the Owner at the rate of **\$1,000.00** per day for all work awarded until the work has been satisfactorily completed as provided by the Contract Documents. Sundays and legal holidays shall be excluded in determining days in default.

Owner will recover such liquidated damages by deducting the amount owed from the final payment or any retainage held by Owner.

ADDENDA

The Bidder hereby acknowledges that he has received Addenda No's. _____, _____, _____, _____. (Bidder shall insert No. of each Addendum received) and agrees that all addenda issued are hereby made part of the Contract Documents, and the Bidder further agrees that his Bid(s) includes all impacts resulting from said addenda.

SALES AND USE TAXES

The Bidder agrees that all federal, state, and local sales and use taxes are included in the stated bid prices for the work.

UNIT PRICE WORK ITEMS

The Bidder further proposes to accept as full payment for the Work proposed herein the amounts computed under the provisions of the Contract Documents and based on the following unit price amounts.

The Bidder agrees that the unit price represent a true measure of labor and materials required to perform the Work, including all allowances for overhead and profit for each type of work called for in these Contract Documents. The amounts shall be shown in both words and figures. In case of discrepancy, the amount shown in words shall govern.

* * * * *

BID SCHEDULE
SEAWALL REPAIR
KEY WEST HISTORIC SEAPORT

UNIT PRICE BID

Bid unit prices stated in this proposal include all costs and expenses for labor, equipment, materials, freight, disposal and contractor's overhead and profit. Unit prices for the various work items are intended to establish a total price for completing the project in its entirety. All work and incidental costs shall be included for payment under the several scheduled items of the overall contract, and no separate payment will be made therefore.

GENERAL

1. Mobilization, General/Supp Conditions and Demobilization

- | | | | |
|-----------------------------|---|------|---------|
| a. Mobilization | 1 | each | \$_____ |
| b. General/Supp. Conditions | 1 | each | \$_____ |
| c. Demobilization | 1 | each | \$_____ |

1 LS (10% of Construction Cost Max.) \$_____

2. Payment and Performance Bonds

1 LS \$_____

3. Permit Fees (to be paid at cost)

1 LS \$_____

4. Staging Area (provided by Owner)

1 LS \$_____

5. General Site Preparation & MOT (including deliveries & pedestrian)

1 LS \$_____

6. NPDES Compliance

1 LS \$_____

7. Temporary Construction Fencing (6' high with wind screen & sandbags)

1 LS \$ _____

8. Debris Removal & Disposal per Plan Locations

1 LS \$ _____

9. Demolition & Excavation as Required

1 LS \$ _____

GENERAL (1-9) SUBTOTAL: \$ _____

PHASE A, TURTLE KRAALS SEAWALL

10. Footer Wall Construction (includes all form work, reinforcement, & 6,000 psi concrete, extremely aggressive environment)

174 LF Unit Price \$ _____ TOTAL \$ _____

11. Grout & Epoxy Repairs per Plan

1 LS \$ _____

12. Site Restoration

1 LS \$ _____

PHASE A (10-12) SUBTOTAL: \$ _____

PHASE B, SCHOONER WHARF SEAWALL

13. Replace Utility Hangers

1 LS \$ _____

14. Grout & Epoxy Repairs Per Plan

1 LS \$ _____

15. Flowable Fill Injection, 2 Locations

2.1 CY Unit Price \$ _____ TOTAL \$ _____

16. Concrete Cap Demolition & Replacement (includes all form work, reinforcement, 6,000 PSI concrete extremely aggressive environment, & ipe deck work)

61 LF Unit Price \$_____ TOTAL \$_____

17. Site Restoration

1 LS \$_____

PHASE B (13-17) SUBTOTAL: \$_____

PHASE C, CONCH REPUBLIC SEAWALL (CIVIL)

18. Preconstruction Video Survey

1 LS \$_____

19. Vibration Monitoring during Driving Activities

1 LS \$_____

20. A690 – SKZ31, 35' Long Steel Sheetpile (Barge or Land driven as directed by CRA)

333 LF Unit Price \$_____ TOTAL \$_____

21. ChomX 9100 Reinforced Concrete Cap (includes all form work, ties, stirrups, reinforcement, 6,000 PSI concrete, extremely aggressive environment)

333 LF Unit Price \$_____ TOTAL \$_____

22. Disconnection & Re-connection, Docks H1, H2, H3, & Pedestrian Bridge

4 EA Unit Price \$_____ TOTAL \$_____

23. Provide temporary ADA Access via Gangways

4 EA Unit Price \$_____ TOTAL \$_____

24. Maintenance of Existing Utilities and Provision of Temporary Utilities during Periods of Disconnection

1 LS \$_____

25. Water & Fire Valve Replacement, Match Existing Size, Type per Specification

6 EA Unit Price \$_____ TOTAL \$_____

26. Extension of All Drainage Penetrations through Proposed Seawall with Similar Material

1 LS \$_____

27. Extension of all Non-Drainage Utilities through Proposed Seawall with Similar Material

1 LS \$_____

28. Sanitary Sewer Pumpout Line Relocation to Seawall Face

1 LS \$_____

29. FRP Hanger Installation for Sewer Pumpout

1 LS \$_____

30. Filter Fabric

6,660 SF Unit Price \$_____ TOTAL \$_____

31. Clean, Imported Backfill

250 CY Unit Price \$_____ TOTAL \$_____

32. Fernco Couplings

1 LS \$_____

33. Site Restoration, including Paver Work & restored ADA Accessibility

1 LS \$_____

PHASE C CIVIL (18-33) SUBTOTAL: \$_____

PHASE C, CONCH REPUBLIC SEAWALL (ELECTRICAL)

34. Light Fixture Removal & Storage

4 EA Unit Price \$_____ TOTAL \$_____

35. Light Fixture Reinstallation

4 EA Unit Price \$_____ TOTAL \$_____

36. Power Pedestal Removal & Storage

4 EA Unit Price \$_____ TOTAL \$_____

37. Power Pedestal Reinstallation

4 EA Unit Price \$_____ TOTAL \$_____

38. Clean Conduits with Mandrel Equipment

1,200 LF Unit Price \$_____ TOTAL \$_____

39. Temporary Electrical Connections

1 LS \$_____

40. Temporary Lighting

1 LS \$_____

41. Existing Pull Box Repairs & Cleaning

6 EA Unit Price \$_____ TOTAL \$_____

42. Remove Segment of Conduit & Wire between Seawall and Power Boxes on Docks H1, H2, & H3

1 LS \$_____

43. #4/0 Cu

1,200 LF Unit Price \$_____ TOTAL \$_____

44. #4 Cu

300 LF Unit Price \$_____ TOTAL \$_____

45. #6 Cu

200 LF Unit Price \$_____ TOTAL \$_____

46. #1 Cu

800 LF Unit Price \$_____ TOTAL \$_____

47. Telephone

600 LF Unit Price \$_____ TOTAL \$_____

48. Cable TV

600 LF Unit Price \$_____ TOTAL \$_____

49. Fernco Couplings

9 EA Unit Price \$_____ TOTAL \$_____

PHASE C ELECTRICAL (34-49) SUBTOTAL: \$_____

50. General Allowance (only to be used with Owner's written Approval)

1 LS \$ **75,000.00**

BASE BID (1-50) TOTAL: \$_____

(amount written in words) Dollars & _____ Cents

NOTE: THE TOTAL BID WILL BE THE BASIS OF EVALUATING LOW BIDDER AND BASIS OF AWARD

CONTRACTOR'S PROJECTED OPERATIONS LOAD AND COST ESTIMATE

List items to be performed by Contractor's own forces and the estimated total cost of these items.
(Use additional sheets if necessary.)

SUBCONTRACTORS

The Bidder further proposes that the following subcontracting firms or businesses will be awarded subcontracts for the following portions of the work in the event that the Bidder is awarded the Contract:

Portion of Work

Name

Street

City

State

Zip

Portion of Work

Name

Street

City

State

Zip

Portion of Work

Name

Street

City

State

Zip

Portion of Work

Name

Street

City

State

Zip

SURETY

_____ whose address is

_____, _____, _____
Street City State Zip

_____ Resident Agent
Phone

BIDDER

The name of the Bidder submitting this Bid is _____

_____ doing business
at

_____, _____, _____
Street City State Zip

email address

which is the address to which all communications concerned with this Bid and with the Contract shall be sent.

The names of the principal officers of the corporation submitting this Bid, or of the partnership, or of all persons interested in this Bid as principals are as follows:

Name	Title
_____	_____
_____	_____
_____	_____
_____	_____

If Sole Proprietor or Partnership

IN WITNESS hereto the undersigned has set his (its) hand this _____ day of _____ 20____.

Signature of Bidder

Title

If Corporation

IN WITNESS WHEREOF the undersigned corporation has caused this instrument to be executed and its seal affixed by its duly authorized officers this ____ day of _____ 20____.

(SEAL)

Name of Corporation

By _____

Title _____

Attest _____
Secretary

EXPERIENCE OF BIDDER

The Bidder states that he is an experienced Contractor and has completed similar projects within the last five (5) years.

(List similar projects, with types, names of owners, construction costs, Engineers, and references with phone numbers. Use additional sheets if necessary.)

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

* * * * *

FLORIDA BID BOND

BOND NO. _____

AMOUNT: \$ _____

KNOW ALL MEN BY THESE PRESENTS, that _____

_____ hereinafter called the PRINCIPAL, and _____

_____ a corporation duly organized under the laws of the State of _____

having its principal place of business at _____

_____ in the State of _____,

and authorized to do business in the State of Florida, as SURETY, are held and firmly bound unto

_____ hereinafter CITY OF KEY WEST called the OBLIGEE, in the sum of _____

_____ DOLLARS (\$ _____) for

the payment for which we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these present.

THE CONDITION OF THIS BOND IS SUCH THAT:

WHEREAS, the PRINCIPAL is herewith submitting his or its Bid Proposal for **ITB #19-017 Seawall Repair – Turtle Kraals to Conch Republic – Key West Historic Seaport**, said Bid Proposal, by reference thereto, being hereby made a part hereof.

WHEREAS, the PRINCIPAL contemplates submitting or has submitted a bid to the OBLIGEE for the furnishing of all labor, materials (except those to be specifically furnished by the CITY), equipment, machinery, tools, apparatus, means of transportation for, and the performance of the work covered in the Proposal and the detailed Specifications, entitled:

ITB #19-017

SEAWALL REPAIR

TURTLE KRAALS TO CONCH REPUBLIC

KEY WEST HISTORIC SEAPORT

WHEREAS, it was a condition precedent to the submission of said bid that a cashier's check, certified check, or bid bond in the amount of 5 percent of the base bid be submitted with said bid as a guarantee that the Bidder would, if awarded the Contract, enter into a written Contract with the CITY for the performance of said Contract, within 10 working days after written notice having been given of the award of the Contract.

NOW, THEREFORE, the conditions of this obligation are such that if the PRINCIPAL within 10 consecutive calendar days after written notice of such acceptance, enters into a written Contract with the OBLIGEE and furnishes the Performance and Payment Bonds, each in an amount equal to 100 percent of the base bid, satisfactory to the CITY, then this obligation shall be void; otherwise the sum herein stated shall be due and payable to the OBLIGEE and the Surety herein agrees to pay said sum immediately upon demand of the OBLIGEE in good and lawful money of the United States of America, as liquidated damages for failure thereof of said PRINCIPAL.

Signed and sealed this _____ day of _____, 2019.

By _____
PRINCIPAL

SURETY

By _____
Attorney-In-Fact

ANTI-KICKBACK AFFIDAVIT

STATE OF _____)

: SS

COUNTY OF _____)

I, the undersigned hereby duly sworn, depose and say that no portion of the sum herein bid will be paid to any employees of the City of Key West as a commission, kickback, reward or gift, directly or indirectly by me or any member of my firm or by an officer of the corporation.

By:_____

Sworn and subscribed before me this _____ day of _____ 20__.

NOTARY PUBLIC, State of Florida at Large

My Commission Expires:

* * * * *

**SWORN STATEMENT UNDER SECTION 287.133(3)(A)
FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES**

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICER AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted with Bid or Proposal for _____

2. This sworn statement is submitted by _____
(name of entity submitting sworn statement)
whose business address is _____

and (if applicable) its Federal Employer Identification Number (FEIN) is _____

(If the entity has no FEIN, include the Social Security Number of the individual
signing this sworn statement _____)
3. My name is _____
(please print name of individual signing)
and my relationship to the entity named above is _____
4. I understand that a “public entity crime” as defined in Paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including but not limited to, any bid or contract for goods or services to be provided to any public or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, material misrepresentation.
5. I understand that “convicted” or “conviction” as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.
6. I understand that an “affiliate” as defined in Paragraph 287.133(1)(a), Florida Statutes, means
 1. A predecessor or successor of a person convicted of a public entity crime; or
 2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term “affiliate” includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm’s length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

7. I understand that a "person" as defined in Paragraph 287.133(1)(8), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.
8. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. (Please indicate which statement applies).

_____ Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, nor any affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989, AND (Please indicate which additional statement applies.)

_____ There has been a proceeding concerning the conviction before a hearing of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer did not place the person or affiliate on the convicted vendor list. (Please attach a copy of the final order.)

_____ The person or affiliate was placed on the convicted vendor list. There has been a subsequent proceeding before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer determined that it was in the public interest to remove the person or affiliate from the convicted vendor list. (Please attach a copy of the final order.)

_____ The person or affiliate has not been put on the convicted vendor list. (Please describe any action taken by or pending with the Department of General Services.)

(signature)

(date)

STATE OF _____

COUNTY OF _____

PERSONALLY APPEARED BEFORE ME, the undersigned authority,

_____ Who, after first being sworn by me, affixed his/her
(name of individual signing)

signature in the space provided above on this _____ day of _____, 20__.

My commission expires:

NOTARY PUBLIC

CITY OF KEY WEST INDEMNIFICATION FORM

To the fullest extent permitted by law, the CONTRACTOR expressly agrees to indemnify and hold harmless the City of Key West, their officers, directors, agents and employees *(herein called the "indemnitees") from liabilities, damages, losses and costs, including but not limited to, reasonable attorney's fees and court costs, such legal expenses to include costs incurred in establishing the indemnification and other rights agreed to in this Paragraph, to persons or property, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of the CONTRACTOR, its Subcontractors or persons employed or utilized by them in the performance of the Contract. Claims by indemnitees for indemnification shall be limited to the amount of CONTRACTOR's insurance or \$1 million per occurrence, whichever is greater. The parties acknowledge that the amount of the indemnity required hereunder bears a reasonable commercial relationship to the Contract and it is part of the project specifications or the bid documents, if any.

The indemnification obligations under the Contract shall not be restricted in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR under Workers' Compensation acts, disability benefits acts, or other employee benefits acts, and shall extend to and include any actions brought by or in the name of any employee of the CONTRACTOR or of any third party to whom CONTRACTOR may subcontract a part or all of the Work. This indemnification shall continue beyond the date of completion of the work.

CONTRACTOR: _____
Address

SEAL:

Signature

Print Name

Title

DATE: _____

EQUAL BENEFITS FOR DOMESTIC PARTNERS AFFIDAVIT

STATE OF _____)

: SS

COUNTY OF _____)

I, the undersigned hereby duly sworn, depose and say that the firm of _____

provides benefits to domestic partners of its employees on the same basis as it provides benefits to employees' spouses, per City of Key West Code of Ordinances Sec. 2-799.

By:_____

Sworn and subscribed before me this _____ day of _____ 20 ____.

NOTARY PUBLIC, State of Florida at Large

My Commission Expires:

* * * * *

CONE OF SILENCE AFFIDAVIT

STATE OF _____)

: SS

COUNTY OF _____)

I, the undersigned hereby duly sworn, depose and say that all owner(s), partners, officers, directors, employees and agents representing the firm of _____ have read and understand the limitations and procedures regarding communications concerning City of Key West Code of Ordinances Sec. 2-773 Cone of Silence.

By: _____

Sworn and subscribed before me this

_____ day of _____ 20_____.

NOTARY PUBLIC, State of _____ at Large

My Commission Expires: _____

NON-COLLUSION AFFIDAVIT

STATE OF FLORIDA)
 :
 SS COUNTY OF MONROE)

I, the undersigned hereby declares that the only persons or parties interested in this Proposal are those named herein, that this Proposal is, in all respects, fair and without fraud, that it is made without collusion with any official of the Owner, and that the Proposal is made without any connection or collusion with any person submitting another Proposal on this Contract.

By: _____

Sworn and subscribed before me this

_____ day of _____, 2019.

NOTARY PUBLIC, State of Florida at Large

My Commission Expires: _____

**LOCAL VENDOR CERTIFICATION
PURSUANT TO CITY OF KEY WEST CODE OF ORDINANCES SECTION 2-798**

The undersigned, as a duly authorized representative of the vendor listed herein, certifies to the best of his/her knowledge and belief, that the vendor meets the definition of a "Local Business." For purposes of this section, "local business" shall mean a business which:

- a. Principle address as registered with the FL Department of State located within 30 miles of the boundaries of the city, listed with the chief licensing official as having a business tax receipt with its principle address within 30 miles of the boundaries of the city for at least one year immediately prior to the issuance of the solicitation.
- b. Maintains a workforce of at least 50 percent of its employees from the city or within 30 miles of its boundaries.
- c. Having paid all current license taxes and any other fees due the city at least 24 hours prior to the publication of the call for bids or request for proposals.
 - Not a local vendor pursuant to Code of Ordinances Section 2-798
 - Qualifies as a local vendor pursuant to Code of Ordinances Section 2-798

If you qualify, please complete the following in support of the self-certification & submit copies of your County and City business licenses. Failure to provide the information requested will result in denial of certification as a local business.

Business Name

Phone:

Current Local Address:

Fax:

(P.O Box numbers may not be used to establish status)

Length of time at this address

Signature of Authorized Representative

Date

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 20__.

By _____, of _____
(Name of officer or agent, title of officer or agent) Name of corporation acknowledging)
or has produced _____ as identification
(type of identification)

Signature of Notary

Print, Type or Stamp Name of Notary

Return Completed form with
Supporting documents to:
City of Key West Purchasing

Title or Rank

BIDDER'S CHECKLIST

(Note: The purpose of this checklist is to serve as a reminder of major items to be addressed in submitting a bid and is not intended to be all inclusive. It does not alleviate the Bidder from the responsibility of becoming familiar with all aspects of the Contract Documents and Proper completion and submission of his bid.)

1. All Contract Documents thoroughly read and understood ☐
2. All blank spaces in Bid filled in black ink. ☐
3. Total and unit Prices added correctly. ☐
4. Addenda acknowledged. ☐
5. Subcontractors are named as indicated in the Bid. ☐
6. Experience record included. ☐
7. Bid signed by authorized officer. ☐
8. Bid Bond completed and executed, including power-of-attorney, dated the same date as Bid Bond. ☐
9. Bidder familiar with federal, state, and local laws, ordinances, rules and regulations affecting performance of the work. ☐
10. Bidder, if successful, able to obtain and/or demonstrate possession of required licenses and certificates within (10) ten days after receiving a Notice of Award. ☐
11. Bid submitted intact with the volume containing the Bidding Requirements, Contract Forms and Conditions of the Contract, one (1) original, two (2) USB drives. ☐
12. Bid Documents submitted in sealed envelope and addressed and labeled in conformance with the instructions in the Invitation to Bid. ☐
13. Anti-kickback Affidavit; Public Entity Crime Form; City of Key West Indemnification Equal Benefits for Domestic Partners Affidavit; Local Vendor Certification; Non-Collusion Affidavit; Proof of Required Insurance ☐

* * * * *

PART 2

CONTRACT FORMS

CONTRACT AGREEMENT

This Contract, made and entered into _____ day of _____, 20____, by and between the City of Key West, hereinafter called the "Owner", and _____, hereinafter called the "Contractor";

WITNESSETH:

The Contractor, in consideration of the sum to be paid him by the Owner and of the covenants and agreements herein contained, hereby agrees at his own proper cost and expense to do all the work and furnish all the materials, tools, labor, and all appliances, machinery, and appurtenances for **ITB #19-017 SEAWALL REPAIR – TURTLE KRAALS TO CONCH REPUBLIC – KEY WEST HISTORIC SEAPORT**

Key West, Florida to the extent of the Bid made by the Contractor, dated the _____ day of _____, 20____, all in full compliance with the Contract Documents referred to herein.

The PROCUREMENT REQUIREMENTS, including the signed copy of the BID FORM, the CONTRACT FORMS, the CONDITIONS OF THE CONTRACT, and the SPECIFICATIONS, TECHNICAL SPECIFICATIONS, DRAWINGS and/or SUPPLEMENTAL INFORMATION (if any), are hereby referred to and by reference made part of this Contract as fully and completely as if the same were fully set forth herein and are mutually cooperative therewith.

In consideration of the performance of the work as set forth in these Contract Documents, the Owner agrees to pay to the Contractor the amount bid in the Bid as adjusted in accordance with the Contract Documents, or as otherwise herein provided, and to make such payments in the manner and at the times provided in the Contract Documents.

The Contractor agrees to complete the work within one hundred-fifty **(150)** calendar days and to accept as full payment hereunder the amounts computed as determined by the Contract Documents and based on the said Bid.

The Contractor agrees to remedy all defects appearing in the work or developing in the materials furnished and the workmanship performed under this Contract during the warranty period after the date of final acceptance of the work by the Owner, and further agrees to indemnify and save the Owner harmless from any costs encountered in remedying such defects.

Liquidated Damages: The Contractor recognizes that time is of the essence and that the Owner will suffer financial loss if the Work is not completed within the dates specified in the paragraphs above, plus any extensions thereof allowed, in accordance with Article 58 of the General Conditions.

In the event the Contractor fails to complete the work within the time limit or extended time limit agreed upon, as more particularly set forth in the Contract Documents, liquidated damages shall be paid at a rate of **\$1,000.00** per day. Sundays and legal holidays shall be included in determining days in default.

This contract will automatically expire upon completion of the project. Contractors warranty obligations remain in affect.

IN WITNESS WHEREOF, we, the parties hereto, each herewith subscribe the same this

_____ day of _____, A.D., 20_____.

CITY OF KEY WEST

By_____

Printed_____

Title_____

CONTRACTOR

By_____

Printed_____

Title_____

APPROVED AS TO FORM

Attorney for Owner

* * * * *

FLORIDA PERFORMANCE BOND

BOND NO. _____

AMOUNT: \$ _____

KNOW ALL MEN BY THESE PRESENTS, that in accordance with Florida Statutes Section 255.05 _____

with offices at _____

hereinafter called the CONTRACTOR (Principal), and

with offices at _____

a corporation duly organized and existing under and by virtue of the laws of the State of Florida, hereinafter called the SURETY, and authorized to transact business within the State of Florida, as SURETY, are held and firmly bound unto the **CITY OF KEY WEST**, hereinafter called the CITY (Obligee), in the sum of:

_____ DOLLARS (\$ _____),
lawful money of the United States of America, for the payment of which, well and truly be made to the CITY, the CONTRACTOR and the SURETY bind themselves and each of their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents as follows:

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, the CONTRACTOR has executed and entered into a certain Contract hereto attached, with the CITY, dated _____, 20__, to furnish at his own cost, charges, and expense all the necessary materials, equipment, and/or labor in strict and express accordance with said Contract and the Contract Documents as defined therein, all of which is made a part of said Contract by certain terms and conditions in said Contract more particularly mentioned, which Contract, consisting of the various Contract Documents is made a part of this Bond as fully and completely as if said Contract Documents were set forth herein;

NOW THEREFORE, the conditions of this obligation are such that if the above bounden CONTRACTOR:

1. Shall in all respects comply with the terms and conditions of said Contract and his obligation there under, including the Contract Documents (which include the scope of work and conditions as prepared by the CITY, invitation to bid, instructions to bidders, the CONTRACTOR'S bid as accepted by the above CITY, the bid and contract performance and payment bonds (Not required as part of this contract), and all addenda, if any, issued prior to the opening of bids), being made a part of this bond by reference, at the times and in the manner prescribed in the contract; and

2. Promptly makes payments to all claimants, as defined in Section 255.05(1), Florida Statutes, supplying PRINCIPAL with labor, materials, or supplies, used directly or indirectly by PRINCIPAL in the prosecution of the work provided for in the contract; and

3. Pays CITY all losses, costs, expenses, damages, attorney's fees, including appellate proceedings, injury or loss of whatever kind and however arising including, without limitation, delay damages to which said CITY may be subject by reason of any wrongdoing, misconduct, want of care or skill, negligence, failure of performance, breach, failure to petition within the prescribed time, or default, including patent infringements, on the part of said CONTRACTOR, his agents or employees, in the execution or performance of said Contract; and

4. Performs the guarantee of all work and materials furnished under the contract for the time specified in the contract, then this obligation shall be void; otherwise, to remain in full force and effect for the term of said Contract.

AND, the said Surety for value received, hereby stipulates and agrees that no change involving any extension of time, or addition to the terms of the Contract Documents, or to the work to be performed, or materials to be furnished there under shall affect said obligation of said Surety on this Bond, and the said Surety does hereby waive notice of any such changes, extension of time, alterations, or additions of the terms of the Contract Documents, or to the work.

Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes.

IN WITNESS WHEREOF, the above parties bonded together have executed this instrument

this _____ day of _____, 20__, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR

By: _____

(SEAL)

ATTEST

SURETY

By: _____

(SEAL)

ATTEST

FLORIDA PAYMENT BOND

BOND NO. _____

AMOUNT: \$ _____

KNOW ALL MEN BY THESE PRESENTS, that in accordance with Florida Statutes Section 255.05, _____

with offices at _____
hereinafter called the CONTRACTOR, (Principal), and

with offices at _____

a corporation duly organized and existing under and by virtue of the laws of the State of _____

_____, hereinafter called the SURETY, and authorized to transact business within the State of Florida, as SURETY, are held and firmly bound unto CITY OF KEY WEST, hereinafter called the City (Obligee), in the sum of:

_____ DOLLARS(_____),
lawful money of the United States of America, for the payment of which, well and truly be made to the CITY, and the CONTRACTOR and the SURETY bind themselves and each of their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents as follows:

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, the CONTRACTOR has executed and entered into a certain Contract for

ITB #19-017 SEAWALL REPAIR TURTLE KRAALS TO CONCH REPUBLIC – KEY WEST HISTORIC SEAPORT attached hereto, with

the CITY, dated _____

_____, 20__, to furnish at his own cost, charges, and expense the necessary materials, equipment, and/or labor in strict and express accordance with said Contract and the plans, drawings (if any), and specifications prepared by the CITY, all of which is made a part of said Contract by certain terms and conditions in said Contract more particularly mentioned, which Contract, consisting of the various Contract Documents specifically mentioned herein and relative hereto, is made a part of this Bond as fully and completely as if said Contract Documents were set forth herein.

NOW THEREFORE, the conditions of this obligation are such that if the above bounden CONTRACTOR shall in all respects comply with the terms and conditions of said Contract and his obligation thereunder, including the Contract Documents, which include Scope of work and conditions prepared by the CITY, invitation to bid, instructions to bidders, the

CONTRACTOR'S bid as accepted by the CITY, the bid and contract and payment bonds (Not required as part of this contract), and all addenda, if any, issued prior to the opening of bids), and further that if said CONTRACTOR shall promptly make payments to all persons supplying materials, equipment, and/or labor, used directly or indirectly by said CONTRACTOR or subcontractors in the prosecution of the work for said contract in accordance with Florida Statutes, Section 255.05 or Section 713.23, then this obligation shall be void; otherwise to remain in full force and effect for the term of said contract, including and all guarantee periods as specifically mentioned in said Contract Documents.

AND, the said SURETY for value received, hereby stipulates and agrees that no change involving any extension of time, or addition to the terms of the Contract or to the work to be performed, or materials to be furnished thereunder, or in the Contract Documents and specifications accompanying the said contract shall affect said obligation of said SURETY on this Bond, and the said SURETY does hereby waive notice of any such changes, extension of time, alternations, or additions of the terms of the Contract, or to the work, to the Contract Documents, or to the specifications.

Claimant shall give written notice to the CONTRACTOR and the SURETY as required by Section 255.05 or Section 713.23, Florida Statutes. Any action instituted against the CONTRACTOR or SURETY under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2) or Section 713.23, Florida Statutes.

IN WITNESS WHEREOF, the above parties bounded together have executed this instrument

this _____ day of _____, 20__, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR

By: _____

(SEAL)

ATTEST

SURETY

By: _____

(SEAL)

ATTEST

LICENSE REQUIREMENT AND COST

License required for this Project. Contractor must be general contractor or building contractor.

Cost Not To Exceed \$410.00.

CITY OF KEY WEST BUSINESS LICENSE TAX RECEIPT

A City of Key West Business License Tax Receipt is required for this project. Contractor must be general contractor, building contractor or engineering contractor. Cost not to exceed \$410.00.

City of Key West Business License Tax Receipt may be found on the city website.

<http://www.keywestcity.com/egov/docs/1162843921181.htm>

PART 3

CONDITIONS OF CONTRACT

GENERAL CONDITIONS

Article

DEFINITIONS

1. AS APPROVED
2. AS SHOWN, AND AS INDICATED
3. BIDDER
4. CONTRACT DOCUMENTS
5. CONTRACTOR
6. CONTRACT COMPLETION
7. DAYS
8. DRAWINGS
9. ENGINEER
10. NOTICE
11. OR EQUAL
12. OWNER
13. PLANS
14. SPECIFICATIONS
15. NOTICE TO PROCEED
16. SUBSTANTIAL COMPLETION
17. WORK

CONTRACT DOCUMENTS

18. INTENT OF CONTRACT DOCUMENTS
19. DISCREPANCIES AND OMISSIONS
20. CHANGES IN THE WORK
21. EXAMINATION AND VERIFICATION OF CONTRACT DOCUMENTS
22. DOCUMENTS TO BE KEPT ON THE JOBSITE
23. ADDITIONAL CONTRACT DOCUMENTS
24. OWNERSHIP OF CONTRACT DOCUMENTS

THE ENGINEER

25. AUTHORITY OF THE ENGINEER
26. DUTIES AND RESPONSIBILITIES OF THE ENGINEER
27. LIMITATIONS ON ENGINEER'S RESPONSIBILITIES
28. REJECTED WORK
29. LINES AND GRADES
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DEFINITIONS

Whenever in the Contract Documents the following terms are used, the intent and meaning shall be interpreted as follows:

1. AS APPROVED

The words “as approved”, unless otherwise qualified, shall be understood to be followed by the words “by the ENGINEER for conformance with the Contract Document”.

2. AS SHOWN, AND AS INDICATED

The words “as shown” and “as Indicated” shall be understood to be followed by the words “on the Drawings”.

3. BIDDER

The person or persons, partnership, firm, or corporation submitting a Bid for the work contemplated.

4. CONTRACT DOCUMENTS

The “Contract Documents” consist of the Bidding Requirements, Contract Forms, Conditions of the Contract, Specifications, Drawings, all modifications thereof incorporated into the Documents before their execution, Change Orders, and all other requirements incorporated by specific reference thereto. These form the Contract.

5. CONTRACTOR

The person or persons, partnership, firm, or corporation who enters into the Contract awarded him by the OWNER.

6. CONTRACT COMPLETION

The “Contract Completion” is the date the OWNER accepts the entire work as being in compliance with the Contract Documents, or formally waives nonconforming work to extent of nonconformity, and issues the final payment in accordance with the requirements set forth in Article, “Final Payment” of these General Conditions.

7. DAYS

Unless otherwise specifically stated, the term “days” will be understood to mean calendar days. Business day or working day means any day other than Saturday, Sunday, or legal holiday.

8. DRAWINGS

The term “Drawings” refers to the official Drawings, profiles, cross sections, elevations, details, and other working drawings and supplementary drawings, or reproductions thereof, signed by the ENGINEER, which shows the location, character, dimensions, and details of the work to be performed. Drawings may either be bound in the same book as the balance of the Contract Documents, or bound in separate sets, and are a part of the Contract Documents, regardless of the method of binding.

9. ENGINEER

The person or organization identified as such in the Contract Documents. The Term “ENGINEER” means ENGINEER or his authorized representative.

10. NOTICE

The term “notice” or the requirement to notify, as used in the Contract Documents or applicable state or federal statutes, shall signify a written communication delivered in person or by registered mail to the individual, or to a member of the firm, or to an officer of the corporation for whom it is intended. Certified or registered mail shall be addressed to the last business address known to him who gives the notice.

11. OR EQUAL

The term “or equal” shall be understood to indicate that the “equal” product is equivalent to or better than the product named in function, performance, reliability, quality, and general configuration. Determination of equality in reference to the project design requirements will be made by the ENGINEER. Such equal products shall not be purchased or installed by the CONTRACTOR without written authorization.

12. OWNER

The person, organization, or public body identified as such in the Contract Documents.

13. PLANS (See Drawings)

14. SPECIFICATIONS

The term “Specifications” refers to those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards, and workmanship as applied to the

work and certain

administrative details applicable thereto. Where standard specifications, such as those of ASTM, AASHTO, etc., have been referred to, the applicable portions of such standard specifications shall become a part of these Contract Documents. If referenced specifications conflict with specifications contained herein, the requirements contained herein shall prevail.

15. NOTICE TO PROCEED

A written notices given by the OWNER to the CONTRACTOR (with a copy to the ENGINEER) fixing the date on which the Contract time will commence to run and on which the CONTRACTOR shall start to perform his obligation under the Contract Documents. The Notice to Proceed will be given within 30 days following the execution of the Contract by the OWNER.

16. SUBSTANTIAL COMPLETION

“Substantial Completion” shall be that degree of completion of the Project or a defined portion of the Project, as evidenced by the ENGINEER’s written notice of Substantial Completion, sufficient to provide the OWNER, at his discretion, the full-time use of the Project or defined portion of the Project for the purposes for which it was intended. “Substantial Completion” of an operating facility shall be that degree of completion that has provided a minimum of 7 continuous days of successful, trouble-free, operation, which period shall begin after all performance and acceptance testing has been successfully demonstrated to the ENGINEER. All equipment contained in the work, plus all other components necessary to enable the OWNER to operate the facility in a manner that was intended, shall be complete on the substantial completion date.

17. WORK

The word “work” within these Contract Documents shall include all material, labor, tools, and all appliances, machinery, transportation, and appurtenances necessary to perform and complete the Contract, and such additional items not specifically indicated or described which can be reasonably inferred as belonging to the item described or indicated and as required by good practice to provide a complete and satisfactory system or structure. As used herein, “provide” shall be understood to mean “furnish and install, complete in-place”.

CONTRACT DOCUMENTS

18. INTENT OF CONTRACT DOCUMENTS

The Contract Documents are complementary, and what is called for by one shall be as binding as if called for by all. The intent of the Documents is to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any work, materials, or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result shall be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe work, materials, or equipment, such words shall be interpreted in accordance with that meaning.

Reference to standard specifications, manuals, or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or laws or regulations in effect on the first published date of the Invitation to Bid, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of OWNER, CONTRACTOR, or ENGINEER, or any of their consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to ENGINEER, or any ENGINEER’s consultants, agents, or employees, any duty or authority to supervise or direct the furnishing or performance of the work or any duty or authority to undertake responsibility contrary to the provisions of Article LIMITATIONS ON ENGINEER’S RESPONSIBILITIES.

19. DISCREPANCIES AND OMISSIONS

Any discrepancies or omissions found in the Contract Documents shall be reported to the ENGINEER immediately. The ENGINEER will clarify discrepancies or omissions, in writing, within a reasonable time.

In resolving inconsistencies among two or more sections of the Contract Documents, precedence shall be given in the following order:

- A. CONTRACT
- B. BID
- C. SUPPLEMENTARY CONDITIONS
- D. INVITATION TO BID
- E. INSTRUCTIONS TO BIDDERS
- F. GENERAL CONDITIONS
- G. SPECIFICATIONS
- H. DRAWINGS

Addenda shall take precedence over all sections referenced therein. Figure dimensions on Drawings shall take precedence over scale dimensions. Detailed Drawings shall take precedence over general Drawings.

20. CHANGES IN THE WORK

The OWNER, without notice to the Sureties and without invalidating the Contract, may order changes in the work within the general scope of the Contract by altering, adding to, or deducting from the work, the Contract being adjusted accordingly. All such work shall be executed under the conditions of the original Contract, except as specifically adjusted at the time of ordering such change.

In giving instructions, the ENGINEER may order minor changes in the work not involving extra cost and not inconsistent with the purposes of the Project, but otherwise, except in an emergency endangering life and property, additions or deductions from the work shall be performed only in pursuance of an approved Change Order from the OWNER, countersigned by the ENGINEER.

If the work is reduced by alterations, such action shall not constitute a claim for damages based on loss of anticipated profits.

21. EXAMINATION AND VERIFICATION OF CONTRACT DOCUMENTS

The CONTRACTOR shall thoroughly examine and become familiar with all of the various parts of these Contract Documents and determine the nature and location of the work, the general and local conditions, and all other matters, which can in any way affect the work under this Contract. Failure to make an examination necessary for this determination shall not release the CONTRACTOR from the obligations of this Contract. No verbal agreement or conversation with any officer, agent, or employee of the OWNER or with the ENGINEER either before or after the execution of this Contract shall affect or modify any of the terms or obligations herein contained.

22. DOCUMENTS TO BE KEPT ON THE JOBSITE

The CONTRACTOR shall keep one copy of the Contract Documents on the job- site, in good order, available to the ENGINEER and to his representatives.

The CONTRACTOR shall maintain on a daily basis at the

jobsite, and make available to the ENGINEER on request, one current record set of the Drawings which have been accurately marked to indicate all modifications in the completed work that differ from the design information shown on the Drawings. Upon Substantial completion of the work, the CONTRACTOR shall give the ENGINEER one complete set of these marked up record Drawings.

23. ADDITIONAL CONTRACT DOCUMENTS

Copies of Contract Documents or Drawings may be obtained on request from the ENGINEER and by paying the actual cost of reproducing the Contract Documents or Drawings.

24. OWNERSHIP OF CONTRACT DOCUMENTS

All portions of the Contract Documents, and copies thereof furnished by the ENGINEER are instruments of service for this Project. They are not to be used on other work and are to be returned to the ENGINEER on request at the completion of the work. Any reuse of these materials without specific written verification or adaptation by the ENGINEER will be at the risk of the user and without liability or legal expense to the ENGINEER. Such user shall hold the ENGINEER harmless from any and all damages, including reasonable attorneys' fees, from any and all claims arising from any such reuse. Any such verification and adaptation shall entitle the ENGINEER to further compensation at rates to be agreed upon by the user and the ENGINEER.

THE ENGINEER

25. AUTHORITY OF THE ENGINEER

The ENGINEER will be the OWNER's representative during the construction period. His authority and responsibility will be limited to the provisions set forth in these Contract Documents. The ENGINEER will have the Authority to reject work that does not conform to the Contract Documents. However, neither the ENGINEER's authority to act under this provision, nor any decision made by him in good faith either to exercise or not to exercise such authority, shall give rise to any duty or responsibility of the ENGINEER to the CONTRACTOR, any SUBCONTRACTOR, their respective Sureties, any of their agents or employees, or any other person performing any of the work.

26. DUTIES AND RESPONSIBILITIES OF THE ENGINEER

The ENGINEER will make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the work and to determine, in general, if the work is proceeding in accordance with the intent of the Contract Documents. He will not make comprehensive or continuous review or observation to check quality or quantity of the work, and he will not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the work. Visits and observations made by the ENGINEER shall not relieve the CONTRACTOR of his obligation to conduct comprehensive inspections of the work and to furnish materials and perform acceptable work, and to provide adequate safety precautions, in conformance with the intent of the Contract.

The ENGINEER will make recommendations to the OWNER, in writing, on all claims of the OWNER or the CONTRACTOR arising from interpretation or execution of the Contract Documents. Such recommendations will be of factual and/or technical nature, and will not include the legal interpretation of the Contract Documents. Any necessary legal interpretation of the Contract Document will be made by the OWNER. Such recommendation shall be necessary before the CONTRACTOR can receive additional money under the terms of the Contract. Changes in work ordered by the ENGINEER shall be made in compliance with Article CHANGES IN THE WORK.

One or more project representatives may be assigned to observe the work. It is understood that such project representatives shall have the authority to issue notice of nonconformance and make decisions within the limitations of the authority of the ENGINEER. The CONTRACTOR shall furnish all reasonable assistance required by the ENGINEER or project representatives for proper observation of the work. The above-mentioned project representatives shall not relieve the CONTRACTOR of his obligations to conduct comprehensive inspections of the work and to furnish materials and perform acceptable work, and to provide adequate safety precautions, in conformance with the intent of the Contract.

27. LIMITATIONS ON ENGINEER'S RESPONSIBILITIES

ENGINEER will not be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, and ENGINEER will not be responsible for

CONTRACTOR's failure to perform or furnish the work in accordance with the Contract Documents.

ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any SUBCONTRACTOR, any supplier, or of any other person or organization performing or furnishing any of the work.

Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved", or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper", or "satisfactory", or adjectives of like effect or import are used to describe a requirement, direction, review or judgment of ENGINEER as to the work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the furnishing or performance of the work or any duty or authority to undertake responsibility contrary to the provisions of this Article.

28. REJECTED WORK

Any defective work or nonconforming materials or equipment that may be discovered at any time prior to expiration of the warranty period shall be removed and replaced by work which shall conform to the provisions of the Contract Documents. Any material condemned or rejected shall be removed at once from the project site.

Failure on the part of the ENGINEER to condemn or reject bad or inferior work or to note nonconforming materials or equipment on CONTRACTOR submittals shall not be construed to imply acceptance of such work. The OWNER shall reserve and retain all of its rights and remedies at law against the CONTRACTOR and its Surety for correction of any and all latent defects discovered after the guarantee period.

29. LINES AND GRADES

Lines and grades shall be established as provided in the supplementary conditions. All stakes, marks, and other reference information shall be carefully preserved by the CONTRACTOR, and in case of their careless or unnecessary destruction or removal by him or his employees, such stakes, marks, and other information shall be replaced at the CONTRACTOR's expense.

30. SUBMITTALS

After checking and verifying all field measurements and after complying with applicable procedures specified in Division I, GENERAL REQUIREMENTS, CONTRACTOR shall submit to ENGINEER, in accordance with the schedule for submittals for review, shop drawings, electrical diagrams, and catalog cuts for fabricated items and manufactured items (including mechanical and electrical equipment), which shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's responsibilities under the Contract Documents with respect to the review of the submittal. All submittals shall be identified as ENGINEER may require. The data shown shall be complete with respect to quantities, dimensions specified, performance and design criteria, materials, and similar data to enable ENGINEER to review the information. CONTRACTOR shall also submit to ENGINEER for review, with such promptness as to cause no delay in work, all samples required by the Contract Documents. All samples shall have been checked by and accompanied by a specific written indication that CONTRACTOR has satisfied CONTRACTOR's responsibilities under the Contract Documents with respect to the review of the submission and shall be identified clearly as to material, supplier, pertinent data such as catalog numbers and the use for which intended.

Before submission of each submittal, CONTRACTOR shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar data with respect thereto and reviewed or coordinated each submittal with other submittals and with the requirements of the work and the Contract Documents.

At the time of each submission, CONTRACTOR shall give ENGINEER specific written notice of each variation that the submittal may have from the requirements of the Contract Documents, and, in addition, shall cause a specific notation to be made on each shop drawing submitted to ENGINEER for review and approval of each variation.

ENGINEER will review submittals with reasonable promptness, but ENGINEER's review will be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, techniques, sequences, or procedures of construction (except where a specific means, method, technique, sequence, or procedure of construction is indicated in or required by the Contract Documents) or to safety

precautions or programs incident thereto. The review of a separate item as such will not indicate review of the assembly in which the item functions. CONTRACTOR shall make corrections required by ENGINEER, and shall return the required number of corrected copies of shop drawings and submit as required new samples for review. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

ENGINEER's review of submittals shall not relieve CONTRACTOR from the responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of submission and ENGINEER has given written approval of each such variation by a specific written notation thereof incorporated therein or accompanying the shop drawing or sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for errors or omissions in the shop drawings or from responsibility for having complied with the provisions herein.

Where a shop drawing or sample is required by the specifications, any related work performed prior to ENGINEER's review and approval of the pertinent submission shall be at the sole expense and responsibility of the CONTRACTOR.

31. DETAIL DRAWINGS AND INSTRUCTIONS

The ENGINEER will furnish, with reasonable promptness, additional instructions by means of Drawings or otherwise, if, in the ENGINEER's opinion, such are required for the proper execution of the work. All such Drawings and instructions will be consistent with the Contract Documents, true developments thereof, and reasonably inferable there from.

THE CONTRACTOR AND HIS EMPLOYEES

32. CONTRACTOR, AN INDEPENDENT AGENT

The CONTRACTOR shall independently perform all work under this Contract and shall not be considered as an agent of the OWNER or of the ENGINEER, nor shall the CONTRACTOR's SUBCONTRACTOR's or employees be subagents of the OWNER or of the ENGINEER.

33. SUBCONTRACTING

Unless modified in the Supplementary Conditions, within 10 days after the execution of the Contract, the

CONTRACTOR shall submit to the ENGINEER the names of all SUBCONTRACTORS proposed for the work, including the names of any SUBCONTRACTORS that were submitted with the Bid. The CONTRACTOR shall not employ any SUBCONTRACTORS to which the OWNER may object to as lacking capability to properly perform work of the type and scope anticipated.

The CONTRACTOR is as fully responsible to the OWNER for the acts and omissions of his SUBCONTRACTORS and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him.

Nothing contained in the Contract Documents shall create any contractual relationship between any SUBCONTRACTOR and the OWNER or ENGINEER.

34. INSURANCE AND LIABILITY

A. GENERAL

The CONTRACTOR shall provide (from insurance companies acceptable to the OWNER) the insurance coverage designated hereinafter and pay all costs.

Before commencing work under this Contract, the CONTRACTOR shall furnish the OWNER with certificates of insurance specified herein showing the type, amount class of operations covered, effective dates, and date of expiration of policies, and containing substantially the following statement:

"The insurance covered by this certificate shall not be canceled or materially altered, except after 30 days' written notice has been received by the OWNER."

In case of the breach of any provision of this Article, the OWNER, at his option, may take out and maintain, at the expense of the CONTRACTOR, such insurance as the OWNER may deem proper and may deduct the cost of such insurance from any monies which may be due or become due the CONTRACTOR under this Contract.

B. CONTRACTOR AND SUBCONTRACTOR INSURANCE

The CONTRACTOR shall not commence work under this Contract until he has obtained all the insurance required hereunder and such insurance has been reviewed by the OWNER, nor shall the CONTRACTOR allow any SUBCONTRACTOR to commence work on his subcontract until insurance specified below has been

obtained. Review of the insurance by the OWNER shall not relieve or decrease the liability of the CONTRACTOR hereunder.

C. COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE

The CONTRACTOR shall maintain during the life of this Contract the statutory amount of Workmen's Compensation Insurance, in addition, Employer's Liability Insurance in an amount as specified in the Supplementary Conditions, for each occurrence, for all of his employees to be engaged in work on the project under this Contract. In case any such work is subcontracted, the Contractor shall require the Subcontractor to provide similar Worker's Compensation and Employer's Liability Insurance for all of the Subcontractor's employees to be engaged in such work.

D. GENERAL LIABILITY INSURANCE (INCLUDING AUTOMOBILE)

The CONTRACTOR shall maintain during the life of this Contract such general liability, completed operations and products liability, and automobile liability insurance as will provide coverage for claims for damages for personal injury, including accidental death, as well as for claims for property damage, which may arise directly or indirectly from performance of the work under this Contract. The general liability policy shall include contractual liability assumed by the CONTRACTOR under Article **INDEMNITY**. Coverage for property damage shall be on a "broad form" basis with no exclusions for "X, C & U". The amount of insurance to be provided shall be as specified in the Supplementary Conditions.

In the event any work under this Contract is performed by a SUBCONTRACTOR, the CONTRACTOR shall be responsible for any liability directly or indirectly arising out of the work performed by the SUBCONTRACTOR, to the extent such liability is not covered by the SUBCONTRACTOR's insurance.

The OWNER and ENGINEER, their officers, agents, and employees shall be named as Additional Insured's on the CONTRACTOR's and any SUBCONTRACTOR's general liability and automobile liability insurance policies for any claims arising out of work performed under this Contract.

E. BUILDERS RISK ALL RISK INSURANCE

Unless otherwise modified in the Supplementary Conditions, the CONTRACTOR shall secure and

maintain during the life of this Contract, Builders Risk All Risk Insurance coverage in an amount equal to the full value of the facilities/ work performed under this Contract/ construction. Such insurance shall include coverage for earthquake, landslide, flood, collapse, loss due to the results of faulty workmanship or design, and all other normally covered risks, and shall provide for losses to be paid to the CONTRACTOR, OWNER, and ENGINEER as their interests may appear.

The OWNER and ENGINEER, their officers, agents, and employees shall be named as additional insured's on the CONTRACTOR's and any SUBCONTRACTOR's Builders Risk All Risk insurance policies for any claims arising out of work performed under this Contract.

This insurance shall include a waiver of subrogation as to the ENGINEER, the OWNER, the CONTRACTOR, and their respective officers, agents, employees and SUBCONTRACTORS.

F. NO PERSONAL LIABILITY OF PUBLIC OFFICIALS

In carrying out any of the provisions hereof in exercising any authority granted by the Contract, there will be no personal liability upon any public official.

35. INDEMNITY

To the maximum extent permitted by law, the Contractor shall indemnify and defend the Owner and the Engineer, and their officers, employees, agents, and sub-consultants, from all claims and losses, including attorney's fees and litigation costs arising out of property losses or health, safety, personal injury, or death claims by the Contractor, its subcontractors of any tier, and their employees, agents, or invitees regardless of the fault, breach of Contract, or negligence of the Owner or Engineer, excepting only such claims or losses that have been adjudicated to have been caused solely by the negligence of the Owner or the Engineer and regardless of whether or not the Contractor is or can be named a party in a litigation.

36. EXCLUSION OF CONTRACTOR CLAIMS

In performing its obligations, the ENGINEER and its consultants may cause expense for the CONTRACTOR or its SUBCONTRACTORS and equipment or material suppliers. However, those parties and their sureties shall maintain no direct action against the ENGINEER, its officers, employees, agents, and consultants for any claim arising out of, in connection with, or resulting from the

engineering services performed or required to be performed.

37. TAXES AND CHARGES

The CONTRACTOR shall withhold and pay any and all sales and use taxes and all withholding taxes, whether State or Federal, and pay all Social Security charges and also all State Unemployment Compensation charges, and pay or cause to be withheld, as the case may be, any and all taxes, charges, or fees or sums whatsoever, which are now or may hereafter be required to be paid or withheld under any laws.

38. REQUIREMENTS OF STATE LAW FOR PUBLIC WORKS PROJECTS

When the Contract Documents concern public works of the state or any county, municipality, or political subdivision created by its laws, the applicable statutes shall apply. All parties to this Contract shall determine the contents of all applicable statutes and comply with their provisions throughout the performance of the Contract.

39. CODES, ORDINANCES, PERMITS AND LICENSES

The CONTRACTOR shall keep himself fully informed of all local codes and ordinances, as well as state and federal laws, which in any manner affect the work herein specified. The CONTRACTOR shall at all times comply with said codes and ordinances, laws, and regulations, and protect and indemnify the OWNER, the ENGINEER and their respective employees, and its officers and agents against any claim or liability arising from or based on the violation of any such laws, ordinances, or regulations. All permits, licenses and inspection fees necessary for prosecution and completion of the work shall be secured and paid for by the CONTRACTOR, unless otherwise specified.

40. SUPERINTENDENCE

The CONTRACTOR shall keep at the project site, competent supervisory personnel. The CONTRACTOR shall designate, in writing, before starting work, a project superintendent who shall be an employee of the CONTRACTOR and shall have complete authority to represent and to act for the CONTRACTOR. ENGINEER shall be notified in writing prior to any change in superintendent assignment. The CONTRACTOR shall give efficient supervision to the work, using his best skill and attention. The CONTRACTOR shall be solely responsible for all construction means, methods,

techniques, and procedures, and for providing adequate safety precautions and coordinating all portions of the work under the Contract. It is specifically understood and agreed that the ENGINEER, its employees and agents, shall not have control or charge of and shall not be responsible for the construction means, methods, techniques, procedures, or for providing adequate safety precautions in connection with the work under Contract.

41. RECEPTION OF ENGINEER'S COMMUNICATIONS

The superintendent shall receive for the CONTRACTOR all communications from the ENGINEER. Communications of major importance will be confirmed in writing upon request from the CONTRACTOR.

The ENGINEER may schedule project meetings for the purposes of discussing and resolving matters concerning the various elements of the work. Time and place for these meetings and the names of persons required to be present shall be as determined by the ENGINEER. CONTRACTOR shall comply with these attendance requirements and shall also require his SUBCONTRACTORS to comply.

42. SAFETY

The CONTRACTOR shall be solely and completely responsible for conditions of the jobsite, including safety of all persons (including employees) and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours. Safety provisions shall conform to U.S. Department of Labor (OSHA), and all other applicable federal, state, county, and local laws, ordinances, codes, and regulations. Where any of these are in conflict, the more stringent requirement shall be followed. The CONTRACTOR's failure to thoroughly familiarize himself with the aforementioned safety provisions shall not relieve him from compliance with the obligations and penalties set forth therein.

The CONTRACTOR shall develop and maintain for the duration of this Contract, a safety program that will effectively incorporate and implement all required safety provisions. The CONTRACTOR shall appoint an employee who is qualified and authorized to supervise and enforce compliance with the safety program.

The duty of the ENGINEER to conduct construction review of the work does not include review or approval of the adequacy of the CONTRACTOR's safety program, safety supervisor, or any safety measures taken in, on, or

near the construction site.

The CONTRACTOR, as a part of his safety program, shall maintain at his office or other well-known place at the jobsite, safety equipment applicable to the work as prescribed by the aforementioned authorities, all articles necessary for giving first-aid to the injured, and shall establish the procedure for the immediate removal to a hospital or a doctor's care of persons (including employees) who may be injured on the jobsite.

If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the ENGINEER and the OWNER. In addition, the CONTRACTOR must promptly report in writing to the ENGINEER all accidents whatsoever arising out of, or in connection with, the performance of the work whether on, or adjacent to, the site, giving full details and statements of witnesses.

If a claim is made by anyone against the CONTRACTOR or any SUBCONTRACTOR on account of any accident, the CONTRACTOR shall promptly report the facts in writing to the ENGINEER, giving full details of the claim.

43. PROTECTION OF WORK AND PROPERTY

The CONTRACTOR shall at all times safely guard and protect from damage the OWNER's property, adjacent property, and his own work from injury or loss in connection with this Contract. All facilities required for protection by federal, state, or municipal laws and regulations and local conditions must be provided and maintained.

The CONTRACTOR shall protect his work and materials from damage due to the nature of the work, the elements, carelessness of other CONTRACTORS, or from any cause whatever until the completion and acceptance of the work. All loss or damages arising out of the nature of the work to be done under these Contract Documents, or from any unforeseen obstruction or defects which may be encountered in the prosecution of the work, or from the action of the elements, shall be sustained by the CONTRACTOR.

44. RESPONSIBILITY OF CONTRACTOR TO ACT IN AN EMERGENCY

In case of an emergency which threatens loss or injury of property, and/or safety of life, the CONTRACTOR shall act, without previous instructions from the OWNER or ENGINEER, as the situation may warrant. The

CONTRACTOR shall notify the ENGINEER thereof immediately thereafter. Any claim for compensation by the CONTRACTOR, together with substantiating documents in regard to expense, shall be submitted to the OWNER through the ENGINEER and the amount of compensation shall be determined by agreement.

45. MATERIALS AND APPLIANCES

Unless otherwise stipulated, the CONTRACTOR shall provide and pay for all materials, labor, water, tools, equipment, heat, light, fuel, power, transportation, construction equipment and machinery, appliances, telephone, sanitary facilities, temporary facilities and other facilities and incidentals necessary for the execution and completion of the work.

Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of good quality. The CONTRACTOR shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

In selecting and/or approving equipment for installation in the Project, the OWNER and ENGINEER assume no responsibility for injury or claims resulting from failure of the equipment to comply with applicable federal, state, and local safety codes or requirements, or the safety requirements of a recognized agency, or failure due to faulty design concepts, or defective workmanship and materials.

46. CONTRACTORS' AND MANUFACTURERS' COMPLIANCE WITH STATE SAFETY, OSHA, AND OTHER CODE REQUIREMENTS

The completed work shall include all necessary permanent safety devices, such as machinery guards and similar ordinary safety items required by the state and federal (OSHA) industrial authorities and applicable local and national codes. Further, any features of the work subject to such safety regulations shall be fabricated, furnished, and installed (including OWNER-furnished equipment) in compliance with these requirements. CONTRACTORS and manufacturers of equipment shall be held responsible for compliance with the requirements included herein. CONTRACTORS shall notify all equipment suppliers and SUBCONTRACTORS of the provisions of this Article.

47. SUBSTITUTION OF MATERIALS

Except for OWNER-selected equipment items, and items where no substitution is clearly specified, whenever any

material, article, device, product, fixture, form, type of construction, or process is indicated or specified by patent or proprietary name, by name of manufacturer, or by catalog number, such specifications shall be deemed to be used for the purpose of establishing a standard of quality and facilitating the description of the material or process desired. This procedure is not to be construed as eliminating from competition other products of equal or better quality by other manufacturers where fully suitable in design, and shall be deemed to be followed by the words "or equal". The CONTRACTOR may, in such cases, submit complete data to the ENGINEER for consideration of another material, type, or process that shall be substantially equal in every respect to that so indicated or specified. Substitute materials shall not be used unless approved in writing. The ENGINEER will be the sole judge of the substituted article or material.

48. TESTS, SAMPLES, AND OBSERVATIONS

The CONTRACTOR shall furnish, without extra charge, the necessary test pieces and samples, including facilities and labor for obtaining the same, as requested by the ENGINEER. When required, the CONTRACTOR shall furnish certificates of tests of materials and equipment made at the point of manufacture by a recognized testing laboratory.

The OWNER, ENGINEER, and authorized government agents, and their representatives shall at all times be provided safe access to the work wherever it is in preparation or progress, and the CONTRACTOR shall provide facilities for such access and for observations, including maintenance of temporary and permanent access.

If the Specifications, laws, ordinances, or any public authority require any work, to be specially tested or approved, the CONTRACTOR shall give timely notice of its readiness for observations. If any work should be covered up without approval or consent of the ENGINEER, it shall, if required by the ENGINEER, be uncovered for examination at the CONTRACTOR's expense.

Reexamination of questioned work may be ordered by the ENGINEER, and, if so ordered, the work shall be uncovered by the CONTRACTOR. If such work is found to be in accordance with the Contract Documents, the OWNER will pay the cost of uncovering, exposure, observation, inspection, testing and reconstruction. If such work is found to be not in accordance with the Contract Documents, the CONTRACTOR shall correct

the defective work, and the cost of reexamination and correction of the defective work shall be paid by the CONTRACTOR.

49. ROYALTIES AND PATENTS

The CONTRACTOR shall pay all royalty and licenses fees, unless otherwise specified. The CONTRACTOR shall defend all suits or claims for infringement of any patent rights and shall save the OWNER and the ENGINEER harmless from any and all loss, including reasonable attorneys' fees, on account thereof.

50. CONTRACTOR'S RIGHT TO TERMINATE CONTRACT

If the work should be stopped under an order of any court or other public authority for a period of more than 3 months, through no act or fault of the CONTRACTOR, its SUBCONTRACTORS, or respective employees or if the ENGINEER should fail to make recommendation for payment to the OWNER or return payment request to CONTRACTOR for revision within 30 days after it is due, or if the OWNER should fail to pay the CONTRACTOR within 30 days after time specified in Article PARTIAL PAYMENTS, any sum recommended by the ENGINEER, then the CONTRACTOR may, upon 15 days' written notice to the OWNER and the ENGINEER, stop work or terminate this Contract and recover from the OWNER payment for all acceptable work performed and reasonable termination expenses, unless said default has been remedied.

51. CORRECTION OF DEFECTIVE WORK DURING WARRANTY PERIOD

The CONTRACTOR hereby agrees to make, at his own expense, all repairs or replacements necessitated by defects in materials or workmanship, provided under terms of this Contract, and pay for any damage to other works resulting from such defects, which become evident within 2 years after the date of final acceptance of the work or within 2 years after the date of substantial completion established by the ENGINEER for specified items of equipment, or within such longer period as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents. Un-remedied defects identified for correction during the warranty period but remaining after its expiration shall be considered as part of the obligations of the warranty. Defects in material, workmanship, or equipment which are remedied as a result of obligations of the warranty shall subject the remedied portion of the work to an extended warranty period of 2 years after the defect has been remedied.

The CONTRACTOR further assumes responsibility for a similar guarantee for all work and materials provided by SUBCONTRACTORS or manufacturers of packaged equipment components. The effective date for the start of the guarantee or warranty period for equipment qualifying as substantially complete is defined in Article SUBSTANTIAL COMPLETION, AND Article SUBSTANTIAL COMPLETION DATE, in these General Conditions.

The CONTRACTOR also agrees to hold the OWNER and the ENGINEER harmless from liability of any kind arising from damage due to said defects. The CONTRACTOR shall make all repairs and replacements promptly upon receipt of written order for same from the OWNER. If the CONTRACTOR fails to make the repairs and replacements promptly, or in an emergency where delay would cause serious risk, or loss, or damage, the OWNER may have the defective work corrected or the rejected work removed and replaced, and the CONTRACTOR and his Surety shall be liable for the cost thereof.

PROGRESS OF THE WORK

52. BEGINNING OF THE WORK

Following execution of the Contract, the CONTRACTOR shall meet with the OWNER and ENGINEER relative to his arrangements for prosecuting the work.

53. SCHEDULES AND PROGRESS REPORTS

Prior to starting the construction, the CONTRACTOR shall prepare and submit to the ENGINEER, a progress schedule showing the dates on which each part or division of the work is expected to be started and finished, and a preliminary schedule for submittals. The progress schedule for submittals shall be brought up to date and submitted to the ENGINEER at the end of each month or at such other times the ENGINEER may request.

The CONTRACTOR shall forward to the ENGINEER, at the end of each month, an itemized report of the delivery status of major and critical items of purchased equipment and material, including shop drawings and the status of shop and field fabricated work. These progress reports shall indicate the date of the purchase order, the current percentage of completion, estimated delivery, and cause of delay, if any.

If the completion of any part of the work or the delivery of materials is behind the submitted progress schedule, the CONTRACTOR shall submit in writing a plan acceptable to the OWNER and ENGINEER for bringing the work up to schedule.

The OWNER shall have the right to withhold progress payments for the work if the CONTRACTOR fails to update and submit the progress schedule and reports as specified.

54. PROSECUTION OF THE WORK

It is expressly understood and agreed that the time of beginning, rate of progress, and time of completion of the work are the essence of this Contract. The work shall be prosecuted at such time, and in or on such part or parts of the Project as may be required, to complete the Project as contemplated in the Contract Documents and the progress schedule.

If the CONTRACTOR desires to carry on work at night or outside the regular hours, he shall give timely notice to the ENGINEER to allow satisfactory arrangements to be made for observing the work in progress.

55. OWNER'S RIGHT TO RETAIN IMPERFECT WORK

If any part or portion of the work completed under this Contract shall prove defective and not in accordance with the Drawings and Specifications, and if the imperfection in the same shall not be of sufficient magnitude or importance as to make the work dangerous or unsuitable, or if the removal of such work will create conditions

which are dangerous or undesirable, the OWNER shall have the right and authority to retain such work but will make such deductions in the final payment therefore as may be just and reasonable.

56. OWNER'S RIGHT TO DO WORK

Should the CONTRACTOR neglect to prosecute the work in conformance with the Contract Documents or neglect or refuse at his own cost to remove and replace work rejected by the ENGINEER, then the OWNER may notify the Surety of the condition, and after 10 days' written notice to the CONTRACTOR and the Surety, or without notice if an emergency or danger to the work or public exists, and without prejudice to any other right which the OWNER may have under Contract, or otherwise, take over that portion of the work which has been improperly or non-timely executed, and make good the deficiencies and deduct the cost thereof from the payments then or thereafter due the CONTRACTOR.

57. OWNER'S RIGHT TO TRANSFER EMPLOYMENT

If the CONTRACTOR should abandon the work or if he should persistently or repeatedly refuse or should fail to make prompt payment to SUBCONTRACTORS for material or labor, or to persistently disregard laws, ordinances, or to prosecute the work in conformance with the Contract Documents, or otherwise be guilty of a substantial violation of any provision of the Contract or any laws or ordinance, then the OWNER may, without prejudice to any other right or remedy, and after giving the CONTRACTOR and Surety 10 days' written notice, transfer the employment for said work from the CONTRACTOR to the Surety. Upon receipt of such notice, such Surety shall enter upon the premises and take possession of all materials, tools, and appliances thereon for the purpose of completing the work included under this Contract and employ by Contract or otherwise, any qualified person or persons to finish the work and provide the materials therefore, in accordance with the Contract Documents, without termination of the continuing full force and effect of this Contract. In case of such transfer of employment to such Surety, the Surety shall be paid in its own name on estimates according to the terms hereof without any right of the CONTRACTOR to make any claim for the same or any part thereof.

If, after the furnishing of said written notice to the Surety, the CONTRACTOR and the Surety still fail to make reasonable progress on the performance of the work, the OWNER may terminate the employment of the CONTRACTOR and take possession of the premises and

of all materials, tools, and appliances thereon and finish the work by whatever method he may deem expedient and charge the cost thereof to the CONTRACTOR and the Surety. In such case, the CONTRACTOR shall not be entitled to receive any further payment until the work is finished. If the expense of completing the Contract, including compensation for additional managerial and administrative services, shall exceed such unpaid balance, the CONTRACTOR and the Surety shall pay the difference to the OWNER.

58. DELAYS AND EXTENSION OF TIME

If the CONTRACTOR is delayed in the progress of the work by any act or neglect of the OWNER or the ENGINEER, or by any separate CONTRACTOR employed by the OWNER, or by strikes, lockouts, fire, adverse weather conditions not reasonably anticipated, or acts of Nature, and if the CONTRACTOR, within 48 hours of the start of the occurrence, gives written notice to the OWNER of the cause of the potential delay and estimate of the possible time extension involved, and within 10 days after the cause of the delay has been remedied, the CONTRACTOR gives written notice to the OWNER of any actual time extension requested as a result of the aforementioned occurrence, then the Contract time may be extended by change order for such reasonable time as the ENGINEER determines. It is agreed that no claim shall be made or allowed for any damages, loss, or expense which may arise out of any delay caused by the above referenced acts or occurrences other than claims for the appropriate extension of time.

No extension of time will be granted to the CONTRACTOR for delays occurring to parts of the work that have no measurable impact on the completion of the total work under this Contract. No extension of time will be considered for weather conditions reasonably anticipated for the area in which the work is being performed. Reasonably anticipated weather conditions will be based on official records of monthly precipitation and other historical data. Adverse weather conditions, if determined to be of a severity that would impact progress of the work, may be considered as cause for an extension of Contract completion time.

Delays in delivery of equipment or material purchased by the CONTRACTOR or his SUBCONTRACTORS, including OWNER-selected equipment shall not be considered as a just cause for delay, unless the OWNER determines that for good cause the delay is beyond the control of the CONTRACTOR. The CONTRACTOR shall be fully responsible for the timely ordering, scheduling, expediting, delivery, and installation of all

equipment and materials.

Within a reasonable period after the Contractor submits to the Owner a written request for an extension of time, the Engineer will present his written opinion to the Owner as to whether an extension of time is justified, and, if so, his recommendation as to the number of days for time extension. The Owner will make the final decision on all requests for extension of time.

59. DIFFERING SITE CONDITIONS

The CONTRACTOR shall promptly, and before the conditions are disturbed, give a written notice to the OWNER and ENGINEER of:

- A. Subsurface or latent physical conditions at the site which differ materially from those indicated in this contract,
- B. Unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

The ENGINEER will investigate the site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase or decrease in the CONTRACTOR's cost of, or the time required for, performing any part of the work under this Contract, whether or not changed as a result of the conditions, and equitable adjustment shall be made under this Article and the Contract modified in writing accordingly.

No request by the CONTRACTOR for an equitable adjustment to the Contract under this Article will be allowed, unless the CONTRACTOR has given the written notice required; provided that the time prescribed above for giving written notice may be extended by the OWNER.

No request by the CONTRACTOR for an equitable adjustment to the Contract for differing site conditions will be allowed if made after final payment under this Contract.

60. LIQUIDATED DAMAGES

Should the CONTRACTOR fail to complete the work, or any part thereof, in the time agreed upon in the Contract or within such extra time as may have been allowed for delays by extensions granted as provided in the Contract, the CONTRACTOR shall reimburse the OWNER for the additional expense and damage for each calendar day,

Sundays and legal holidays included, that the Contract remains uncompleted after the Contract completion date. It is agreed that the amount of such additional expense and damage incurred by reason of failure to complete the work is the per-diem rate, as stipulated in the Bid. The said amount is hereby agreed upon as a reasonable estimate of the costs which may be accrued by the OWNER after the expiration of the time of completion. It is expressly understood and agreed that this amount is not to be considered in the nature of a penalty, but as liquidated damages which have accrued against the CONTRACTOR. The OWNER shall have the right to deduct such damages from any amount due, or that may become due the CONTRACTOR, or the amount of such damages shall be due and collectible from the CONTRACTOR or Surety.

61. OTHER CONTRACTS

The OWNER reserves the right to let other Contracts in connection with the work. The CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his work with theirs.

If any part of the work under this Contract depends for proper execution or results upon the work of any other CONTRACTOR, utility service company or OWNER, the CONTRACTOR shall inspect and promptly report to the ENGINEER in writing any patent or apparent defects to deficiencies in such work that render it unsuitable for such proper execution and results. The CONTRACTOR's failure to so report shall constitute acceptance of the work by others as being fit and proper for integration with work under this Contract, except for latent or non-apparent defects and deficiencies in the work.

62. USE OF PREMISES

The CONTRACTOR shall confine his equipment, the storage of materials and the operation of his workers to limits shown on the Drawings or indicated by law, ordinances, permits, or directions of the ENGINEER, and shall not unreasonably encumber the premises with his materials. The CONTRACTOR shall provide, at his own expense, the necessary rights-of-way and access to the work, which may be required outside the limits of the OWNER's property and shall furnish the ENGINEER copies of permits and agreements for use of the property outside that provided by the OWNER.

The CONTRACTOR shall not load nor permit any part of the structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part

of the work or adjacent property to stresses or pressures that will endanger it.

63. SUBSTANTIAL COMPLETION DATE

The ENGINEER may issue a written notice of substantial completion for the purpose of establishing the starting date for specific equipment guarantees, and to establish the date that the OWNER will assume the responsibility for the cost of operating such equipment. Said notice shall not be considered as final acceptance of any portion of the work or relieve the CONTRACTOR from completing the remaining work within the specified time and in full compliance with the Contract Documents. See SUBSTANTIAL COMPLETION under DEFINITIONS of these General Conditions.

64. PERFORMANCE TESTING

Operating equipment and systems shall be performance tested in the presence of the ENGINEER to demonstrate compliance with the specified requirements. Performance testing shall be conducted under the specified design operating conditions or under such simulated operating conditions as recommended or approved by the ENGINEER. Schedule such testing with the ENGINEER at least one week in advance of the planned date for testing.

65. OWNER'S USE OF PORTIONS OF THE WORK

Following issuance of the written notice of Substantial Completion, the OWNER may initiate operation of the facility. Such use shall not be considered as final acceptance of any portion of the work, nor shall such use be considered as cause for an extension of the Contract completion time, unless authorized by a Change Order issued by the OWNER.

66. CUTTING AND PATCHING

The CONTRACTOR shall do all cutting, fitting, or patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by work of other CONTRACTORS shown upon or reasonably implied by the Drawings.

67. CLEANING UP

The CONTRACTOR shall, at all times, keep property on which work is in progress and the adjacent property free from accumulations of waste material or rubbish caused by employees or by the work. Upon completion of the

construction, the CONTRACTOR shall remove all temporary structures, rubbish, and waste materials resulting from his operations.

PAYMENT

68. PAYMENT FOR CHANGE ORDERS

The OWNER's request for quotations on alterations to the work shall not be considered authorization to proceed with the work prior to the issuance of a formal Change Order, nor shall such a request justify any delay in existing work. Quotations for alterations to the work shall include substantiating documentation with an itemized breakdown of CONTRACTOR and SUBCONTRACTOR costs, including labor, material, rentals, approved services, overhead, and profit. OWNER may require detailed cost data in order to substantiate the reasonableness of the proposed costs.

Any compensation paid in conjunction with the terms of a Change Order shall comprise total compensation due the CONTRACTOR for the work or alteration defined in the Change Order. By signing the Change Order, the CONTRACTOR acknowledges that the stipulated compensation includes payment for the work or alteration plus all payment for the interruption of schedules, extended overhead, delay, or any other impact claim or ripple effect, and by such signing specifically waives any reservation or claim for additional compensation in respect to the subject Change Order.

At the OWNER's option, payment or credit for any alterations covered by a Change Order shall be determined by one or a combination of the methods set forth in A, B, or C below, as applicable:

A. UNIT PRICES

Those unit prices stipulated in the Bid shall be utilized where they are applicable. In the event the Change Order results in a change in the original quantity that is materially and significantly different from the original bid quantity, a new unit price shall be negotiated upon demand of either party. Unit prices for new items included in the Change Order shall be negotiated and mutually agreed upon.

B. LUMP SUM

A total lump sum for the work negotiated and mutually acceptable to the CONTRACTOR and the OWNER.

Lump sum quotations for modifications to the work shall

include substantiating documentation with an itemized breakdown of CONTRACTOR and SUBCONTRACTOR costs, including labor, material, rentals, approved services, overhead, and profit, all calculated as specified under "C" below.

C. COST REIMBURSEMENT WORK

The term "cost reimbursement" shall be understood to mean that payment for the work will be made on a time and expense basis, that is, on an accounting of the CONTRACTOR's forces, materials, equipment, and other items of cost as required and used to do the work.

If the method of payment cannot be agreed upon prior to the beginning of the work, and the OWNER directs by written Change Order that the work be done on a cost reimbursement basis, then the CONTRACTOR shall furnish labor, and furnish and install equipment and materials necessary to complete the work in a satisfactory manner and within a reasonable period of time. For the work performed, payment will be made for the documented actual cost of the following:

1. Labor including foremen for those hours they are assigned and participating in the cost reimbursement work (actual payroll cost, including wages, fringe benefits as established by negotiated labor agreements, labor insurance, and labor taxes as established by law). No other fixed labor burdens will be considered, unless approved in writing by the OWNER.
2. Material delivered and used on the designated work, including sales tax, if paid by the CONTRACTOR or his SUBCONTRACTOR.
3. Rental or equivalent rental cost of equipment, including necessary transportation for items having a value in excess of \$100.

Rental or equivalent rental cost will be allowed for only those days or hours during which the equipment is in actual use. Rental and transportation allowances shall not exceed the current rental rates prevailing in the locality. The rentals allowed for equipment will, in all cases, be understood to cover all fuel, supplies, repairs, and renewals, and no further allowances will be made for those items, unless specific agreement to that effect is made.

4. Additional bond, as required and approved by the OWNER.
5. Additional insurance (other than labor insurance) as required and approved by the OWNER.

In addition to items 1 through 5 above, an added fixed fee for general overhead and profit shall be negotiated and allowed for the CONTRACTOR (or approved SUBCONTRACTOR) actually executing the Cost Reimbursement work.

An additional fixed fee shall be negotiated and allowed the CONTRACTOR for the administrative handling of portions of the work that are executed by an approved SUBCONTRACTOR. No additional fixed fee will be allowed for the administrative handling of work executed by a SUBCONTRACTOR of a SUBCONTRACTOR, unless by written permission from the OWNER.

The added fixed fees shall be considered to be full compensation, covering the cost of general supervision, overhead, profit, and any other general expense. The CONTRACTOR's records shall make clear distinction between the direct costs of work paid for on a cost reimbursement basis and the costs of other work. The CONTRACTOR shall furnish the ENGINEER report sheets in duplicate of each day's cost reimbursement work no later than the working day following the performance of said work. The daily report sheets shall itemize the materials used, and shall cover the direct cost of labor and the charges for equipment rental, whether furnished by the CONTRACTOR, SUBCONTRACTOR or other forces. The daily report sheets shall provide names or identifications and classifications of workers, the hourly rate of pay and hours worked, and also the size, type, and identification number of equipment and hours operated.

Material charges shall be substantiated by valid copies of vendors' invoices. Such invoices shall be submitted with the daily report sheets, or, if not available, they shall be submitted with subsequent daily report sheets. Said daily report sheets shall be signed by the CONTRACTOR or his authorized agent.

The OWNER reserves the right to furnish such materials and equipment as he deems expedient and the CONTRACTOR shall have no claim for profit or added fees on the cost of such materials and equipment. To receive partial payments and final payment for cost reimbursement work, the CONTRACTOR shall submit to the ENGINEER, detailed and complete documented verification of the CONTRACTOR's and any of his SUBCONTRACTORS' actual costs involved in the cost reimbursement work. Such costs shall be submitted within 30 days after said work has been performed.

69. PARTIAL PAYMENTS

A. GENERAL

Nothing in this Article shall be construed to affect the right, hereby reserved, to reject the whole or any part of the aforesaid work, should such work be later found not to comply with the provisions of the Contract Documents. All estimated quantities of work for which partial payments have been made are subject to review and correction on the final estimate. Payment by the OWNER and acceptance by the CONTRACTOR of partial payments based on periodic estimates of quantities of work performed shall not, in any way, constitute acceptance of the estimated quantities used as a basis for computing the amounts of the partial payments.

B. ESTIMATE

At least 30 days before each progress payment falls due, as specified in the Supplementary Conditions, the CONTRACTOR shall submit to the ENGINEER a detailed estimate of the amount earned during the preceding month for the separate portions of the work, and request payment. As used in this Article, the words "amount earned" means the value, on the date of the estimate for partial payment, of the work completed in accordance with the Contract Documents, and the value of approved materials delivered to the project site suitable stored and protected prior to incorporation into the work.

ENGINEER will, within 7 days after receipt of each request for payment, either indicate in writing a recommendation of payment and present the request to OWNER, or return the request to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may, within 7 days, make the necessary corrections and resubmit the request.

ENGINEER may refuse to recommend the whole or any part of any payment if, in his opinion, it would be incorrect to make such representations to OWNER. ENGINEER may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended to such an extent as may be necessary in ENGINEER's opinion to protect the OWNER from loss because:

1. The work is defective, or completed work has been damaged requiring correction or replacement;
2. Written claims have been made against OWNER or Liens have been filed in connection with the work;

3. The Contract Price has been reduced because of Change Orders;
4. OWNER has been required to correct defective work or complete the work in accordance with Article OWNER'S RIGHT TO DO WORK;
5. Of CONTRACTOR's unsatisfactory prosecution of the work in accordance with the Contract Documents; or
6. CONTRACTOR's failure to make payment to SUBCONTRACTORS or for labor, materials, or equipment.

C. DEDUCTION FROM ESTIMATE

Unless modified in the Supplementary Conditions, deductions from the estimate will be as described below:

1. The OWNER will deduct from the estimate, and retain as part security, 10 percent of the amount earned for work satisfactorily completed. A deduction and retainage of 10 percent will be made on the estimated amount earned for approved items of material delivered to and properly stored at the jobsite but not incorporated into the work. When the work is 50 percent complete, the OWNER may reduce the retainage to 5 percent of the dollar value of all work satisfactorily completed to date provided the CONTRACTOR is making satisfactory progress and there is no specific cause for a greater retainage. The OWNER may reinstate the retainage up to 10 percent if the OWNER determines, at his discretion, that the CONTRACTOR is not making satisfactory progress or where there is other specific cause for such withholding.

D. QUALIFICATION FOR PARTIAL PAYMENT FOR MATERIALS DELIVERED

Unless modified in the Supplementary Conditions, qualification for partial payment for materials delivered but not yet incorporated into the work shall be as described below:

1. Materials, as used herein, shall be considered to be those items which are fabricated and manufactured material and equipment. No consideration shall be given to individual purchases of less than \$200 for any one item.

2. To receive partial payment for materials delivered to the site, but not incorporated in the work, it shall be necessary for the CONTRACTOR to include a list of such materials on the Partial Payment Request. At his sole discretion, the ENGINEER may approve items for which partial payment is to be made. Partial payment shall be based on the CONTRACTOR's actual cost for the materials as evidenced by invoices from the supplier. Proper storage and protection shall be provided by the CONTRACTOR, and as approved by the ENGINEER. Final payment shall be made only for materials actually incorporated in the work and, upon acceptance of the work, all materials remaining for which advance payments had been made shall revert to the CONTRACTOR, unless otherwise agreed, and partial payments made for these items shall be deducted from the final payment for the work.

3. CONTRACTOR warrants and guarantees that title to all work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER at the time of payment free and clear of all liens, claims, security interests, and encumbrances.

4. If requested by the ENGINEER, the CONTRACTOR shall provide, with subsequent pay requests, invoices receipted by the supplier showing payment in full has been made.

E. PAYMENT

After deducting the retainage and the amount of all previous partial payments made to the CONTRACTOR from the amount earned, the amount due will be made payable to the CONTRACTOR. Recommendations for payment received by the OWNER less than 9 days prior to the scheduled day for payment will not be processed or paid until the following month.

70. CLAIMS FOR EXTRA WORK

In any case where the CONTRACTOR deems additional time or compensation will become due him under this Contract for circumstances other than those defined in Article DELAYS AND EXTENSION OF TIME, the CONTRACTOR shall notify the ENGINEER, in writing, of his intention to make claim for such time or compensation before he begins the work on which he bases the claim, in order that such matters may be settled, if possible, or other appropriate action taken. The notice

of claim shall be in duplicate, in writing, and shall state the circumstances and the reasons for the claim, but need not state the amount. If such notification is not given or if the ENGINEER is not afforded proper facilities by the CONTRACTOR for keeping strict account of actual cost, then the CONTRACTOR hereby agrees to waive the claim for such additional time or compensation. Such notice by the CONTRACTOR, and fact that the ENGINEER has kept account of the cost as aforesaid, shall not in any way be construed as proving the validity of the claim.

No extension of time will be granted to the CONTRACTOR for delays resulting from extra work that have no measurable impact on the completion of the total Work under this Contract. Claims for additional time or compensation shall be made in itemized detail and submitted, in writing, to the OWNER and ENGINEER within 10 days following completion of that portion of the work for which the CONTRACTOR bases his claim. Failure to make the claim for additional compensation in the manner and within the time specified above shall constitute waiver of that claim. In case the claim is found to be just, it shall be allowed and paid for as provided in Article PAYMENT FOR CHANGE ORDERS.

71. RELEASE OF LIENS OR CLAIMS

The CONTRACTOR shall indemnify and hold harmless the OWNER from all claims for labor and materials furnished under this Contract. Prior to the final payment, the CONTRACTOR shall furnish to the OWNER, as part of his final payment request, a certification that all of the CONTRACTOR's obligations on the Project have been satisfied and that all monetary claims and indebtedness have been paid. The CONTRACTOR shall furnish complete and legal effective releases or waivers, satisfactory to the OWNER, of all liens arising out of or filed in connection with the work.

72. FINAL PAYMENT

Upon completion of all the work under this Contract, the CONTRACTOR shall notify the ENGINEER, in writing, that he has completed his part of the Contract and shall request final payment. Upon receipt of such notice the ENGINEER will inspect and, if acceptable, submit to the OWNER his recommendation as to acceptance of the completed work and as to the final estimate of the amount due the CONTRACTOR. Upon approval of this final estimate by the OWNER and compliance by the CONTRACTOR with provisions in Article RELEASE OF LIENS OR CLAIMS, and other provisions as may be applicable, the OWNER shall pay to the CONTRACTOR

all monies due him under the provisions of these Contract Documents.

73. NO WAIVER OF RIGHTS

Neither the inspection by the OWNER, through the ENGINEER or any of his employees, nor any order by the OWNER for payment of money, nor any payment for, or acceptance of, the whole or any part of the work by the OWNER or ENGINEER, nor any extension of time, nor any possession taken by the OWNER or its employees, shall operate as a waiver of any provision of this Contract, or any power herein reserved to the OWNER, or any right to damages herein provided, nor shall any waiver of any breach in this Contract be held to be a waiver of any other or subsequent breach. Acceptance or final payment shall not be final and conclusive with regards to latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the OWNER's rights under the warranty.

74. ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE

The acceptance by the CONTRACTOR of the final payment shall release the OWNER and the ENGINEER, as representatives of the OWNER, from all claims and all liability to the CONTRACTOR for all things done or furnished in connection with the work, and every act of the OWNER and others relating to or arising out of the work except claims previously made in writing and still unsettled. No payment, however, final or otherwise, shall operate to release the CONTRACTOR or his Sureties from obligations under this Contract and the Performance Bond, Payment Bond, and other bonds and warranties, as herein provided.

SUPPLEMENTARY CONDITIONS

The General Conditions are hereby revised as follows:

ARTICLE 9 "ENGINEER"

Add the following:

Wherever in these Documents the word "Engineer" appears, it shall be understood to mean the City of Key West, Director, Port & Marine Services or authorized representatives.

ARTICLE 12 "OWNER"

Add the following:

Wherever in these Documents the word "Owner" appears, it shall be understood to mean the City of Key West whose address is 1300 White Street, Key West, Florida 33040.

ARTICLE 32 "CONTRACTOR, AN INDEPENDENT AGENT"

Add the following:

Assignment of any part or the whole of this Contract shall be subject to review and approval of the City Commission.

ARTICLE 34 "INSURANCE AND LIABILITY"

Delete Article 34 Sections A, B, C, D & E and replace with the following:

CONTRACTOR is to secure, pay for, and file with the City of Key West, prior to commencing any work under the Contract, all certificates for workers' compensation, public liability, and property damage liability insurance, and such other insurance coverages as may be required by specifications and addenda thereto, in at least the following minimum amounts with specification amounts to prevail if greater than minimum amounts indicated. Notwithstanding any other provision of the Contract, the CONTRACTOR shall provide the minimum limits of liability insurance coverage as follows:

Type of Insurance	Limits	Comments
Marine General Liability	\$2,000,000	The proposers may have these coverages combined in 1 policy
Watercraft Liability	\$1,000,000	
Business Automobile Liability	\$1,000,000	
Workers' Compensation	Statutory	
Employers Liability	\$1,000,000/\$1,000,000/\$1,000,000	
USL&H and Jones Act Coverage	\$1,000,000	

CONTRACTOR shall furnish an original Certificate of Insurance indicating, and such policy providing coverage to, City of Key West named as an additional insured on a PRIMARY and NON CONTRIBUTORY basis utilizing an ISO standard endorsement at least as broad as CG 2010 (11/85) or its equivalent, (combination of CG 20 10 07 04 and CG 20 37 07 04, providing coverage for completed operations, is acceptable) including a waiver of subrogation clause in favor of City of Key West on all policies. CONTRACTOR will maintain the General Liability and Umbrella Liability insurance coverages summarized above with coverage continuing in full force including the additional insured endorsement until at least 3 years beyond completion and delivery of the work contracted herein.

Notwithstanding any other provision of the Contract, the CONTRACTOR shall maintain complete workers' compensation coverage for each and every employee, principal, officer, representative, or agent of the CONTRACTOR who is performing any labor, services, or material under the Contract. Further, CONTRACTOR shall additionally maintain the following minimum limits of coverage:

Bodily Injury Each Accident	\$1,000,000
Bodily Injury by Disease Each Employee	\$1,000,000
Bodily Injury by Disease Policy Limit	\$1,000,000

The City of Key West confirms that the scope of services specified in the Contract requires work on or near a navigable waterway. Water description: City of Key West Mooring Field. Therefore the CONTRACTOR's workers' compensation policy shall be endorsed to provide the following:

- Workers Compensation/Employer Liability
USL&H Coverage (Longshore and Harbor Workers' Compensation Act) Endorsement WC 000106A
Jones Act Coverage* Endorsement WC 000201A

Note: Jones Act (Crew) coverage may be provided under the P&I policy, if Contractor is using an OWNED vessel during the course of the work.

CONTRACTOR shall provide the City of Key West with a Certificate of Insurance verifying compliance with the workman's compensation coverage as set forth herein and shall provide as often as required by the City of Key West such certification which shall also show the insurance company, policy number, effective and expiration date, and the limits of workman's compensation coverage under each policy.

CONTRACTOR's insurance policies shall be endorsed to give 30 days written notice to the City of Key West in the event of cancellation or material change, using form CG 02 24, or its equivalent.

Certificates of Insurance submitted to the City of Key West will not be accepted without copies of the endorsements being requested. This includes additional insured endorsements, cancellation/material change notice endorsements, and waivers of subrogation. Copies of USL&H Act and Jones Act endorsements will also be required if necessary. PLEASE ADVISE YOUR INSURANCE AGENT ACCORDINGLY.

CONTRACTOR will comply with any and all safety regulations required by any agency or regulatory body including but not limited to OSHA. CONTRACTOR will notify City of Key West immediately by telephone at (305) 809-3811 any accident or injury to anyone that occurs on the jobsite and is related to any of the work being performed by the CONTRACTOR.

Add the following Section:

G. SURETY AND INSURER QUALIFICATIONS

All bonds, insurance contracts, and certificates of insurance shall be either executed by or countersigned by a licensed resident agent of the Surety or insurance company, having his place of business in the State of Florida, and in all ways complying with the insurance laws of the State of Florida. Further, the said Surety or insurance company shall be duly licensed and qualified to do business in the State of Florida.

ARTICLE 35 "INDEMNITY"

Delete Article 35 in its entirety and replace with the following:

INDEMNITY

To the fullest extent permitted by law, the CONTRACTOR expressly agrees to indemnify and hold harmless the City of Key West, their officers, directors, agents and employees (herein called the "indemnitees") from liabilities, damages, losses and costs, including but not limited to, reasonable attorney's fees and court costs, such legal expenses to include costs incurred in establishing the indemnification and other rights agreed to in this Paragraph, to persons or property, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of the CONTRACTOR, its Subcontractors or persons employed or utilized by them in the performance of the Contract. Claims by indemnitees for indemnification shall be limited to the amount of CONTRACTOR's insurance or \$1 million per occurrence, whichever is greater. The parties acknowledge that the amount of the indemnity required hereunder bears a reasonable commercial relationship to the Contract and it is part of the project specifications or the bid documents, if any.

The indemnification obligations under the Contract shall not be restricted in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR under Workers' Compensation acts, disability benefits acts, or other employee benefits acts, and shall extend to and include any actions brought by or in the name of any employee of the CONTRACTOR or of any third party to whom CONTRACTOR may subcontract a part or all of the Work. This indemnification shall continue beyond the date of completion of the work.

ARTICLE 39 "CODES, ORDINANCES, PERMITS, AND LICENSES"

Add the following:

A. NOISE ORDINANCE

City of Key West has a noise ordinance that allows working hours between 8:00 AM to 7:00 PM, Monday through Friday. No work should be performed during weekends or City Holidays, State Holidays and National Holidays. Any construction operations outside these hours and these days will require a variance from the City of Key West Commission.

B. "LICENSES"

Within 10 days of Notice of Award, the successful Bidder must represent that he holds all applicable state, county, and City of Key West licenses and permits required to do business as a contractor with respect to the work described in the Contract Documents.

Further, the successful Bidder must, within 10 days of Notice of Award, furnish documentation showing that, as a minimum, he has complied with the provisions of Chapter 18 of the Code of Ordinances of the City of Key West in order to enter into the Agreement contained in the Contract Documents.

Specifically, within 10 days after Notice of Award, the successful Bidder must demonstrate that he holds, as a minimum, the following licenses and certificates:

1. City of Key West, Engineering Contractor Class I license.
2. Holds a valid occupational license issued by the City of Key West.

ARTICLE 42 "SAFETY"

Add the following sub article:

OCCUPATIONAL SAFETY AND HEALTH

The Contractor shall observe and comply with all applicable local, state, and federal occupational safety and health regulations during the prosecution of work under this Contract. In addition, full compliance by the Contractor with the U.S. Department of Labor's Occupational Safety and Health Standards, as established in Public Law 91-596, will be required under the terms of this Contract.

ARTICLE 43 "PROTECTION OF WORK AND PROPERTY"

Add the following Article:

HISTORIC PRESERVATION

The Contractor shall comply with Florida's Archives and Historic Act (Florida Statutes, Chapter 267) and the regulations of the local historic preservation board as applicable and protect against the potential loss or destruction of significant historical or archaeological data, sites, and properties in connection with the project.

ARTICLE 45 "MATERIALS AND APPLIANCES"

Add the following to the end of the first paragraph:

At contract completion, no equipment purchased by the contractor shall be transferred to state or local ownership.

ARTICLE 57 "OWNERS RIGHT TO TRANSFER EMPLOYMENT"

Add the following Article:

TERMINATION FOR CONVENIENCE AND RIGHT OF SUSPENSION

- A. Owner shall have the right to terminate this Contract without cause by written notice of Termination to the Contractor. In the event of such termination for convenience, the Contractor's recovery against the Owner shall be limited to that portion of the Contract amount earned through the date of termination, together with any retainage withheld and reasonable termination expenses incurred. Contractor shall not be entitled to any other or further recovery against the Owner, including, but not limited to, damages or any anticipated profit on portions of the Work not performed.
- B. Owner shall have the right to suspend all or any portions of the Work upon giving the Contractor prior written notice of such suspension. If all or any portion of the Work is so suspended, the Contractor shall be entitled to reasonable costs, expenses and time extension associated with the suspension.

ARTICLE 60 "LIQUIDATED DAMAGES"

Delete Article "LIQUIDATED DAMAGES" in its entirety and substitute the following:

LIQUIDATED DAMAGES

Should the Contractor fail to complete the work or any part thereof in the time agreed upon in the Contract Documents or within such extra time as may have been allowed for delays by extensions granted as provided in the Contract, the Contractor shall reimburse the Owner for the additional expense and damage for each calendar day, Sundays and legal holidays included, that project outlined in Contract Documents remains uncompleted after the completion date. Liquidated damages shall be assessed. It is agreed that the amount of such additional expense and damage incurred by reason of failure to complete the work is the per diem rate as stipulated in the Proposal. The said amount is hereby agreed upon as a reasonable estimate of the costs which may be accrued by the Owner after the expiration of the time of completion. It is expressly understood and agreed that this amount is not to be considered in the nature of a penalty but as liquidated damages, which have accrued against the Contractor. The Owner shall have the right to deduct such damages from any amount due or that may become due the Contractor or the amount of such damages shall be due and collectible from the Contractor or Surety.

ARTICLE 69 "PARTIAL PAYMENTS"

Delete the first paragraph of Article "PARTIAL PAYMENTS" and substitute the following:

No more than once each month the Contractor shall submit to the Engineer a detailed estimate of the amount earned during the preceding month for the separate portions of the work and request payment. As used in this Article the words "amount earned" means the value, on the date of the estimate, for partial payment of the work completed in accordance with the Contract Documents and the value of approved materials delivered to the project site suitably stored and protected prior to incorporation into the work

Add the following:

Payment will be made by the Owner to the Contractor within 40 days receipt of the written recommendation of payment from the Engineer.

Delete Sub-Article C "DEDUCTION FROM ESTIMATE" in its entirety and substitute the following:

DEDUCTION FROM ESTIMATE

The Owner will deduct from the estimate and retain as part security 10 percent of the amount earned for work satisfactorily completed. A deduction and retainage of 10 percent will be made on the estimated amount earned for approved items of material delivered to and properly stored at the jobsite but not incorporated into the work.

Delete Sub-Article E "PAYMENT" in its entirety and substitute the following:

PAYMENT

After deducting the retainage and the amount of all previous partial payments made to the Contractor from the amount earned the amount due will be made payable to the Contractor. Recommendations for payment received by the Owner less than 40 days prior to the scheduled day for payment will not be processed or paid until the following month.

ARTICLE 72 "FINAL PAYMENT"

Add the following:

A. Acceptance and Final Payment.

Whenever the Contractor has completely performed the work provided for under the Contract and the Engineer has performed a final inspection and made final acceptance and subject to the terms of the Engineer will prepare a final estimate showing the value of the work as soon as the Engineer makes the necessary measurements and computations. The Engineer will correct all prior estimates and payments in the final estimate and payment. The OWNER will pay the estimate, less any sums that the OWNER may have deducted or retained under the provisions of the Contract, as soon as practicable after final acceptance of the work, provided the Contractor has met the requirements of (1) through (6) below.

- 1 The Contractor has agreed in writing to accept the balance due or refund the overpayment, as determined by the OWNER, as full settlement of his account under the Contract and of all claims in connection therewith, or the Contractor, accepted the balance due or refunded the overpayment, as determined by the OWNER, with the stipulation that his acceptance of such payment or the making of such refund does not constitute any bar, admission, or estoppel, or have any effect as to those payments in dispute or the subject of a pending claim between the Contractor and the OWNER. To receive payment based on a FINAL PAYMENT CERTIFICATE, The Contractor further agrees, by submitting a FINAL PAYMENT CERTIFICATE that any pending or future arbitration claim or suit is limited to those particulars, including the itemized amounts, defined in the original FINAL PAYMENT CERTIFICATE, and that he will commence with any such arbitration claim or suit within 15 calendar days from and after the time of final PAYMENT of the work and that his failure to file a formal claim within this period constitutes his full acceptance of the Engineer's final estimate and payment. The overpayment refund check from the Contractor, if required, will be considered a part of any Acceptance Letter executed.
- 2 The Contractor has properly maintained the project, as specified hereinbefore.
- 3 The Contractor has furnished a sworn affidavit to the effect that the Contractor has paid all bills and no suits are pending (other than those exceptions listed, if any) in connection with work performed under the Contract and that the Contractor has not offered or made any gift or gratuity to, or made any financial transaction of any nature with, any employee of the OWNER in the performance of the Contract.
- 4 The surety on the contract bond consents, by completion of their portion of the affidavit and surety release subsequent to the Contractor's completion of his portion, to final payment to the Contractor and agrees that the making of such payment does not relieve the surety of any of its obligations under the bond.
- 5 The Contractor has furnished all required mill tests and analysis reports to the Engineer.
- 6 The Contractor has furnished as-built drawings in AutoCad and Adobe PDF, in accordance with all supplied data collections and files to be compatible with Esri ArcGIS 10.2.2 Software. The current computing environment consists of:
 - Microsoft SQL Server
 - Windows 7/Server 2008
 - ESRI GIS Platform

Interfaces and Integrations

* * * *

PART 4

SPECIFICATIONS

SECTION 01001
GENERAL REQUIREMENTS

PART 1 - GENERAL

1.01 GENERAL

- A. The Work under this Contract shall be performed by the Contractor as required by the City. Work will be authorized in the form of a Notice to Proceed issued to the Contractor. The Contractor shall complete all Work in the Contract within the number of calendar days stipulated in the Contract, unless an extension in the time of completion is granted by the City. Upon completion of the Work and compliance with applicable provisions in the Contract Documents, the Contractor will receive final payment for all Work done.
- B. Contractor's Duties:
1. In addition to provisions stipulated in other portions of the Contract Documents, Contractor shall secure permits as necessary for proper execution and completion of the work.
 2. Contractor shall be totally responsible for all permits required and shall ensure that construction complies with all applicable local, state, and federal codes.
 3. Provide an experienced, qualified, and competent Superintendent to oversee the Work. Superintendent shall be expected to remain for the duration of the Project.

1.02 MOBILIZATION AND DEMOBILIZATION

CONTRACTOR shall be responsible for mobilization and demobilization of labor, materials and equipment. Payment for mobilization and demobilization will be included in the lump sum price indicated in the BID.

1.03 CONTRACTOR'S USE OF PREMISES

- A. Work shall be scheduled as to not interfere with on-going area activities.
- B. Coordinate use of premises and requirements with the City.
- C. Assume full responsibility for the protection and safekeeping of products under this Contract, stored on the site.
- E. Contractor shall provide drinking water for construction personnel.
- F. Contractor shall provide waste solutions for construction personnel.

1.04 FINISHING OF SITE AND STORAGE AREAS

Upon completion of the Project, all areas used by the Contractor shall be properly cleared of all temporary structures, rubbish, and waste materials and properly graded to drain and blend in with the abutting property. Areas used for the deposit of waste materials shall be finished to properly drain and blend with the surrounding terrain.

PART 2 - TEMPORARY CONSTRUCTION UTILITIES AND FACILITIES

2.1 TEMPORARY WATER

CONTRACTOR shall make his own arrangements to obtain suitable water and shall pay all costs.

2.2 SANITARY FACILITIES (not applicable)

CONTRACTOR shall provide and maintain sanitary facilities for his employees and his subcontractors' employees that will comply with the regulations of local and state departments of health, and as directed by the City.

2.3 STORAGE OF MATERIALS

A. Materials shall be so stored as to ensure the preservation of their quality and fitness for the work. When considered necessary, materials shall be placed on wooden platforms or other hard, clean surfaces, not on the ground.

PART 3 - PRESERVATION, RESTORATION, AND CLEANUP

3.1 SITE RESTORATION AND CLEANUP

At all times during the work keep the premises clean and orderly. Upon completion of the day's work, repair all damage caused by equipment and leave the project clean and free of rubbish or excess materials of any kind.

Stockpile excavated materials in a manner that will cause the least damage to the area and near shore waters.

Upon completion of the Work, all areas used by the Contractor shall be cleared of temporary structures, rubbish, and waste materials, and properly graded to finished surface similar to the original surface, free-draining and free from holes, ruts, rough spots, leaving the area like original condition.

* * * * *

SECTION 01010 SCOPE OF WORK

The Carolina Street Corridor and Bahama Village Community Redevelopment Agency (CRA) of the City of Key West requests proposals from qualified individuals or firms for seawall repair and replacement. The project contemplated consists of providing all materials, equipment and labor necessary to accomplish the following at the Key West Historic Seaport:

The work includes the provision of all materials, equipment, and labor needed for the construction of the following:

Phase A, Turtle Kraals:

1. Construction of a series of footers/toe-walls anchored to the existing seawall with ChromX steel, measuring a total of approximately 174 LF in length and a 30.75 CY volume of concrete. The footer shall not extend more than 18" waterward of the existing wall.
2. Installation of grout and epoxy repairs as shown on the plans.
3. All incidental work necessary to facilitate the construction as shown on the plans

Phase B, Schooner Wharf:

1. Replacement of utility hangers beneath the marginal dock to the east of the Schooner Wharf restaurant.
2. Flowable fill injection (~2.1 CY) behind the wall at void locations shown on the plans.
3. Replacement of the top 2 FT of ~60 LF of concrete cap, including the temporary deconstruction of the adjacent upland ipe decking and supporting timber and replacement of the same.
4. All incidental work necessary to facilitate the construction as shown on the plans

Phase C, Conch Republic:

1. Preconstruction video surveys of all buildings, internal and external, within a 50 LF radius of proposed driving activities
2. Installation of approximately 333 LF of A690 SKZ-31 sheetpile cantilever seawall with approximately 333 LF of ChromX Steel reinforced concrete cap and all incidental work necessary to facilitate that construction, including but not limited to:
3. Disconnection and re-connection of utilities servicing 3 docks and 1 pedestrian bridge
4. Extensions of all drainage penetrations through the new seawall with similar material
5. Provision & maintenance of temporary utilities (water, fire suppression, vacuum sewer, drainage, and electric, etc.) to the docks
6. Provision & maintenance of ADA accessible gangways to the docks throughout construction
7. Re-connection of the 3 docks and 1 pedestrian bridge
8. Fiberglass reinforced polymer utility hangers cast into the underside of the proposed cap for the vacuum sewer pumpout system
9. Replacement of six (6) valves immediately upland of docks H1, H2 & H3 (3 fire, 3 potable water)
10. Electrical work as shown on the plans
11. All incidental work necessary to facilitate the construction as shown on the plans

Construction phases of the project shall be sequenced in an order to be determined by the City/CRA's schedule and discretion. A summary of the contractor's anticipated activities involved with this project include, but are not limited to the following:

- a. Obtaining all necessary permits, including NPDES permits and City Building Permits, and complying with said permits.
- b. Submittal of shop drawings
- c. Preparation and maintenance of a submittal register
- d. Field staking the sheetpile alignment and obtaining City/Engineer approval prior to initiating site preparation activities
- e. Preconstruction video surveys of all buildings, internal and external, within a 50 LF radius of proposed driving activities
- f. Securing site and staging area(s): Includes the installation of barriers/fencing/signs to keep pedestrians safely out of the construction site, and the installation of sediment and turbidity barriers to keep construction debris within the construction zone
- g. Maintenance of traffic to access the construction site by land and sea
- h. Maintenance of pedestrian traffic throughout the course of construction at a safe distance from construction activities
- i. Maintenance of pedestrian traffic to and from the affected dock areas, including the provision and maintenance of any required ADA accessible path(s) and gangway(s)
- j. Provision and maintenance of all temporary utilities to the docks during construction
- k. Coordination with City Staff and Bight Patrons/Residents as required to maintain utilities and access
- l. Installation and continuous maintenance of NPDES BMPs throughout construction
- m. Removal and proper disposal of all sunken debris within 10 FT of the existing seawall per the NOAA permit condition
- n. Demolition and disposal of existing concrete cap as denoted in the plans
- o. Vibration monitoring of adjacent buildings within 50 LF radius of driving activities during all driving activities
- p. Driving of sheetpile along the staked alignment approved by the City/Engineer
- q. Extension of all utility penetrations through the new seawall with similar materials and City/Engineer approved unions/connections, with Fernco couplings as denoted in the plan details
- r. Filling void between steel sheetpile and existing seawall with approved fill material & filter fabric
- s. Construction of two closure pours at the ends of the seawall
- t. Forming, placing reinforcement, and casting new concrete seawall cap
- u. Forming, placing reinforcement, and casting the concrete footer/toe walls
- v. Replacement of six (6) water/fire valves
- w. Restoration of all site areas utilized by the Contractor to equal or better condition
- x. Maintenance of as-built records and submittal of as-built survey.

Bidder shall include in bid a detailed construction sequence narrative explaining how the submitting bidder intends to conduct the work including coordinating of any utilities that may have to be rerouted or removed and reinstalled. All work required shall be included in the bid.

The intent of these Documents is to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any work, materials, or equipment that may reasonably be inferred from the Contract Documents, as being required to produce the intended result shall be supplied whether or not specifically called for.

END OF SECTION

SECTION 01025
MEASUREMENT AND PAYMENT

1.1 GENERAL

- A. Contractor shall receive and accept compensation as provided in the Bid and Contract in full payment for performing all operations necessary to complete the work under the Lump Sum portions of this Contract, and also in full payment for all loss or damages arising from the nature of the work, until the final acceptance by the City.
- B. Contractor's attention is called to the fact that the quotations for various items of work are intended to establish a total price for completing the work in its entirety. It is the intent of this Contract that the Contractor provide a completed structure, and any item required to accomplish this shall be included to establish a total cost.

1.2 PAYMENT

- A. Payment for all Work as ordered or specified in the Contract Documents is included in the Contract Price.

1.4 NONPAYMENT FOR REJECTED OR UNUSED PRODUCTS

Payment will not be made for following:

- 1. Defective Work not accepted by the City.

1.5 PARTIAL PAYMENT FOR STORED MATERIALS AND EQUIPMENT

- A. Partial Payment: No partial payments will be made for materials and equipment delivered or stored unless Shop Drawings are acceptable to the City and materials are properly stored at a site as agreed to by the City.
- B. Final Payment: Will be made only for products incorporated in Work. Products for which partial payments have been made will be deducted from final payment.

* * * * *

SECTION 01300 SUBMITTALS

PART 1 GENERAL

1.01 GENERAL

- A. Inquiries: Direct to ENGINEER regarding procedure, purpose, or extent of Submittal.
- B. Submittal Submission Procedures: As provided in General Conditions, as specified herein, and as may otherwise be established during the preconstruction conference.
- C. OWNER's Authorization: At any time, OWNER may authorize changes to procedures and requirements for Submittals, as necessary to accomplish specific purpose of each Submittal. Such authorization will be by Field Order or Work Change Directive.
- D. Timeliness: Make submissions in such sequence as to cause no delay in Work or in work of other contractors.
- E. Identification of Submittals:
 - 1. Identify each Submittal with numbering and tracking system reviewed by ENGINEER:
 - a. Sequentially number each Submittal.
 - b. Resubmission of a Submittal will have original number with sequential alphabetic suffix.
 - 2. Show date of submission and dates of previous submissions.
 - 3. Show Project title and OWNER's contract identification and contract number.
 - 4. Show names of CONTRACTOR, Subcontractor or Supplier, and manufacturer as appropriate.
 - 5. Clearly identify revisions from previous submissions.
- F. Incomplete Submittal Submissions:
 - 1. At ENGINEER's sole discretion, ENGINEER will either (i) return the entire Submittal for CONTRACTOR's revision/correction and resubmission, or (ii) retain portions of the Submittal and request submission/resubmission of specified items or as noted thereon.
 - 2. Submittals which do not clearly bear CONTRACTOR's specific written indication of CONTRACTOR review and approval of Submittal will be returned to CONTRACTOR unreviewed for resubmission in accordance with Contract Documents.
 - 3. Delays, resequencing or other impact to Work resulting from CONTRACTOR's submission of unchecked or unreviewed, incomplete, inaccurate or erroneous, or nonconforming Submittals, which will require CONTRACTOR's resubmission of

a Submittal for ENGINEER's review, shall not constitute a basis of claim for adjustment in Contract Price or Contract Times.

- F. Non-specified Submissions: Submissions not required under these Contract Documents and not shown on schedule of Submittals submissions will not be reviewed and will be returned to CONTRACTOR.
- G. Transmit Submittals in accordance with current accepted schedule of Submittal submissions, and deliver as follows:
 - 1. Submittals to: Key West Historic Seaport, Deputy Port and Marine Services Director.
- H. Disposition of Submittals: As specified herein for administrative Submittals. ENGINEER will review, stamp, and indicate requirements for resubmission or acceptance on Submittal as follows:
 - 1. Reviewed as Noted:
 - a. Reference the General Conditions for intent.
 - b. CONTRACTOR may proceed to perform Submittal related Work.
 - c. One copy for ENGINEER's file.
 - d. One copy returned to CONTRACTOR.
 - 2. Revise and Resubmit (Revise/Correct or Develop Replacement and Resubmit):
 - a. Revise/correct in accordance with ENGINEER's comments and resubmit.
 - b. One copy to ENGINEER's file.
 - c. One copy returned to CONTRACTOR appropriately annotated.
- I. ENGINEER's Review: ENGINEER will act upon CONTRACTOR's Submittal and transmit response to CONTRACTOR not later than 30 days after receipt, unless: (i) specified otherwise or (ii) accepted by ENGINEER and identified on current accepted schedule of Submittals submissions. Re-submittals will be subject to the same review time.

1.02 SHOP DRAWINGS

- A. Description: Reference the General Conditions.
- B. Excessive Shop Drawing Review: Review of the first submission and two resubmissions of Shop Drawings will be performed by ENGINEER at no cost to CONTRACTOR. Subsequent additional resubmissions of that Shop Drawing will be reviewed by ENGINEER, however, ENGINEER will document work hours and other expenses required to perform such additional review(s). OWNER shall deduct these costs from Contractor's contract for reimbursement to the ENGINEER.
- C. Copies: Submit two (2) copies.

D. Submit Shop Drawings to ENGINEER for equipment and materials to be furnished under these Contract Documents.

E. Identify and Indicate:

1. Pertinent products, units and assemblies, and system or equipment identification or tag numbers.
2. Critical field dimensions and relationships to other critical features of Work.
 - a. Each deviation or variation from Contract Documents.

F. Resubmissions: Clearly identify each correction or change made.

G. Foreign Manufacturers: When proposed, include following additional information:

1. Names and addresses of at least two companies closest to Project that maintain technical service representatives.
2. Complete inventory of spare parts and accessories for each piece of equipment.

H. Preparation:

1. Format: Whenever possible, schedule for and combine Shop Drawings into a single Submittal package.
2. Present in a clear and thorough manner and of sufficient detail to show kind, size, arrangement, and function of components, materials, and devices and compliance with Contract Documents.

PART 4 PAYMENT

A. Payment for the work in this section will be incidental

SECTION 01700 CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 REQUIREMENTS

Contract completion includes substantial completion, final inspection after completion, final cleaning, contractor's closeout submittals, and final adjustment of accounts.

1.02 SUBSTANTIAL COMPLETION

- A. When Contractor considers work has reached substantial completion, he shall submit to the OWNER the following:
 - a. Written notice that the work is substantially complete in accordance with Contract Documents.
 - b. A list of items yet to be completed or corrected and explanations thereof.
- B. Within a reasonable time upon receipt of such notice, the OWNER will make an inspection, if necessary, to determine the status of completion.
- C. Should the OWNER determine that the work is not substantially complete:
 - a. The OWNER will promptly notify the Contractor in writing, giving the reasons thereof.
 - b. Contractor shall remedy the deficiencies in the work and send a second written notice of Substantial Completion to the OWNER.
 - c. Upon receipt of the second notice, the OWNER will review the work.
- D. When the OWNER finds that the Work is substantially complete he will issue a Certificate of Substantial Completion with a tentative list of items to be completed or corrected before final inspection.

1.03 FINAL INSPECTION AFTER COMPLETION

- A. When Contractor considers the Work is complete with all minor deficiencies completed or corrected, he shall submit written certification that:
 - a. Contract Document requirements have been met.
 - b. Work has been inspected for compliance with Contract Documents.

- c. Work has been completed in accordance with Contract Documents.
 - d. All minor deficiencies have been corrected or completed and the Work is ready for final inspection.
 - e. Project record documents are complete and submitted.
- B. Within a reasonable time upon receipt of such certification, the OWNER will make an inspection to verify the status of completion.
- C. Should the OWNER determine that the work is incomplete or defective:
- a. The OWNER will promptly notify the Contractor in writing, listing the incomplete or defective work.
 - b. Contractor shall remedy the deficiencies in the work and send a second written certification to the OWNER that the work is complete.
 - c. Upon receipt of the second certification, the OWNER will review the Work.
- D. When the OWNER determines that the work is acceptable, under the Contract Documents, he shall request the Contractor to make closeout submittals.

1.04 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Remove waste and surplus materials, rubbish, and construction facilities from the Project and from the site.

1.05 CONTRACTOR'S CLOSEOUT SUBMITTALS

- A. Project Record Documents
 - a. At Contract Closeout, submit documents with transmittal letter containing date, project title, Contractor's name and address, list of documents, and signature of Contractor.
 - b. Changes made by Field Order or by Change Order.
- B. Evidence of payment and Release of Liens.

1.06 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to the OWNER.
- B. Statement shall reflect all adjustments to the Contract Sum.
 - a. The original Contract sum.
 - b. Additions and deductions resulting from:
 - Previous change orders or written amendment.

- Allowances
 - Unit prices
 - Deductions for uncorrected work.
 - Deductions for liquidated damages
 - Other adjustments
- c. Total contract sum as adjusted
- d. Previous payments
- e. Sum remaining due

PART 5

TECHNICAL SPECIFICATIONS

5. Engineering Design Standards



ENGINEERING DESIGN STANDARDS

KEY WEST HISTORIC SEAPORT SEAWALL REPAIR AND REPLACEMENT PROJECT ID: 19-017

KEY WEST, FLORIDA

TECHNICAL SPECIFICATIONS

02/19/19



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SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

1.1.1 Project Information and Description of Work

The work includes the provision of all materials, equipment, and labor needed for the construction of the following:

Phase A, Turtle Kraals:

1. Construction of a series of footers/toe-walls anchored to the existing seawall with ChromX steel, measuring a total of approximately 174 LF in length and a 30.75 CY volume of concrete. The footer shall not extend more than 18" waterward of the existing wall.
2. Installation of grout and epoxy repairs as shown on the plans.
3. All incidental work necessary to facilitate the construction as shown on the plans

Phase B, Schooner Wharf:

1. Replacement of utility hangers beneath the marginal dock to the east of the Schooner Wharf restaurant.
2. Flowable fill injection (~2.1 CY) behind the wall at void locations shown on the plans.
3. Replacement of the top 2 FT of ~60 LF of concrete cap, including the temporary deconstruction of the adjacent upland ipe decking and supporting timber and replacement of the same.
4. All incidental work necessary to facilitate the construction as shown on the plans

Phase C, Conch Republic:

1. Preconstruction video surveys of all buildings, internal and external, within a 50 LF radius of proposed driving activities
2. Installation of approximately 333 LF of A690 SKZ-31 sheetpile cantilever seawall with approximately 333 LF of ChromX Steel reinforced concrete cap and all incidental work necessary to facilitate that construction, including but not limited to:
3. Disconnection and re-connection of utilities servicing 3 docks and 1 pedestrian bridge
4. Extensions of all drainage penetrations through the new seawall with similar material
5. Provision & maintenance of temporary utilities (water, fire suppression, vacuum sewer, and electric, etc.) to the docks
6. Provision & maintenance of ADA accessible gangways to the docks throughout construction
7. Re-connection of the 3 docks and 1 pedestrian bridge
8. Fiberglass reinforced polymer utility hangers cast into the underside of the proposed cap for the vacuum sewer pumpout system
9. Replacement of six (6) valves immediately upland of docks H1, H2 & H3 (3 fire, 3 potable water)
10. Electrical work as shown on the plans
11. All incidental work necessary to facilitate the construction as shown on the plans

Construction phases of the project shall be sequenced in an order to be determined by the City/CRA's schedule and discretion. A summary of the contractor's anticipated activities involved with this project include, but are not limited to the following:

- a. Obtaining all necessary permits, including NPDES permits and City Building Permits, and complying with said permits.
- b. Submittal of shop drawings
- c. Preparation and maintenance of a submittal register
- d. Field staking the sheetpile alignment and obtaining City/Engineer approval prior to initiating site preparation activities
- e. Preconstruction video surveys of all buildings, internal and external, within a 50 LF radius of proposed driving activities
- f. Securing site and staging area(s): Includes the installation of barriers/fencing/signs to keep pedestrians safely out of the construction site, and the installation of sediment and turbidity barriers to keep construction debris within the construction zone
- g. Maintenance of traffic to access the construction site by land and sea
- h. Maintenance of pedestrian traffic throughout the course of construction at a safe distance from construction activities
- i. Maintenance of pedestrian traffic to and from the affected dock areas, including the provision and maintenance of any required ADA accessible path(s) and gangway(s)
- j. Provision and maintenance of all temporary utilities to the docks during construction
- k. Coordination with City Staff and Bight Patrons/Residents as required to maintain utilities and access
- l. Installation and continuous maintenance of NPDES BMPs throughout construction
- m. Removal and proper disposal of all sunken debris within 10 FT of the existing seawall per the NOAA permit condition
- n. Demolition and disposal of existing concrete cap as denoted in the plans
- o. Vibration monitoring of adjacent buildings within 50 LF radius of driving activities during all driving activities
- p. Driving of sheetpile along the staked alignment approved by the City/Engineer
- q. Extension of all utility penetrations through the new seawall with similar materials and City/Engineer approved unions/connections, with Fernco couplings as denoted in the plan details
- r. Filling void between steel sheetpile and existing seawall with approved fill material & filter fabric
- s. Construction of two closure pours at the ends of the seawall
- t. Forming, placing reinforcement, and casting new concrete seawall cap
- u. Forming, placing reinforcement, and casting the concrete footer/toe walls
- v. Replacement of six (6) water/fire valves
- w. Restoration of all site areas utilized by the Contractor to equal or better condition
- x. Maintenance of as-built records and submittal of as-built survey.

1.1.2 Location

The work is located at the KEY WEST BIGHT from Margaret Street at the east end to the north side of the Conch Republic Restaurant. The address is 201 William Street, Key West, FL 33040.

1.1.1 Project Information and Description of Work Project Considerations

Several unique considerations for the project need to be accounted for in the bids and proposed construction methods of the prospective contractor(s) in order to ensure a safe and successful project. No additional payment beyond the awarded bid shall be made to the contractor for failure to be aware of and account for these or other constraints of the project. These include, but are not limited to the following:

1. Debris Removal
 - a. It is a condition of the permit that the contractor shall remove all submerged debris within 10 FT of the seawall anywhere that work is being performed.
 - b. The contractor shall remove this debris from the basin entirely and transport it for proper disposal. The contractor will not be permitted to relocate this debris elsewhere within the basin.
2. Phasing Schedule
 - a. The project shall be phased at the discretion and schedule of the City/CRA
3. Site Access
 - a. The project is located in a heavily trafficked pedestrian area and will require provision of MOT best practices to ensure safe passage around the construction fencing
 - b. The staging areas depicted on the plans will be further discussed during bidding and/or with the awarded contractor. The contractor should be prepared to construct the project from water, land, or a combination of both.
4. Presence of Historical Structures/Vibration Monitoring
 - a. Several of the structures adjacent to the Key West Bight are designated as historical structures.
 - b. Pre-construction and Post-construction video surveys as well as seismic monitoring during driving activities are included as part of this project to record and monitor the condition and potential for adverse impacts to these structures as a result of construction activity.
 - c. Should the seismic monitoring or other procedures reveal any adverse impacts or potential of the same to these structures as a result of construction activities, the contractor shall adjust his means and methods as necessary to reduce vibratory impacts to a level that will not adversely affect structures.
5. Coordination with Ports & Marine Staff & Marina Patrons
 - a. The contractor shall be aware of the presence of marine life within the Bight basin, including coral species and various species of sharks and shall take appropriate precautions.
 - b. The contractor will be expected to provide timely schedules and notices to dock patrons, residents, or other affected parties as to the interruption of utility service, and shall strive to the extent possible to limit service interruptions.
 - c. The contractor shall supply all temporary utilities during periods of disconnection

1.2 OCCUPANCY OF PREMISES

Building(s) will be occupied during performance of work under this Contract.

Before work is started, arrange with the City of Key West to provide a sequence of construction, means of access, space for storage of materials and equipment, and use of roads, parking, and all other facilities that will be impacted by the work and provide this plan at the pre-construction meeting.

1.3 LOCATION OF UNDERGROUND UTILITIES

Obtain digging permits prior to start of excavation and comply with Installation requirements for locating and marking underground utilities. Contact local utility locating service a minimum of 48 hours prior to excavating, to mark utilities, and within sufficient time required if work occurs on a Monday or after a Holiday. Verify existing utility locations indicated on contract drawings, within area of work.

Identify and mark all other utilities not managed and located by the local utility companies. It will be up to the contractor to field verify the elevations of existing wall, docks, piping, utilities, and any type of underground obstruction not indicated, or specified to be removed. Verify elevations before installing new work closer than nearest manhole or other structure at which an adjustment in grade can be made. Existing drains and other services that currently extend through the existing concrete wall shall be maintained, extended through the new wall, and reconnected as necessary.

1.3.1 Notification Prior to Excavation

Notify the CITY at least 48 hours prior to starting excavation work.

1.4 SALVAGE MATERIAL AND EQUIPMENT

CONTRACTOR responsible for collection, storage and disposal of all demolished materials at approved location off-site. No debris shall be buried anywhere on the project site.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 33 00

SUBMITTAL PROCEDURES 05/11

PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 Submittal Descriptions (SD)

Submittals requirements are specified in the technical sections. Submittals are identified by Submittal Description (SD) numbers and titles as follows:

SD-01 Preconstruction Submittals

Submittals which are required prior to construction:

- Certificates of insurance
- Surety bonds
- List of proposed subcontractors
- List of proposed products
- Construction progress schedule
- Submittal register
- Schedule of prices or Earned Value Report
- Health and safety plan
- Work plan
- Quality control(QC) plan
- Environmental protection plan
- Hurricane Preparedness Plan
- All Project Materials

Plans submitted may be in written (paragraph) or graphical (drawing) form depending on the needs of the City's Representative. Plans written in paragraph form shall be detailed enough to adequately described the plan of action for the work item. Plans and shop drawings prepared in graphical form shall be clear, concise and drawn to scale if possible. Drawings not drawn to scale shall be clearly identified as such. All drawings shall use the same elevation data provided on the design build (RFP) drawings.

SD-02 Shop Drawings

Shop drawings are defined as drawings, diagrams and schedules specifically prepared to illustrate some portion of the work. The shop drawings for the steel sheet pile selection, the concrete cap mix design, & timber pile installation will all need to be signed and sealed by a Professional Engineer registered in the State of Florida and submitted to the CITY and the City's Representative for approval.

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 in the project do not need to be signed and sealed as described above but should be included as a reference.

Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will interact with one another shall be coordinated with the CITY and/or its representatives as necessary.

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 ensuing 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.

SD-06 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-07 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-08 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. Record drawings shall identify any plan deviations made through the course of construction as well as elevations of the seawall cap and adjacent grades

1.1.2 Approving Authority

Office or designated person authorized to approve submittals is the City of Key West Engineering Department and/ or the City's Representative.

1.1.3 Work

As used in this section, on- and off-site construction required by contract documents, including labor necessary to produce submittals, construction, materials, products, equipment, and systems incorporated or to be incorporated in such construction.

1.2 SUBMITTALS

CITY approval, or approval from a City delegated agent/engineer is required for submittals. All submittals listed in SD-01 or as requested by the City and/or Engineer.

1.3 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.3.1 CITY Approved

Within the terms of the Contract Clause SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION, they are considered to be "shop drawings."

1.4 PREPARATION

1.4.1 Source Drawings for Shop Drawings

The entire set of Source Drawing files (DWG) will not be provided to the Contractor. Only those requested by the Contractor to prepare shop drawings will be provided. Request the specific Drawing Number only for the preparation of Shop Drawings. These drawings will only be provided after award.

1.4.1.1 Terms and Conditions

Data contained on these electronic files must not be used for any purpose other than as a convenience in the preparation of construction data for the referenced project. Any other use or reuse shall be at the sole risk of the Contractor and without liability or legal exposure to the CITY. The Contractor must make no claim and waives to the fullest extent permitted by law, any claim or cause of action of any nature against the CITY, its agents or sub consultants that may arise out of or in connection with the use of these electronic files. The Contractor must, to the fullest extent permitted by law, indemnify and hold the CITY harmless against all damages, liabilities or costs, including reasonable attorney's fees and defense costs, arising out of or resulting from the use of these electronic files.

These electronic Source Drawing files are not construction documents. Differences may exist between the Source Drawing files and the corresponding construction documents. The CITY makes no representation regarding the accuracy or completeness of the electronic Source Drawing files, nor does it make representation to the compatibility of these files with the Contractor hardware or software. In the event that a conflict arises between the furnished Source Drawing files provided by the CITY and the signed and sealed construction provided by the EOR, the EORs' documents govern. The Contractor is responsible for determining if any conflict exists. Use of these Source Drawing files does not relieve the Contractor of duty to fully comply with the contract documents, including and without limitation, the need to check, confirm and coordinate the work of all contractors for the project. If the Contractor uses, duplicates or modifies these electronic Source Drawing files for use in producing construction data related to this contract, remove all previous indicia of ownership (seals, logos, signatures, initials and dates).

1.5 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the CITY is not required on information only submittals. The CITY reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the CITY from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the CITY laboratory or for check testing by the CITY in those instances where the technical specifications so prescribe.

1.6 SUBMITTAL REGISTER

Prepare and maintain submittal register, as the work progresses. Do not change data which is output in columns (c), (d), (e), and (f) as delivered by CITY; retain data which is output in columns (a), (g), (h), and (i) as approved. A submittal register showing items of equipment and materials for which submittals are required by the specifications is provided as an attachment. This list may not be all inclusive and additional submittals may be required. The CITY will provide an initial submittal register in electronic format with the following fields completed. The contractor may use this format or may provide his own as long as all of the "columns" described below are included.

Column (c): Lists specification section in which submittal is required.

Column (d): Lists each submittal description (SD No. and type, e.g. SD-02 Shop Drawings) required in each specification section.

Column (e): Lists one principal paragraph in specification section where a material or product is specified. This listing is only to facilitate locating submitted requirements. Do not consider entries in column (e) as limiting project requirements.

Thereafter, the Contractor is to track all submittals by maintaining a complete list, including completion of all data columns, including dates on which submittals are received and returned by the CITY.

1.6.1 Use of Submittal Register

Submit submittal register. Submit with QC plan and project schedule. Verify that all submittals required for project are listed and add missing submittals. Coordinate and complete the following fields on the register submitted with the QC plan and the project schedule:

Column (a) Activity Number: Activity number from the project schedule.

Column (g) Contractor Submit Date: Scheduled date for approving authority to receive submittals.

Column (h) Contractor Approval Date: Date Contractor needs approval of submittal.

Column (i) Contractor Material: Date that Contractor needs material delivered to Contractor control.

1.6.2 Contractor Use of Submittal Register

Update the following fields in the CITY-furnished submittal register program or equivalent fields in program utilized by Contractor with each submittal throughout contract.

Column (b) Transmittal Number: Contractor assigned list of consecutive numbers.

Column (j) Action Code (k): Date of action used to record Contractor's review when forwarding submittals to QC.

Column (l) List date of submittal transmission.

Column (q) List date approval received.

1.6.3 Approving Authority Use of Submittal Register

Update the following fields in the CITY-furnished submittal register program or equivalent fields in program utilized by Contractor.

Column (b) Transmittal Number: Contractor assigned list of consecutive numbers.

Column (l) List date of submittal receipt.

Column (m) through (p) List Date related to review actions.

Column (q) List date returned to Contractor.

1.6.4 Copies Delivered to the CITY

Deliver one copy of submittal register updated by Contractor to CITY with each payment application.

1.7 VARIATIONS

Variations from contract requirements require both Engineer of Record (EOR) and CITY approval and will be considered where advantageous to CITY.

1.7.1 Considering Variations

Discussion with CITY prior to submission, after consulting with the DOR, will help ensure functional and quality requirements are met and minimize rejections and re-submittals. When contemplating a variation which results in lower cost, consider submission of the variation as a Value Engineering Change Proposal (VECP).

Specifically point out variations from contract requirements in transmittal letters. Failure to point out deviations may result in the CITY requiring rejection and removal of such work at no additional cost to the CITY.

1.7.2 Proposing Variations

When proposing variation, deliver written request to the CITY, with documentation of the nature and features of the variation and why the variation is desirable and beneficial to CITY, including the DOR's written analysis and approval. If lower cost is a benefit, also include an estimate of the cost savings. In addition to documentation required for variation, include the submittals required for the item. Clearly mark the proposed variation in all documentation.

1.7.3 Warranting that Variations are Compatible

When delivering a variation for approval, Contractor, including its Engineer(s) of Record, warrants that this contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of work.

1.7.4 Review Schedule Extension

In addition to normal submittal review period, a period of 10 working days will be allowed for consideration by the CITY of submittals with variations.

1.8 SCHEDULING

Schedule and submit concurrently submittals covering component items forming a system or items that are interrelated. Include certifications to be submitted with the pertinent drawings at the same time. No delay damages or time extensions will be allowed for time lost in late submittals.

- a. Coordinate scheduling, sequencing, preparing and processing of submittals with performance of work so that work will not be delayed by submittal processing. Allow for potential resubmittal of requirements.
- b. Submittals called for by the contract documents will be listed on the register. If a submittal is called for but does not pertain to the contract work, the Contractor is to include the submittal in the register and annotate it "N/A" with a brief explanation. Approval by the CITY does not relieve the Contractor of supplying submittals required by the contract documents but which have been omitted from the register or marked "N/A."
- c. Re-submit register and annotate monthly by the Contractor with actual submission and approval dates. When all items on the register have been fully approved, no further re-submittal is required.
- d. Carefully control procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

1.9 CITY APPROVING AUTHORITY

When approving authority is CITY's Resident Project Representative (RPR), the CITY's RPR will:

- a. Note date on which submittal was received.
- b. Review submittals for approval within scheduling period specified and only for conformance with project design concepts and compliance with contract documents.
- c. Identify returned submittals with one of the actions defined in paragraph REVIEW NOTATIONS and with markings appropriate for action indicated.

Upon completion of review of submittals requiring CITY approval, stamp and date submittals. Two copies of the submittal will be retained by the CITY and two copies of the submittal will be returned to the Contractor.

1.9.1 Review Notations

Submittals will be returned to the Contractor with the following notations:

- a. Submittals marked "approved" or "accepted" authorize the Contractor to proceed with the work covered.
- b. Submittals marked "approved as noted" or "approved, except as noted, resubmittal not required," authorize the Contractor to proceed with the work covered provided he takes no exception to the corrections.

- c. Submittals marked "not approved" or "disapproved," or "revise and resubmit," indicate noncompliance with the contract requirements or design concept, or that submittal is incomplete. Resubmit with appropriate changes. No work shall proceed for this item until resubmittal is approved.
- d. Submittals marked "not reviewed" will indicate submittal has been previously reviewed and approved, is not required, does not have evidence of being reviewed and approved by Contractor, or is not complete. A submittal marked "not reviewed" will be returned with an explanation of the reason it is not reviewed. Resubmit submittals returned for lack of review by Contractor or for being incomplete, with appropriate action, coordination, or change.

1.10 DISAPPROVED OR REJECTED SUBMITTALS

Make corrections required by the CITY's RPR. If the Contractor considers any correction or notation on the returned submittals to constitute a change to the contract drawings or specifications; notice is to be given to the CITY. Contractor is responsible for the dimensions and design of connection details and construction of work. Failure to point out deviations may result in the CITY requiring rejection and removal of such work at the Contractor's expense.

If changes are necessary to submittals, make such revisions and submission of the submittals in accordance with the procedures above. No item of work requiring a submittal change is to be accomplished until the changed submittals are approved.

1.11 APPROVED OR ACCEPTED SUBMITTALS

Approval or acceptance will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (CQC) requirements of this contract is responsible for.

After submittals have been approved or accepted by the CITY's RPR, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.12 APPROVED SAMPLES

Approval of a sample is only for the characteristics or use named in such approval and is not be construed to change or modify any contract requirements. Before submitting samples, the Contractor is to assure that the materials or equipment will be available in quantities required in the project. No change or substitution will be permitted after a sample has been approved.

Match the approved samples for materials and equipment incorporated in the work. If requested, approved samples, including those which may be damaged in testing, will be returned to the Contractor, at his expense, upon completion of the contract. Samples not approved will also be returned to the Contractor at its expense, if so requested.

Failure of any materials to pass the specified tests will be sufficient cause for refusal to consider, under this contract, any further samples of the same brand or make of that material. CITY (and the

City's RPR) reserve(s) the right to disapprove any material or equipment which previously has proved unsatisfactory in service.

Samples of various materials or equipment delivered on the site or in place may be taken by the CITY for testing. Samples failing to meet contract requirements will automatically void previous approvals. Contractor to replace such materials or equipment to meet contract requirements.

Approval of the Contractor's samples by the CITY does not relieve the Contractor of his responsibilities under the contract.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

SECTION 01 50 00

TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS

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.

U.S. FEDERAL AVIATION ADMINISTRATION (FAA)

FAA AC 70/7460-1

(2007; Rev K) Obstruction Marking and Lighting

1.2 SUBMITTALS

CITY approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Construction Site Plan; G
Hurricane Preparedness Plan; G

1.3 CONSTRUCTION SITE PLAN

Prior to the start of work, submit a site plan showing the locations and dimensions of temporary facilities (including layouts and details, equipment and material storage area (onsite and offsite), and access and haul routes, avenues of ingress/egress to the fenced area and details of the fence installation. Identify any areas which may have to be graveled to prevent the tracking of mud. Indicate if the use of a supplemental or other staging area is desired. Show locations of safety and construction fences, site trailers, construction entrances, trash dumpsters, temporary sanitary facilities, and worker parking areas.

1.4 HURRICANE CONDITION OF READINESS

Unless directed otherwise, comply with:

- a. Condition FOUR Sustained winds of 50 knots or greater expected within 72 hours: Normal daily jobsite cleanup and good housekeeping practices. Collect and store in piles or containers scrap lumber, waste material, and rubbish for removal and disposal at the close of each work day. Maintain the construction site including storage areas, free of accumulation of debris. Stack form lumber in neat piles less than 4 feet high. Remove all debris, trash, or objects that could become missile hazards.

- b. Condition THREE Sustained winds of 50 knots or greater expected within 48 hours: Maintain "Condition FOUR" requirements and commence securing operations necessary for "Condition ONE" which cannot be completed within 18 hours. Cease all routine activities which might interfere with securing operations. Commence securing and stow all gear and portable equipment. Make preparations for securing buildings. Review requirements pertaining to "Condition TWO" and continue action as necessary to attain "Condition THREE" readiness. Contact CITY for weather and Condition of Readiness (COR) updates and completion of required actions.
- c. Condition TWO Sustained winds of 50 knots or greater expected within 24 hours: Curtail or cease routine activities until securing operation is complete. Reinforce or remove form work and scaffolding. Secure machinery, tools, equipment, materials, or remove from the jobsite. Expend every effort to clear all missile hazards and loose equipment from general base areas. Contact CITY for weather and COR updates and completion of required actions.
- d. Condition ONE. Sustained winds of 50 knots or greater expected within 12 hours: Secure the jobsite, and leave CITY premises.

PART 2 PRODUCTS

2.1 TEMPORARY SIGNAGE

2.1.1 Bulletin Board

Immediately upon beginning of work, provide a weatherproof glass-covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, Wage Rate Information poster, and other information approved by the CITY.

2.1.2 Project and Safety Signs

The requirements for the signs, their content, and location are as indicated. Erect signs within 15 days after receipt of the notice to proceed. Correct the data required by the safety sign daily, with light colored metallic or non-metallic numerals.

PART 3 EXECUTION

3.1 EMPLOYEE PARKING

Contractor employees will park privately owned vehicles in an area designated by the CITY. This area will be within reasonable walking distance of the construction site. Contractor employee parking must not interfere with existing and established parking requirements of the CITY installation.

3.2 TEMPORARY BULLETIN BOARD

Locate the bulletin board at the project site in a conspicuous place easily accessible to all employees, as approved by the CITY.

3.3 AVAILABILITY AND USE OF UTILITY SERVICES

3.3.1 Temporary Utilities

Provide temporary utilities required for construction. Materials may be new or used, must be adequate for the required usage, not create unsafe conditions, and not violate applicable codes and standards.

3.3.2 Sanitation

- a. Provide and maintain within the construction area minimum field-type sanitary facilities approved by the CITY and periodically remove waste to a commercial facility. Any penalties and / or fines associated with improper discharge will be the responsibility of the Contractor. Maintain these conveniences at all times without nuisance. Include provisions for pest control and elimination of odors. CITY toilet facilities will not be available to Contractor's personnel.

3.3.3 Telephone

Make arrangements and pay all costs for telephone facilities desired.

3.3.4 Obstruction Lighting of Cranes

Provide a minimum of 2 aviation red or high intensity white obstruction lights on temporary structures (including cranes) over 100 feet above ground level. Light construction and installation must comply with FAA AC 70/7460-1. Lights must be operational during periods of reduced visibility, darkness, and as directed by the CITY.

3.3.5 Fire Protection

Provide temporary fire protection equipment for the protection of personnel and property during construction. Remove debris and flammable materials daily to minimize potential hazards.

3.4 TRAFFIC PROVISIONS

3.4.1 Maintenance of Traffic

- a. Conduct operations in a manner that will not close any thoroughfare or interfere in any way with traffic on roads or highways except with written permission of the CITY at least 15 calendar days prior to the proposed modification date. Contractor may move oversized and slow-moving vehicles to the worksite provided requirements of the highway authority have been met.
- b. Conduct work so as to minimize obstruction of traffic, and maintain traffic on at least half of the roadway width at all times. Obtain approval from the CITY prior to starting any activity that will obstruct traffic.

- c. Provide, erect, and maintain, at contractors expense, lights, barriers, signals, passageways, detours, and other items, that may be required by the Life Safety Signage, overhead protection authority having jurisdiction.

3.4.2 Protection of Traffic

Maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the CITY. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment, the work, and the erection and maintenance of adequate warning, danger, and direction signs, will be as required by the State and local authorities having jurisdiction. Protect the traveling public from damage to person and property. Minimize the interference with public traffic on roads selected for hauling material to and from the site. Investigate the adequacy of existing roads and their allowable load limit. Contractor is responsible for the repair of any damage to roads caused by construction operations.

3.4.3 Rush Hour Restrictions

Do not interfere with the peak traffic flows preceding and during normal operations without notification to and approval by the CITY.

3.4.4 Dust Control

Dust control methods and procedures must be approved by the CITY. Treat dust abatement on access roads with applications of calcium chloride, water sprinklers, or similar methods or treatment.

3.5 CONTRACTOR'S TEMPORARY FACILITIES

Contractor-owned or -leased trailers must be identified by CITY assigned numbers. Apply the number to the trailer within 14 calendar days of notification, or sooner, if directed by the CITY.

3.5.1 Safety

Protect the integrity of any installed safety systems or personnel safety devices. If entrance into systems serving safety devices is required, the Contractor must obtain prior approval from the CITY. If it is temporarily necessary to remove or disable personnel safety devices in order to accomplish contract requirements, provide alternative means of protection prior to removing or disabling any permanently installed safety devices or equipment and obtain approval from the CITY.

3.5.2 Storage Area

Construct a temporary 6 foot high chain link fence around trailers and materials. Include plastic strip inserts, colored green, so that visibility through the fence is obstructed. Fence posts may be driven, in lieu of concrete bases, where soil conditions permit. Do not place or store Trailers, materials, or equipment outside the fenced area unless such trailers, materials, or equipment are assigned a separate and distinct storage area by the CITY away from the vicinity of the construction site but within the installation boundaries. Trailers, equipment, or materials must not be open to public view with the exception of those items which are in support of ongoing work on any given day. Do not

stockpile materials outside the fence in preparation for the next day's work. Park mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment within the fenced area at the end of each work day.

3.5.3 Supplemental Storage Area

Not Applicable.

3.5.4 Appearance of Trailers

- a. Trailers utilized by the Contractor for administrative or material storage purposes must present a clean and neat exterior appearance and be in a state of good repair. Trailers which, in the opinion of the CITY, require exterior painting or maintenance will not be allowed on installation property.
- b. Maintain the temporary facilities. Failure to do so will be sufficient reason to require their removal.

3.5.5 Maintenance of Storage Area

- a. Keep fencing in a state of good repair and proper alignment. Grassed or unpaved areas, which are not established roadways, will be covered with a layer of gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways, should the Contractor elect to traverse them with construction equipment or other vehicles; gravel gradation will be at the Contractor's discretion. Mow and maintain grass located within the boundaries of the construction site for the duration of the project. Grass and vegetation along fences, buildings, under trailers, and in areas not accessible to mowers will be edged or trimmed neatly.

3.5.6 Security Provisions

Provide adequate outside security lighting at the Contractor's temporary facilities. The Contractor will be responsible for the security of its own equipment; in addition, the Contractor will notify the appropriate law enforcement agency requesting periodic security checks of the temporary project field office.

3.5.7 Weather Protection of Temporary Facilities and Stored Materials

Take necessary precautions to ensure that roof openings and other critical openings in the building are monitored carefully. Take immediate actions required to seal off such openings when rain or other detrimental weather is imminent, and at the end of each workday. Ensure that the openings are completely sealed off to protect materials and equipment in the building from damage.

3.5.7.1 Building and Site Storm Protection

When a warning of gale force winds is issued, take precautions to minimize danger to persons, and protect the work and nearby CITY property. Precautions must include, but are not limited to, closing openings; removing loose materials, tools and equipment from exposed locations; and removing or

securing scaffolding and other temporary work. Close openings in the work when storms of lesser intensity pose a threat to the work or any nearby CITY property.

3.6 FIELD OFFICE

3.6.1 Trailer-Type Mobile Office

The Contractor may, at its option, and with City approval, furnish and maintain a trailer-type mobile office acceptable to the CITY and providing as a minimum the facilities specified above. Securely anchor the trailer to the ground at all four corners to guard against movement during high winds.

3.7 TEMPORARY PROJECT SAFETY FENCING

As soon as practicable, but not later than 15 days after the date established for commencement of work, furnish and erect temporary project safety fencing at the work site. Maintain the safety fencing during the life of the contract and, upon completion and acceptance of the work, will become the property of the Contractor and be removed from the work site.

3.8 CLEANUP

Remove construction debris, waste materials, packaging material and the like from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways must be cleaned away. Store any salvageable materials resulting from demolition activities within the fenced area described above or at the supplemental storage area. Neatly stack stored materials not in trailers, whether new or salvaged.

3.9 RESTORATION OF STORAGE AREA

Upon completion of the project remove the bulletin board, signs, barricades, haul roads, and any other temporary products from the site. After removal of trailers, materials, and equipment from within the fenced area, remove the fence that will become the property of the Contractor. Restore areas used by the Contractor for the storage of equipment or material, or other use to the original or better condition. Remove gravel used to traverse grassed areas and restore the area to its original condition, including top soil and seeding as necessary.

-- End of Section --

TEMPORARY ENVIRONMENTAL CONTROLS

11/15

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.

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.120	Hazardous Waste Operations and Emergency Response
40 CFR 112	Oil Pollution Prevention
40 CFR 122.26	Storm Water Discharges (Applicable to State NPDES Programs, see section 123.25)
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 261.7	Residues of Hazardous Waste in Empty Containers
40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
40 CFR 268	Land Disposal Restrictions
40 CFR 273	Standards for Universal Waste Management
40 CFR 279	Standards for the Management of Used Oil
40 CFR 403	General Pretreatment Regulations for Existing and New Sources of Pollution
40 CFR 60	Standards of Performance for New Stationary Sources
40 CFR 63	National Emission Standards for Hazardous Air Pollutants for Source Categories
49 CFR 171	General Information, Regulations, and Definitions
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
49 CFR 173	Shippers - General Requirements for Shipments and Packaging

1.2 DEFINITIONS

1.2.1 Class I and II Ozone Depleting Substance (ODS)

Class I ODS is defined in Section 602(a) of The Clean Air Act. A list of Class I ODS can be found on the EPA website at the following weblink. <http://www.epa.gov/ozone/science/ods/classone.html>.

Class II ODS is defined in Section 602(s) of The Clean Air Act. A list of Class II ODS can be found on the EPA website at the following weblink. <http://www.epa.gov/ozone/science/ods/classtwo.html>.

1.2.2 Contractor Generated Hazardous Waste

Contractor generated hazardous waste is materials that, if abandoned or disposed of, may meet the definition of a hazardous waste. These waste streams would typically consist of material brought on site by the Contractor to execute work, but are not fully consumed during the course of construction. Examples include, but are not limited to, excess paint thinners (i.e. methyl ethyl ketone, toluene), waste thinners, excess paints, excess solvents, waste solvents, excess pesticides, and contaminated pesticide equipment rinse water.

1.2.3 Electronics Waste

Electronics waste is discarded electronic devices intended for salvage, recycling, or disposal.

1.2.4 Environmental Pollution and Damage

Environmental pollution and damage is the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the environment aesthetically, culturally or historically.

1.2.5 Environmental Protection

Environmental protection is the prevention/control of pollution and habitat disruption that may occur to the environment during construction. The control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.2.6 Hazardous Debris

As defined in paragraph SOLID WASTE, debris that contains listed hazardous waste (either on the debris surface, or in its interstices, such as pore structure) in accordance with 40 CFR 261. Hazardous debris also includes debris that exhibits a characteristic of hazardous waste in accordance with 40 CFR 261.

1.2.7 Hazardous Materials

Hazardous materials as defined in 49 CFR 171 and listed in 49 CFR 172.

Hazardous material is any material that: Is regulated as a hazardous material in accordance with 49 CFR 173; or requires a Safety Data Sheet (SDS) in accordance with 29 CFR 1910.120; or during end use, treatment, handling, packaging, storage, transportation, or disposal meets or has components that meet or have potential to meet the definition of a hazardous waste as defined by 40 CFR 261 Subparts A, B, C, or D. Designation of a material by this definition, when separately regulated or controlled by other sections or directives, does not eliminate the need for adherence to that hazard-specific guidance which takes precedence over this section for "control" purposes. Such material includes ammunition, weapons, explosive actuated devices, propellants, pyrotechnics, chemical and biological warfare materials, medical and pharmaceutical supplies, medical waste and infectious materials, bulk fuels, radioactive materials, and other materials such as asbestos, mercury, and polychlorinated biphenyls (PCBs).

1.2.8 Hazardous Waste

Hazardous Waste is any material that meets the definition of a solid waste and exhibit a hazardous characteristic (ignitability, corrosivity, reactivity, or toxicity) as specified in 40 CFR 261, Subpart C, or contains a listed hazardous waste as identified in 40 CFR 261, Subpart D.

1.2.9 Land Application

Land Application means spreading or spraying discharge water at a rate that allows the water to percolate into the soil. No sheeting action, soil erosion, discharge into storm sewers, discharge into defined drainage areas, or discharge into the "waters of the United States" must occur. Comply with federal, state, and local laws and regulations.

1.2.10 Municipal Separate Storm Sewer System (MS4) Permit

MS4 permits are those held by installations to obtain NPDES permit coverage for their stormwater discharges.

1.2.11 National Pollutant Discharge Elimination System (NPDES)

The NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

1.2.12 Oily Waste

Oily waste are those materials that are, or were, mixed with Petroleum, Oils, and Lubricants (POLs) and have become separated from that POLs. Oily wastes also means materials, including wastewaters, centrifuge solids, filter residues or sludges, bottom sediments, tank bottoms, and sorbents which have come into contact with and have been contaminated by, POLs and may be appropriately tested and discarded in a manner which is in compliance with other state and local requirements.

This definition includes materials such as oily rags, "kitty litter" sorbent clay and organic sorbent material. These materials may be land filled provided that: It is not prohibited in other state regulations or local ordinances; the amount generated is "de minimus" (a small amount); it is the

result of minor leaks or spills resulting from normal process operations; and free-flowing oil has been removed to the practicable extent possible. Large quantities of this material, generated as a result of a major spill or in lieu of proper maintenance of the processing equipment, are a solid waste. As a solid waste, perform a hazardous waste determination prior to disposal. As this can be an expensive process, it is recommended that this type of waste be minimized through good housekeeping practices and employee education.

1.2.13 Regulated Waste

Regulated waste are solid wastes that have specific additional federal, state, or local controls for handling, storage, or disposal.

1.2.14 Sediment

Sediment is soil and other debris that have eroded and have been transported by runoff water or wind.

1.2.15 Solid Waste

Solid waste is a solid, liquid, semi-solid or contained gaseous waste. A solid waste can be a hazardous waste, non-hazardous waste, or non-Resource Conservation and Recovery Act (RCRA) regulated waste. Types of solid waste typically generated at construction sites may include:

1.2.15.1 Debris

Debris is non-hazardous solid material generated during the construction, demolition, or renovation of a structure that exceeds 2.5-inch particle size that is: a manufactured object; plant or animal matter; or natural geologic material (for example, cobbles and boulders), broken or removed concrete, masonry, and rock asphalt paving; ceramics; roofing paper and shingles. Inert materials may be reinforced with or contain ferrous wire, rods, accessories and weldments. A mixture of debris and other material such as soil or sludge is also subject to regulation as debris if the mixture is comprised primarily of debris by volume, based on visual inspection.

1.2.15.2 Green Waste

Green waste is the vegetative matter from landscaping, land clearing and grubbing, including, but not limited to, grass, bushes, scrubs, small trees and saplings, tree stumps and plant roots. Marketable trees, grasses and plants that are indicated to remain, be re-located, or be re-used are not included.

1.2.15.3 Material not regulated as solid waste

Material not regulated as solid waste is nuclear source or byproduct materials regulated under the Federal Atomic Energy Act of 1954 as amended; suspended or dissolved materials in domestic sewage effluent or irrigation return flows, or other regulated point source discharges; regulated air emissions; and fluids or wastes associated with natural gas or crude oil exploration or production.

1.2.15.4 Non-Hazardous Waste

Non-hazardous waste is waste that is excluded from, or does not meet, hazardous waste criteria in accordance with 40 CFR 263.

1.2.15.5 Recyclables

Recyclables are materials, equipment and assemblies such as doors, windows, door and window frames, plumbing fixtures, glazing and mirrors that are recovered and sold as recyclable, and structural components. It also includes used fuel oil, textiles, high-grade paper products and corrugated cardboard, stackable pallets in good condition, clean crating material, and clean rubber/vehicle tires. Metal meeting the definition of lead contaminated or lead based paint contaminated may not be included as recyclable if sold to a scrap metal company. Paint cans that meet the definition of empty containers in accordance with 40 CFR 261.7 may be included as recyclable if sold to a scrap metal company.

1.2.15.6 Surplus Soil

Surplus soil is existing soil that is in excess of what is required for this work, including aggregates intended, but not used, for on-site mixing of concrete, mortars, and paving. Contaminated soil meeting the definition of hazardous material or hazardous waste is not included and must be managed in accordance with paragraph HAZARDOUS MATERIAL MANAGEMENT.

1.2.15.7 Scrap Metal

This includes scrap and excess ferrous and non-ferrous metals such as reinforcing steel, structural shapes, pipe, and wire that are recovered or collected and disposed of as scrap. Scrap metal meeting the definition of hazardous material or hazardous waste is not included.

1.2.15.8 Wood

Wood is dimension and non-dimension lumber, plywood, chipboard, hardboard. Treated or painted wood that meets the definition of lead contaminated or lead based contaminated paint is not included. Treated wood includes, but is not limited to, lumber, utility poles, crossties, and other wood products with chemical treatment.

1.2.16 Surface Discharge

Surface discharge means discharge of water into drainage ditches, storm sewers, creeks or "waters of the United States". Surface discharges are discrete, identifiable sources and require a permit from the governing agency. Comply with federal, state, and local laws and regulations.

1.2.17 Wastewater

Wastewater is the used water and solids from a community that flow to a treatment plant.

1.2.17.1 Stormwater

Stormwater is any precipitation in an urban or suburban area that does not evaporate or soak into the ground, but instead collects and flows into storm drains, rivers, and streams.

1.2.18 Waters of the United States

Waters of the United States means Federally jurisdictional waters, including wetlands, that are subject to regulation under Section 404 of the Clean Water Act or navigable waters, as defined under the Rivers and Harbors Act.

1.2.19 Universal Waste

The universal waste regulations streamline collection requirements for certain hazardous wastes in the following categories: batteries, pesticides, mercury-containing equipment (for example, thermostats), and lamps (for example, fluorescent bulbs). The rule is designed to reduce hazardous waste in the municipal solid waste (MSW) stream by making it easier for universal waste handlers to collect these items and send them for recycling or proper disposal. These regulations can be found at 40 CFR 273.

1.3 SUBMITTALS

CITY approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

- Certificates of insurance
- Surety bonds
- List of proposed subcontractors
- List of proposed products
- Construction progress schedule
- Submittal register
- Schedule of prices or Earned Value Report
- Health and safety plan
- Work plan
- Quality control(QC) plan
- Environmental protection plan
- Hurricane Preparedness Plan

SD-01 Preconstruction Submittals

Environmental Protection Plan; G

Stormwater Notice of Intent (for NPDES general permit for construction); G

SD-08 Closeout Submittals

Stormwater Pollution Prevention Plan Compliance Notebook; G

Stormwater Notice of Termination (for NPDES general permit for construction); G

1.4 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain, during the life of the contract, environmental protection as defined. Plan for and provide environmental protective measures to control pollution that develops during construction practice. Plan for and provide environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. Protect the environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire duration of this Contract. Comply with federal, state, and local regulations pertaining to the environment, including water, air, solid waste, hazardous waste and substances, oily substances, and noise pollution.

Tests and procedures assessing whether construction operations comply with Applicable Environmental Laws may be required. Analytical work must be performed by qualified laboratories; and where required by law, the laboratories must be certified.

1.4.1 Conformance with the Environmental Management System

Perform work under this contract consistent with the policy and objectives identified in the installation's Environmental Management System (EMS). Perform work in a manner that conforms to objectives and targets of the environmental programs and operational controls identified by the EMS. Support CITY personnel when environmental compliance and EMS audits are conducted by escorting auditors at the Project site, answering questions, and providing proof of records being maintained. Provide monitoring and measurement information as necessary to address environmental performance relative to environmental, energy, and transportation management goals. In the event an EMS nonconformance or environmental noncompliance associated with the contracted services, tasks, or actions occurs, take corrective and preventative actions. In addition, employees must be aware of their roles and responsibilities under the installation EMS and of how these EMS roles and responsibilities affect work performed under the contract.

Coordinate with the installation's EMS coordinator to identify training needs associated with environmental aspects and the EMS, and arrange training or take other action to meet these needs. Provide training documentation to the CITY. The Installation Environmental Office will retain associated environmental compliance records. Make EMS Awareness training completion certificates available to CITY auditors during EMS audits and include the certificates in the Employee Training Records. See paragraph EMPLOYEE TRAINING RECORDS.

1.5 SPECIAL ENVIRONMENTAL REQUIREMENTS

Comply with the special environmental requirements listed here and attached at the end of this section.

1.6 QUALITY ASSURANCE

1.6.1 Preconstruction Survey and Protection of Features

This paragraph supplements the Contract Clause **PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS**. Prior to start of any onsite construction activities, perform a Preconstruction Confirmation Survey of the project site with the CITY, and take photographs showing existing environmental conditions in and adjacent to the site.

Submit a report for the record. Include in the report a plan describing the features requiring protection under the provisions of the Contract Clauses, which are not specifically identified on the drawings as environmental features requiring protection along with the condition of trees, shrubs and grassed areas immediately adjacent to the site of work and adjacent to the Contractor's assigned storage area and access route(s), as applicable. The Contractor and the CITY will sign this survey report upon mutual agreement regarding its accuracy and completeness. Protect those environmental features included in the survey report and any indicated on the drawings, regardless of interference that their preservation may cause to the work under the Contract.

1.6.2 Regulatory Notifications

Provide regulatory notification requirements in accordance with federal, state and local regulations. In cases where the CITY will also provide public notification (such as stormwater permitting), coordinate with the CITY. Submit copies of regulatory notifications to the CITY within 14 days prior to commencement of work activities. Typically, regulatory notifications must be provided for the following (this listing is not all-inclusive): demolition, renovation, NPDES defined site work, construction, removal or use of a permitted air emissions source, and remediation of controlled substances (asbestos, hazardous waste, lead paint).

1.6.3 Environmental Brief

Provide the following information: types, quantities, and use of hazardous materials that will be brought onto the installation; and types and quantities of wastes/wastewater that may be generated during the Contract. Discuss the results of the Preconstruction Survey at this time.

Prior to initiating any work on site, meet with the CITY and installation Environmental Office to discuss the proposed Environmental Protection Plan (EPP). Develop a mutual understanding relative to the details of environmental protection, including measures for protecting natural and cultural resources, required reports, required permits, permit requirements (such as mitigation measures), and other measures to be taken.

1.6.4 Non-Compliance Notifications

The CITY will notify the Contractor in writing of any observed noncompliance with federal, state or local environmental laws or regulations, permits, and other elements of the Contractor's EPP. After receipt of such notice, inform the CITY of the proposed corrective action and take such action when approved by the CITY. The CITY may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions will be granted or equitable adjustments allowed for any such suspensions. This is in addition to any other actions the CITY may take under the contract, or in accordance with the Federal Acquisition Regulation or Federal Law.

1.7 ENVIRONMENTAL PROTECTION PLAN

The purpose of the EPP is to present an overview of known or potential environmental issues that must be considered and addressed during construction. Incorporate construction related objectives and targets from the installation's EMS into the EPP. Include in the EPP measures for protecting natural and cultural resources, required reports, and other measures to be taken. Meet with the CITY or CITY Representative to discuss the EPP and develop a mutual understanding relative to the details

for environmental protection including measures for protecting natural resources, required reports, and other measures to be taken. Submit the EPP within 14 days after notice to proceed and not less than 10 days before the start of construction. Revise the EPP throughout the project to include any reporting requirements, changes in site conditions, or contract modifications that change the project scope of work in a way that could have an environmental impact. No requirement in this section will relieve the Contractor of any applicable federal, state, and local environmental protection laws and regulations. During Construction, identify, implement, and submit for approval any additional requirements to be included in the EPP. Maintain the current version onsite.

The EPP includes, but is not limited to, the following elements:

1.7.1 General Overview and Purpose

1.7.1.1 Descriptions

A brief description of each specific plan required by environmental permit or elsewhere in this Contract such as stormwater pollution prevention plan, spill control plan, solid waste management plan, wastewater management plan, contaminant prevention plan, a historical, archaeological, cultural resources, biological resources and wetlands plan, traffic control plan, Non-Hazardous Solid Waste Disposal Plan, borrowing material plan, etc.

1.7.1.2 Duties

The duties and level of authority assigned to the person(s) on the job site who oversee environmental compliance, such as who is responsible for adherence to the EPP, who is responsible for spill cleanup and training personnel on spill response procedures, who is responsible for manifesting hazardous waste to be removed from the site (if applicable), and who is responsible for training the Contractor's environmental protection personnel.

1.7.1.3 Procedures

A copy of any standard or project-specific operating procedures that will be used to effectively manage and protect the environment on the project site.

1.7.1.4 Communications

Communication and training procedures that will be used to convey environmental management requirements to Contractor employees and subcontractors.

1.7.1.5 Contact Information

Emergency contact information (office phone number, cell phone number, and e-mail address).

1.7.2 General Site Information

1.7.2.1 Drawings

Drawings showing locations of staging areas, material storage areas, structures, sanitary facilities, maintenance of existing storm drains and conveyances, and stockpiles of excess soil.

1.7.2.2 Work Area

Work area plan showing the proposed activity in each portion of the area and identify the areas of limited use or nonuse. Include measures for marking the limits of use areas, including methods for protection of features to be preserved within authorized work areas and methods to control runoff and to contain materials on site, and a traffic control plan.

1.7.2.3 Documentation

A letter signed by an officer of the firm appointing the Environmental Manager (Foreman) and stating that person is responsible for managing and implementing the Environmental Program as described in this contract. Include in this letter the Environmental Manager's authority to direct the removal and replacement of non-conforming work.

1.7.3 Management of Natural Resources

- a. Land resources
- b. Tree protection
- c. Replacement of damaged landscape features
- d. Temporary construction
- e. Fish and benthic resources

1.7.4 Protection of Historical and Archaeological Resources

- a. Objectives
- b. Methods

1.7.5 Stormwater Management and Control

- a. Ground cover
- b. Erodible soils
- c. Temporary measures
 - (1) Structural Practices
 - (2) Temporary and permanent stabilization
- d. Effective selection, implementation and maintenance of Stormwater Best Management Practices (BMPs).

1.7.6 Protection of the Environment from Waste Derived from Contractor Operations

Control and disposal of solid and sanitary waste. Control and disposal of hazardous waste.

This item consists of the management procedures for hazardous waste to be generated. The elements of those procedures will coincide with the Installation Hazardous Waste Management Plan. The CONTRACTOR will provide a copy of the Installation Hazardous Waste Management Plan. As a minimum, include the following:

- a. List of the types of hazardous wastes expected to be generated

- b. Procedures to ensure a written waste determination is made for appropriate wastes that are to be generated
- c. Sampling/analysis plan, including laboratory method(s) that will be used for waste determinations and copies of relevant laboratory certifications
- d. Methods and proposed locations for hazardous waste accumulation/storage (that is, in tanks or containers)
- e. Management procedures for storage, labeling, transportation, and disposal of waste (treatment of waste is not allowed unless specifically noted)
- f. Management procedures and regulatory documentation ensuring disposal of hazardous waste complies with Land Disposal Restrictions (40 CFR 268)
- g. Management procedures for recyclable hazardous materials such as lead-acid batteries, used oil, and similar
- h. Used oil management procedures in accordance with 40 CFR 279; Hazardous waste minimization procedures
- i. Plans for the disposal of hazardous waste by permitted facilities; and Procedures to be employed to ensure required employee training records are maintained.

1.7.7 Prevention of Releases to the Environment

Procedures to prevent releases to the environment

Notifications in the event of a release to the environment

1.7.8 Regulatory Notification and Permits

List what notifications and permit applications must be made. Some permits require up to 180 days to obtain. Demonstrate that those permits have been obtained or applied for by including copies of applicable environmental permits. The EPP will not be approved until the permits have been obtained.

1.7.9 Clean Air Act Compliance

1.7.9.1 Haul Route

Submit truck and material haul routes along with a Dirt and Dust Control Plan for controlling dirt, debris, and dust on Installation roadways. As a minimum, identify in the plan the subcontractor and equipment for cleaning along the haul route and measures to reduce dirt, dust, and debris from roadways.

1.7.9.2 Pollution Generating Equipment

Identify air pollution generating equipment or processes that may require federal, state, or local permits under the Clean Air Act. Determine requirements based on any current installation permits and the impacts of the project. Provide a list of all fixed or mobile equipment, machinery or operations that could generate air emissions during the project to the Installation Environmental Office (Air Program Manager).

1.7.9.3 Stationary Internal Combustion Engines

Identify portable and stationary internal combustion engines that will be supplied, used or serviced. Comply with 40 CFR 60 Subpart IIII, 40 CFR 60 Subpart JJJJ, 40 CFR 63 and local regulations as applicable. At minimum, include the make, model, serial number, manufacture date, size (engine brake horsepower), and EPA emission certification status of each engine. Maintain applicable records and log hours of operation and fuel use. Logs must include reasons for operation and delineate between emergency and non-emergency operation.

1.7.9.4 Refrigerants

Identify management practices to ensure that heating, ventilation, and air conditioning (HVAC) work involving refrigerants complies with 40 CFR 82 requirements. Technicians must be certified, maintain copies of certification on site, use certified equipment and log work that requires the addition or removal of refrigerant.

1.7.9.5 Air Pollution-engineering Processes

Identify planned air pollution-generating processes and management control measures (including, but not limited to, spray painting, abrasive blasting, demolition, material handling, fugitive dust, and fugitive emissions). Log hours of operations and track quantities of materials used.

1.7.9.6 Monitoring

For the protection of public health, monitor and control contaminant emissions to the air from Hazardous, Toxic, and Radioactive Waste remedial action area sources to minimize short-term risks that might be posed to the community during implementation of the remedial alternative in accordance with the following.

- a. Perimeter Air Contaminant of Concern (TBD if necessary).
- b. Time Averaged Perimeter Action Levels (TBD if necessary).

Concentration	(TBD if necessary)
Time	(TBD if necessary)

- c. Perimeter Sampling/Monitoring Location[s] (TBD if necessary).
- d. Monitoring Instruments/Sampling and Analysis Methods (TBD if necessary).
- e. Staffing (TBD if necessary).

1.7.9.7 Compliant Materials

Provide the CITY a list of MSDSs for all hazardous materials proposed for use on site. Materials must be compliant with all Clean Air Act regulations for emissions including solvent and volatile organic compound contents, and applicable National Emission Standards for Hazardous Air Pollutants requirements. The CITY may alter or limit use of specific materials as needed to meet installation permit requirements for emissions.

1.8 LICENSES AND PERMITS

Obtain licenses and permits required for the construction of the project and in accordance with FAR 52.236-7. Notify the CITY of all general use permitted equipment the Contractor plans to use on site. This paragraph supplements the Contractor's responsibility under FAR 52.236-7.

a. The following permits have been obtained by the CITY:

(1) FDEP File No.: 44-03418446-001-EE, Monroe County

(2) ACOE File No.: SAJ-2016-00621 (NW-GGM)

1.9 ENVIRONMENTAL RECORDS BINDER

Maintain on-site a separate three-ring Environmental Records Binder and submit at the completion of the project. Make separate parts within the binder that correspond to each submittal listed under paragraph CLOSEOUT SUBMITTALS in this section.

1.10 SOLID WASTE MANAGEMENT PERMIT

Provide the CITY with written notification of the quantity of anticipated solid waste or debris that is anticipated or estimated to be generated by construction. Include in the report the locations where various types of waste will be disposed or recycled. Include letters of acceptance from the receiving location or as applicable; submit one copy of the receiving location state and local Solid Waste Management Permit or license showing such agency's approval of the disposal plan before transporting wastes off property.

1.10.1 Solid Waste Management Report

Monthly, submit a solid waste disposal report to the CITY. For each waste, the report will state the classification (using the definitions provided in this section), amount, location, and name of the business receiving the solid waste.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 PROTECTION OF BENTHIC and other NATURAL RESOURCES

Minimize interference with, disturbance to, and damage to fish, wildlife, and plants, including their habitats. Prior to the commencement of activities, consult with the Installation Environmental Office, regarding rare species or sensitive habitats that need to be protected. The protection of rare, threatened, and endangered animal and plant species identified, including their habitats, is the Contractor's responsibility. The following species are known and could be affected within the construction area: Corals referenced in the Benthic Resources Report.

Preserve the natural resources within the project boundaries and outside the limits of permanent work. Restore to an equivalent or improved condition upon completion of work that is consistent with the requirements of the Installation Environmental Office or as otherwise specified. Confine construction activities to within the limits of the work indicated or specified.

3.1.1 Flow Ways

Do not alter water flows or otherwise significantly disturb the native habitat adjacent to the project and critical to the survival of fish and wildlife, except as specified and permitted.

3.1.2 Vegetation

Except in areas to be cleared, do not remove, cut, deface, injure, or destroy trees or shrubs without the CITY's permission. Do not fasten or attach ropes, cables, or guys to existing nearby trees for anchorages unless authorized by the CITY. Where such use of attached ropes, cables, or guys is authorized, the Contractor is responsible for any resultant damage.

Protect existing trees that are to remain to ensure they are not injured, bruised, defaced, or otherwise damaged by construction operations. Remove displaced rocks from uncleared areas. Coordinate with the CITY and Installation Environmental Office to determine appropriate action for trees and other landscape features scarred or damaged by equipment operations.

3.2 STORMWATER

Generally, do not discharge stormwater from construction sites to the sanitary sewer. If the water is noted or suspected of being contaminated, it may only be released to the storm drain system if the discharge is specifically permitted. Obtain authorization in advance from the Installation Environmental Office for any release of contaminated water.

3.2.1 Construction General Permit

Under the terms and conditions of the permit, install, inspect, maintain BMPs, prepare stormwater erosion and sediment control inspection reports, and submit SWPPP inspection reports. Maintain construction operations and management in compliance with the terms and conditions of the general permit for stormwater discharges from construction activities.

3.2.1.1 Stormwater Pollution Prevention Plan

Submit a project-specific Stormwater Pollution Prevention Plan (SWPPP) to the CITY for approval, prior to the commencement of work. The SWPPP must meet the requirements of 40 CFR 122.26 and the State General Permit for stormwater discharges from construction sites.

Include the following:

- a. Comply with terms of the FDEP NPDES general permit for stormwater discharges from construction activities. Prepare SWPPP in accordance with state requirements.
- b. Select applicable BMPs from EPA Fact Sheets located at <http://water.epa.gov/polwaste/npdes/swbmp/Construction-Site-StormWater-Run-Off-Control.cfm> or in accordance with applicable state or local requirements.
- c. Include a completed copy of the Notice of Intent, BMP Inspection Report Template, and Stormwater Notice of Termination, except for the effective date.

3.2.1.2 Stormwater Notice of Intent for Construction Activities

Prepare and submit the Notice of Intent for NPDES coverage under the general permit for construction activities to the CITY for review and approval.

Prepare and submit a Notice of Intent as a co-permittee to the CITY, for review and approval.

Submit the approved NOI and appropriate permit fees onto the appropriate federal or state agency for approval. No land disturbing activities may commence without permit coverage. Maintain an approved copy of the SWPPP at the onsite construction office, and continually update as regulations require, reflecting current site conditions.

3.2.1.3 Inspection Reports

Submit "Inspection Reports" to the CITY in accordance with the State of Florida Construction General Permit.

3.2.1.4 Stormwater Pollution Prevention Plan Compliance Notebook

Create and maintain a three ring binder of documents that demonstrate compliance with the Construction General Permit. Include a copy of the permit Notice of Intent, proof of permit fee payment, SWPPP and SWPPP update amendments, inspection reports and related corrective action records, copies of correspondence with the State Permitting Agency, and a copy of the permit Notice of Termination in the binder. At project completion, the notebook becomes property of the CITY. Provide the compliance notebook to the CITY.

3.2.1.5 Stormwater Notice of Termination for Construction Activities

Submit a Notice of Termination to the CITY for approval once construction is complete and final stabilization has been achieved on all portions of the site for which the permittee is responsible. Once approved, submit the Notice of Termination to the appropriate state or federal agency.

3.2.2 Erosion and Sediment Control Measures

Provide erosion and sediment control measures in accordance with state and local laws and regulations. Preserve vegetation to the maximum extent practicable.

Erosion control inspection reports may be compiled as part of a stormwater pollution prevention plan inspection reports.

3.2.2.1 Erosion Control

Prevent erosion. Stabilize slopes by combination of methods necessary for effective erosion control. Use of hay bales is prohibited.

3.2.2.2 Sediment Control Practices

Implement sediment control practices to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Implement sediment control practices prior to soil disturbance and prior to creating areas with concentrated flow, during the construction process to minimize erosion and sediment laden runoff.

3.2.3 Work Area Limits

Mark the areas that need not be disturbed under this Contract prior to commencing construction activities. Mark or fence isolated areas within the general work area that are not to be disturbed. Protect monuments and markers before construction operations commence. Where construction operations are to be conducted during darkness, any markers must be visible in the dark. Personnel must be knowledgeable of the purpose for marking and protecting particular objects.

3.2.4 Contractor Facilities and Work Areas

Place field offices, staging areas, stockpile storage, and temporary buildings in areas designated on the drawings or as directed by the CITY. Move or relocate the Contractor facilities only when approved by the CITY. Provide erosion and sediment controls for onsite borrow and spoil areas to prevent sediment from entering nearby waters. Control temporary excavation and embankments for plant or work areas to protect adjacent areas.

3.2.5 Municipal Separate Storm Sewer System (MS4) Management

Comply with the Installation's MS4 permit requirements.

3.3 SURFACE AND GROUNDWATER

3.3.1 Cofferdams, Diversions, and Dewatering

NOT USED.

3.3.2 Waters of the United States

Do not enter, disturb, destroy, or allow discharge of contaminants into waters of the United States except as authorized herein. The protection of waters of the United States shown on the drawings in accordance with paragraph LICENSES AND PERMITS is the Contractor's responsibility. Authorization to enter specific waters of the United States identified does not relieve the Contractor from any obligation to protect other waters of the United States within, adjacent to, or in the vicinity of the construction site and associated boundaries.

3.4 PROTECTION OF CULTURAL RESOURCES

3.4.1 Historical Resources

Existing historical resources within the work area are shown on the drawings. Protect these resources and be responsible for their preservation during the life of the Contract.

3.5 WASTE MINIMIZATION

Minimize the use of hazardous materials and the generation of waste. Include procedures for pollution prevention/ hazardous waste minimization in the Hazardous Waste Management Section of the EPP. Obtain a copy of the installation's Pollution Prevention/Hazardous Waste Minimization Plan for reference material when preparing this part of the EPP. If no written plan exists, obtain information by contacting the CITY. Describe the anticipated types of the hazardous materials to be used in the construction when requesting information.

3.5.1 Salvage, Reuse and Recycle

Identify anticipated materials and waste for salvage, reuse, and recycling. Describe actions to promote material reuse, resale or recycling. To the extent practicable, all scrap metal must be sent for reuse or recycling and will not be disposed of in a landfill.

Include the name, physical address, and telephone number of the hauler, if transported by a franchised solid waste hauler. Include the destination and, unless exempted, provide a copy of the state or local permit (cover) or license for recycling.

3.6 WASTE MANAGEMENT AND DISPOSAL

3.6.1 Wastewater

3.6.1.1 Disposal of wastewater must be as specified below.

3.6.1.1.1 Treatment

Do not allow wastewater from construction activities, such as onsite material processing, concrete curing, concrete clean-up, water used in concrete trucks, and forms to enter water ways or to be discharged prior to being treated to remove pollutants. Dispose of the construction- related waste water off-CITY property in accordance with 40 CFR 403, state, regional, and local laws and regulations.

3.7 PREVIOUSLY USED EQUIPMENT

Clean previously used construction equipment prior to bringing it onto the project site. Equipment must be free from soil residuals, egg deposits from plant pests, noxious weeds, and plant seeds. Consult with the U.S. Department of Agriculture jurisdictional office for additional cleaning requirements.

3.8 PETROLEUM, OIL, LUBRICANT (POL) STORAGE AND FUELING

POL products include flammable or combustible liquids, such as gasoline, diesel, lubricating oil, used engine oil, hydraulic oil, mineral oil, and cooking oil. Store POL products and fuel equipment and motor vehicles in a manner that affords the maximum protection against spills into the environment. Manage and store POL products in accordance with EPA 40 CFR 112, and other federal, state, regional, and local laws and regulations. Use secondary containments, dikes, curbs, and other barriers, to prevent POL products from spilling and entering the ground, storm or sewer drains, stormwater ditches or canals, or navigable waters of the United States. Describe in the EPP (see paragraph ENVIRONMENTAL PROTECTION PLAN) how POL tanks and containers must be stored, managed, and inspected and what protections must be provided.

3.8.1 Used Oil Management

Manage used oil generated on site in accordance with 40 CFR 279. Determine if any used oil generated while onsite exhibits a characteristic of hazardous waste. Used oil containing 1,000 parts per million of solvents is considered a hazardous waste and disposed of at the Contractor's expense. Used oil mixed with a hazardous waste is also considered a hazardous waste. Dispose in accordance with paragraph HAZARDOUS WASTE DISPOSAL.

3.8.2 Oil Storage Including Fuel Tanks

Provide secondary containment and overfill protection for oil storage tanks. A berm used to provide secondary containment must be of sufficient size and strength to contain the contents of the tanks plus 5 inches freeboard for precipitation. Construct the berm to be impervious to oil for 72 hours that no discharge will permeate, drain, infiltrate, or otherwise escape before cleanup occurs. Use drip pans during oil transfer operations; adequate absorbent material must be onsite to clean up any spills and prevent releases to the environment. Cover tanks and drip pans during inclement weather. Provide procedures and equipment to prevent overfilling of tanks. If tanks and containers with an aggregate aboveground capacity greater than 1320 gallons will be used onsite (only containers with a capacity of 55 gallons or greater are counted), provide and implement a SPCC plan meeting the requirements of 40 CFR 112. Do not bring underground storage tanks to the installation for Contractor use during a project. Submit the SPCC plan to the CITY for approval.

Monitor and remove any rainwater that accumulates in open containment dikes or berms. Inspect the accumulated rainwater prior to draining from a containment dike to the environment, to determine there is no oil sheen present.

3.9 INADVERTENT DISCOVERY OF PETROLEUM-CONTAMINATED SOIL OR HAZARDOUS WASTES

If petroleum-contaminated soil, or suspected hazardous waste is found during construction that was not identified in the Contract documents, immediately notify the CITY. Do not disturb this material until authorized by the CITY.

3.10 POST CONSTRUCTION CLEANUP

Clean up areas used for construction in accordance with Contract Clause: "Cleaning Up". Unless otherwise instructed in writing by the CITY, remove traces of temporary construction facilities such as haul roads, work area, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. Grade parking area and similar temporarily used areas to conform with surrounding contours.

-- End of Section --

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT

PART 1 GENERAL

1.1 CITY POLICY

CITY policy is to apply sound environmental principles in the design, construction and use of facilities. As part of the implementation of that policy: (1) practice efficient waste management when sizing, cutting, and installing products and materials and (2) use all reasonable means to divert construction and demolition waste from landfills and incinerators and to facilitate their recycling or reuse. If possible, divert project solid waste from the landfill. **Do not use solid waste to fill the void between the old wall and the new wall. Use approved fill material only.**

1.2 MANAGEMENT

Develop and implement a waste management program. Take a pro-active, responsible role in the management of construction and demolition waste and require all subcontractors, vendors, and suppliers to participate in the effort. Construction and demolition waste includes products of demolition or removal, excess or unusable construction materials, packaging materials for construction products, and other materials generated during the construction process but not incorporated into the work. In the management of waste, consider the availability of viable markets, the condition of the material, the ability to provide the material in suitable condition and in a quantity acceptable to available markets, and time constraints imposed by internal project completion mandates. Implement any special programs involving rebates or similar incentives related to recycling of waste. Revenues or other savings obtained for salvage, or recycling accrue to the Contractor. Appropriately permit firms and facilities used for recycling, reuse, and disposal for the intended use to the extent required by federal, state, and local regulations. Also, provide on-site instruction of appropriate separation, handling, recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

1.3 MEETINGS

If necessary, conduct Construction Waste Management meetings. After award of the Contract and prior to commencement of work, schedule and conduct a meeting with the CITY to discuss the proposed Waste Management Plan and to develop a mutual understanding relative to the details of waste management. The requirements for this meeting may be fulfilled during the coordination and mutual understanding meeting outlined in Section QUALITY CONTROL. At a minimum, discuss environmental and waste management goals and issues at the following additional meetings:

- a. Pre-bid meeting.
- b. Preconstruction meeting.
- c. Regular site meetings.
- d. Work safety meetings.

1.4 WASTE MANAGEMENT PLAN

Submit a waste management plan within 15 days after notice to proceed and not less than 10 days before the preconstruction meeting. The plan demonstrates how to meet the project waste diversion goal. Also, include the following in the plan:

It is understood that the mooring piles and portions of the docks will be removed, stored and replaced. Only the existing concrete cap will need to be managed as a part of the demolition.

- a. Name of individuals on the Contractor's staff responsible for waste prevention and management. (FOREMAN)
- b. Actions that will be taken to reduce solid waste generation, including coordination with subcontractors to ensure awareness and participation.
- c. Description of the regular meetings to be held to address waste management.
- d. Description of the specific approaches to be used in recycling/reuse of the various materials generated, including the areas on site and equipment to be used for processing, sorting, and temporary storage of wastes.
- e. Characterization, including estimated types and quantities, of the waste to be generated.
- f. Name of landfill and/or incinerator to be used and the estimated costs for use, assuming that there would be no salvage or recycling on the project.
- g. Identification of local and regional reuse programs, including non-profit organizations such as schools, local housing agencies, and organizations that accept used materials such as materials exchange networks and Habitat for Humanity. Include the name, location, and phone number for each reuse facility to be used, and provide a copy of the permit or license for each facility.
- h. List of specific waste materials that will be salvaged for resale, salvaged and reused on the current project, salvaged and stored for reuse on a future project, or recycled. Identify the recycling facilities by name, location, and phone number, including a copy of the permit or license for each facility.
- i. Identification of materials that cannot be recycled/reused with an explanation or justification, to be approved by the CITY.
- j. Description of the means by which any waste materials identified in item (h) above will be protected from contamination.
- k. Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site).

- I. Anticipated net cost savings determined by subtracting Contractor program management costs and the cost of disposal from the revenue generated by sale of the materials and the incineration and/or landfill cost avoidance.

Revise and resubmit Plan as required by the CITY. Approval of Contractor's Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations or meeting project cumulative waste diversion requirement. Distribute copies of the Waste Management Plan to each subcontractor, the Quality Control Manager, and the CITY.

1.5 RECORDS

Maintain records to document the quantity of waste generated; the quantity of waste diverted through sale, reuse, or recycling; and the quantity of waste disposed by landfill or incineration. Make the records available to the CITY during construction, and deliver to the CITY upon completion of the construction, a copy of the records.

1.6 COLLECTION

Separate, store, protect, and handle at the site identified recyclable and salvageable waste products in a manner that maximizes recyclability and salvagability of identified materials. Provide the necessary containers, bins and storage areas to facilitate effective waste management and clearly and appropriately identify them. Provide materials for barriers and enclosures around recyclable material storage areas which are nonhazardous and recyclable or reusable. Locate out of the way of construction traffic. Provide adequate space for pick-up and delivery and convenience to subcontractors. Recycling and waste bin areas are to be kept neat and clean, and handle recyclable materials to prevent contamination of materials from incompatible products and materials. Clean contaminated materials prior to placing in collection containers. Use cleaning materials that are nonhazardous and biodegradable. Handle hazardous waste and hazardous materials in accordance with applicable regulations and coordinate with Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS. Separate materials by one of the following methods:

1.6.1 Source Separated Method.

Separate waste products and materials that are recyclable from trash and sorted as described below into appropriately marked separate containers and then transported to the respective recycling facility for further processing. Deliver materials in accordance with recycling or reuse facility requirements (e.g., free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process). Separate materials into the following category types as appropriate to the project waste and to the available recycling and reuse programs in the project area:

- a. Land clearing debris.
 - b. Asphalt.
 - c. Concrete and masonry.
 - d. Metal (e.g. banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized, stainless steel, aluminum, copper, zinc, lead brass, bronze).
- (1) Ferrous.

- (2) Non-ferrous.
- e. Wood (nails and staples allowed).
- f. Debris.
- g. Paper.
 - (1) Bond.
 - (2) Newsprint.
 - (3) Cardboard and paper packaging materials.
- h. Non-hazardous paint and paint cans.
- i. Beverage containers.

1.6.2 Co-Mingled Method.

Place waste products and recyclable materials into a single container and then transport to a recycling facility where the recyclable materials are sorted and processed.

1.6.3 Other Methods.

Other proposed methods may be used when approved by the CITY.

1.7 DISPOSAL

Control accumulation of waste materials and trash. Recycle or dispose of collected materials off-site at intervals approved by the CITY and in compliance with waste management procedures. Except as otherwise specified in other sections of the specifications, dispose of in accordance with the following:

1.7.1 Reuse.

Give first consideration to salvage for reuse since little or no re-processing is necessary for this method, and less pollution is created when items are reused in their original form. Coordinate reuse with the CITY. Consider sale or donation of waste suitable for reuse.

1.7.2 Recycle.

Recycle waste materials not suitable for reuse, but having value as being recyclable. Arrange for timely pickups from the site or deliveries to recycling facilities in order to prevent contamination of recyclable materials.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 78 00

CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 As-Built Drawings

As-built drawings are developed and maintained by the Contractor and depict actual conditions, including deviations from the Contract Documents. These deviations and additions may result from coordination required by, but not limited to: contract modifications; official responses to Contractor submitted Requests for Information; direction from the CITY; designs which are the responsibility of the Contractor, and differing site conditions. Maintain the as-builts throughout construction as red-lined hard copies on site. These files serve as the basis for the creation of the record drawings.

1.1.2 Record Drawings

The record drawings are the final compilation of actual conditions reflected in the as-built drawings.

1.2 SOURCE DRAWING FILES

Request the full set of electronic drawings, in the source format, for Record Drawing preparation, after award and at least 30 days prior to required use.

1.2.1 Terms and Conditions

Data contained on these electronic files must not be used for any purpose other than as a convenience in the preparation of construction drawings and data for the referenced project. Any other use or reuse shall be at the sole risk of the Contractor and without liability or legal exposure to the CITY. The Contractor must make no claim and waives to the fullest extent permitted by law, any claim or cause of action of any nature against the CITY, its agents or sub consultants that may arise out of or in connection with the use of these electronic files. The Contractor must, to the fullest extent permitted by law, indemnify and hold the CITY harmless against all damages, liabilities or costs, including reasonable attorney's fees and defense costs, arising out of or resulting from the use of these electronic files.

These electronic CAD drawing files are not construction documents. Differences may exist between the CAD files and the corresponding construction documents. The CITY makes no representation regarding the accuracy or completeness of the electronic CAD files, nor does it make representation to the compatibility of these files with the Contractor hardware or software. In the event that a conflict arises between the signed and sealed construction documents prepared by the CITY and the furnished Source drawing files, the signed and sealed construction documents govern. The Contractor is responsible for determining if any conflict exists. Use of these Source Drawing files does not relieve the Contractor of duty to fully comply with the contract documents, including and without limitation, the need to check, confirm and coordinate the work of all contractors for the project. If

the Contractor uses, duplicates or modifies these electronic source drawing files for use in producing construction drawings and data related to this contract, remove all previous indicia of ownership (seals, logos, signatures, initials and dates).

1.3 SUBMITTALS

CITY approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-08 Closeout Submittals
Final Approved Shop Drawings; G
As-Built Drawings; G

1.4 WARRANTY MANAGEMENT

1.4.1 Warranty Management Plan

Develop a warranty management plan which contains information relevant to the clause Warranty of Construction. Include within the warranty management plan all required actions and documents to assure that the CITY receives all warranties to which it is entitled. The plan must be in narrative form and contain sufficient detail to render it suitable for use by future maintenance and repair personnel, whether tradesmen, or of engineering background, not necessarily familiar with this contract. The term "status" as indicated below must include due date and whether item has been submitted or was accomplished. Warranty information made available during the construction phase must be submitted to the CITY for approval prior to each monthly pay estimate. Assemble approved information in a binder and turn over to the CITY upon acceptance of the work. The construction warranty period will begin on the date of project acceptance and continue for the full product warranty period. Include within the warranty management plan, but not limited to, the following:

- a. Roles and responsibilities of all personnel associated with the warranty process, including points of contact and telephone numbers within the organizations of the Contractors, subcontractors, manufacturers or suppliers involved.
- b. Furnish with each warranty the name, address, and telephone number of each of the guarantor's representatives nearest to the project location.
- c. Listing and status of delivery of all Certificates of Warranty for extended warranty items, to include workmanship, corrosion, coatings, fasteners, etc.
- d. A list for each warranted equipment, item, and feature of construction or system indicating:
 - (1) Name of item.
 - (2) Location where installed.
 - (3) Name and phone numbers of manufacturers or suppliers.
 - (4) Names, addresses and telephone numbers of sources of suppliers.

- (5) Warranties and terms of warranty. Include one-year overall warranty of construction, including the starting date of warranty of construction. Items which have extended warranties must be indicated with separate warranty expiration dates.
- (8) Cross-reference to warranty certificates as applicable.
- (9) Starting point and duration of warranty period.
- (10) Summary of maintenance procedures required to continue the warranty in force.
- (11) Organization, names and phone numbers of persons to call for warranty service.
- (12) Typical response time and repair time expected for various warranted equipment.

- e. Procedure and status of tagging of all equipment covered by extended warranties.

1.4.2 Performance Bond

The Performance Bond must remain effective throughout the construction period.

- a. In the event the Contractor fails to commence and diligently pursue any construction warranty work required, the CITY will have the work performed by others, and after completion of the work, will charge the remaining construction warranty funds of expenses incurred by the CITY while performing the work, including, but not limited to administrative expenses.
- b. In the event sufficient funds are not available to cover the construction warranty work performed by the CITY at the Contractor's expense, the CITY will have the right to recoup expenses from the bonding company.
- c. Following oral or written notification of required construction warranty repair work, respond in a timely manner. Written verification will follow oral instructions. Failure to respond will be cause for the CITY to proceed against the Contractor.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 AS-BUILT DRAWINGS

3.1.1 Markup Guidelines

Make comments and markup the drawings complete without reference to letters, memos, or materials that are not part of the As-Built drawing. Show what was changed, how it was changed, where items(s) were relocated and change related details. These working as-built markup prints must be neat, legible and accurate as follows:

- a. Use base colors of red, green, and blue. Color code for changes as follows:
 - (1) Special (Blue) - Items requiring special information, coordination, or special detailing or detailing notes.

(2) Deletions (Red) - Over-strike deleted graphic items (lines), lettering in notes and leaders.

(3) Additions (Green) - Added items, lettering in notes and leaders.

- b. Provide a legend if colors other than the "base" colors of red, green, and blue are used.
- c. Add and denote any additional equipment or material facilities, service lines, incorporated under As-Built Revisions if not already shown in legend.
- d. Use frequent written explanations on markup drawings to describe changes. Do not totally rely on graphic means to convey the revision.
- e. Use legible lettering and precise and clear digital values when marking prints. Clarify ambiguities concerning the nature and application of change involved.
- f. Wherever a revision is made, also make changes to related section views, details, legend, profiles, plans and elevation views, schedules, notes and call out designations, and mark accordingly to avoid conflicting data on all other sheets.
- g. For deletions, cross out all features, data and captions that relate to that revision.
- h. For changes on small-scale drawings and in restricted areas, provide large-scale inserts, with leaders to the applicable location.
- i. Indicate one of the following when attaching a print or sketch to a markup print:
 - 1) Add an entire drawing to contract drawings.
 - 2) Provided for reference only to further detail the initial design.
- j. Incorporate all shop and fabrication drawings into the markup drawings.

3.1.2 As-Built Drawings Content

Show on the as-built drawings, but not limited to, the following information:

- a. The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, show by offset dimensions to two permanently fixed surface features the end of each run including each change in direction on the record drawings. Locate valves, splice boxes and similar appurtenances by dimensioning along the utility run from a reference point. Also record the average depth below the surface of each run.
- b. The location and dimensions of any changes within the building structure.
- c. Layout and schematic drawings of electrical circuits and piping.
- d. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

- e. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to shop drawings, fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.
- f. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.
- g. Changes or Revisions which result from the final inspection.
- h. Where contract drawings or specifications present options, show only the option selected for construction on the working as-built markup drawings.
- i. If borrow material for this project is from sources on CITY property, or if CITY property is used as a spoil area, furnish a contour map of the final borrow pit/spoil area elevations.
- j. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, and irrigation systems.
- k. Changes in location of equipment and architectural features.
- j. Modifications (include within change order price the cost to change working as-built markup drawings to reflect modifications).
- l. Actual location of anchors, construction and control joints, etc., in concrete.
- m. Unusual or uncharted obstructions that are encountered in the contract work area during construction.
- n. Location, extent, thickness, and size of stone protection particularly where it will be normally submerged by water.

3.2 CLEANUP

Leave premises "broom clean." Clean interior and exterior glass surfaces exposed to view; remove temporary labels, stains and foreign substances; polish transparent and glossy surfaces; vacuum carpeted and soft surfaces. Clean equipment and fixtures to a sanitary condition. Clean debris from drainage systems. Sweep paved areas and rake clean landscaped areas. Remove waste and surplus materials, rubbish and construction facilities from the site.

3.2.1 Extraordinary Cleanup Requirements

The following cleanup requirements apply: **Do not place any debris waterward of the proposed wall. Any debris found within 10 feet of the proposed construction shall be removed by the contractor and properly disposed of.**

-- End of Section --

SECTION 02215

PROTECTION OF EXISTING STRUCTURES

PART 1 - GENERAL

1.01 SCOPE:

- A. Summary of Work: The CONTRACTOR shall furnish all labor, equipment, and materials for protecting existing structures during construction, and for monitoring and documenting the effectiveness of said protection.
- B. Related Work Specified Elsewhere:
 - 1. SECTION 01 33 00 – Submittals Procedures
 - 2. SECTION 01 32 00 - Construction Video and Photographs
 - 3. SECTION 31 41 15 – Steel Sheet Piling

1.02 APPLICABLE STANDARDS AND PUBLICATIONS:

- A. Standards or Codes: The edition of the standards of the organizations listed below in effect at the time of the advertisement for bids form a part of this specification to the extent referenced. See the various paragraphs for the specified standard. In the case of a conflict between the requirements of this SECTION and those of the listed document, the requirements of this SECTION shall prevail.
- B. All applicable local (City, County, Village, Town, Tribe, etc.) codes, regulations, ordinances, and standards.
- C. Florida Department of Transportation (FDOT)
 - 1. Standard Specifications for Road and Bridge Construction.

1.03 DEFINITIONS:

- A. Existing Nearby Facilities at Risk (ENFAR): the collective name of any and all nearby buildings, structures, facilities, utilities, property, access roads, levees, and others located within or adjacent to the Site that could receive seismic motion greater than one-half inch per /second (or a more stringent velocity required by a permit or agency) and could be at risk for being damaged from ground vibrations due to construction.

1.04 SUBMITTALS: The CONTRACTOR shall provide the following Compliance Submittals in accordance with SECTION 01300, which are required:

- A. A complete list of all applicable rules and regulations with which they must comply.
- B. Pre-Construction Condition Video & Photographic Survey and Vibration Monitoring and Control:
 - 1. The CONTRACTOR shall submit a Pre-Construction Condition video survey, not less than ten (10) days prior to commencing construction operations.
 - 2. The CONTRACTOR shall schedule and conduct a pre-construction condition survey. The CONTRACTOR shall provide one (1) person from its organization and its specialist on vibration control who meets the qualifications of Article 1.05 to organize and lead a team, with the CITY and a representative of each ENFAR, in making a pre-construction condition survey. At a minimum, each ENFAR shall be inspected and its condition documented. The following is a list of each ENFAR specific to this Project for which a pre-construction inspection and report is mandatory whether the ENFAR criteria are met or not: All edifices within 50 LF of driving

activity.

3. A survey method acceptable to the CONTRACTOR's insurance company shall be used. Damage resulting from construction is the CONTRACTOR's responsibility. The CONTRACTOR shall notify the CITY and occupants of nearby buildings at least 24 hours before the start of construction.
 4. Fourteen (14) days before start of construction, the CONTRACTOR shall submit the name and qualifications of the vibration specialist including the following:
 - a. Project names, description, locations, and dates of services performed.
 - b. Name and phone number of owner/agency contact who can verify the experience of the specialist.
 5. The CONTRACTOR shall control vibrations and monitor each operation with approved seismographs and monitoring equipment located at acceptable locations when constructing near buildings, structures, or utilities that may be subject to damage from vibrations. When vibration damage to buildings, structures, or utilities is possible, use seismographs capable of recording particle velocity for three mutually perpendicular components of vibration. The vibration specialist shall interpret the seismograph records to ensure that the data is effectively used in the control of the operations.
- C. The Pre-construction condition survey document shall include at a minimum:
1. A map of the Project Site with areas of concern highlighted.
 2. Videotaped or photographically documented existing conditions, and instances of preexisting cracks or other defects. The documentation shall clearly identify each item. Documentation shall describe the location, the direction from which the photo was taken, and dates. Documentation shall include a narrative of each issue. CONTRACTOR shall note the condition of the existing structures and shall locate and identify any areas where bulging, sloughing, cracking, or existing damage is observed.
 3. Actual measured horizontal and vertical dimensions (not estimated dimensions) from the nearest operations to surveyed properties, structures, levees, utilities or facilities. The CONTRACTOR is required to have a Professional Land Surveyor registered in the State of Florida supervise the measurements and recording of this information.
 4. Pertinent diaries or logs of conversations with owners related to the pre-construction condition of the inspected ENFAR's.
 5. The CONTRACTOR shall clearly document existing conditions.
- D. Seismic Monitoring Records:
1. The records shall be clearly tied to specific construction events and include instrument identification, locations, dates, and times with tabulated and summarized results.
- E. Damage Investigation Survey Document:
1. Within seven (7) calendar days of any WORK event causing damage to any property a survey shall be conducted. Such survey shall include as a minimum:
 - a. Detailed description of the damage, including videotape or photographic documentation.
 - b. Name, address and telephone number of the Owner of the damaged property, structures, levees, utilities or facilities. The CITY will supply a master list of adjacent property owner information.

- c. Evaluation of the cause of the damage and measures taken or to be taken to prevent recurrence.
 2. The CONTRACTOR shall supplement this report on a bi-weekly basis (or other time period as determined by the CITY) until the damage is repaired or otherwise made whole.
 3. The CONTRACTOR shall submit an overview of the damage survey results including the status of any damage events, within 30 calendar days of the completion of all construction operations.
- F. Damage Inspection Survey:
1. The CONTRACTOR shall perform Damage Inspection surveys to detect any effects resulting from construction operations.
 2. The CONTRACTOR shall submit Damage Inspection survey, photographs, and other finalized data to the CITY.
 3. The CITY shall inspect the properties, levees, structures, facilities and utilities after receipt of the report to verify the accuracy of the survey. Florida Department of Transportation (FDOT), Florida Power & Light (FPL) or other property or utility owners may inspect their structures, facilities, levees or utilities. Any damaged areas, which were not specifically identified in the pre-construction survey narrative and photographs, shall be deemed to have been caused by the construction operations. The CONTRACTOR shall be responsible for required repairs at no additional cost to the CITY.

1.05 QUALIFICATIONS:

- A. Vibration Control Specialist. The CONTRACTOR shall utilize a vibration control specialist who is permitted and licensed in the State of Florida with at least five (5) consecutive years of experience in vibration monitoring with at least three (3) projects per year as specified in Article 1.04.

1.06 RESPONSIBILITIES:

- A. The CONTRACTOR shall include in its bid consideration in its progress schedule for time it takes to obtain permits, permit revisions and inspections from the issuing entities.
- B. The CONTRACTOR shall obtain copies of all applicable codes, regulations, laws and ordinances and keep them in its on-site project file.

1.07 CERTIFICATIONS AND TESTING: (Not Used)

1.08 INSPECTION COORDINATION: (Not Used)

PART 2 - PRODUCTS

2.01 MATERIALS ENCOUNTERED:

- A. Materials to be encountered include geologic formations for which the CONTRACTOR has determined appropriate methods for achieving required grades, loosening material, and fragmenting according to gradation requirements. The CONTRACTOR shall ensure in its bid that it has considered all the potential expenses related to the construction required to comply with the industry regulations and with requirements of the plans and specifications.

PART 3 - EXECUTION

3.01 GENERAL:

- A. The CONTRACTOR shall be responsible for any damage to existing properties, utilities,

structures, facilities, levees or access roads due to construction activities. The CONTRACTOR shall expediently repair (within 30 days or as directed by the CITY) at no additional expense. Upon the circumstance of damage:

1. The CONTRACTOR shall stop construction operations.
 2. The CONTRACTOR shall provide the required damage survey.
 3. The CONTRACTOR shall undertake to rectify the damage.
 4. The CONTRACTOR shall revise, resubmit, and obtain the CITY's acceptance, and any required third-party acceptance, on the appropriate construction methods before any further WORK is undertaken.
- B. The CONTRACTOR shall have the sole responsibility for the safety of all WORK activities including labor, materials handling, shipment, storage, and equipment.
- C. No time extensions will be made, nor will additional compensation be made for delays or other circumstances related to unacceptable WORK.
- D. The CONTRACTOR shall take precautions to preserve the materials outside the lines of excavation in an undisturbed condition.

3.02 COORDINATION WITH THIRD PARTIES WITH RESPECT TO CONSTRUCTION:

- A. Critical properties, public utilities, levees, structures or facilities may lie close to construction areas associated with this Project. During Project development agreements may have been made between the CITY and relevant third parties. Some of these agreements will guide, restrict and affect the CONTRACTOR's activities. The following list includes the affected parties, and conditions, restrictions, timeframes, issues and consequences that the CONTRACTOR must consider in his bid for both costs and scheduling. The CONTRACTOR shall be responsible for plan implementation and effectiveness while accommodating such agreements. There will be no extra compensation for activities the CONTRACTOR must pursue to satisfy the conditions.

3.03 TURBIDITY AND EROSION CONTROL:

- A. The CONTRACTOR shall install turbidity and erosion control devices in accordance with the plans prior to start of construction.

3.04 SITE PREPARATION:

A. Vibration Control: The CONTRACTOR shall provide a minimum of three (3) seismographs sufficient to measure and record ground movements caused by construction. The seismographs shall be placed at locations to include, but not limited to, the nearest properties, buildings, structures, levees, or utilities, and such locations are to be approved by the CITY:

1. Seismograph operators shall be qualified personnel capable of setting up instruments at designated locations and efficiently recording the construction. Construction shall be controlled in such a manner that the maximum ground vibration level at any structure which is vulnerable to damage shall not exceed a zero-to-peak particle velocity of one-half inch per /second or any more stringent permit or regulatory agency requirement.
2. The instrumentation shall record three (3) orthogonal components (vertical, radial, and transverse with respect to the location of the construction) of particle velocity direct (or shall have sufficient resolution of acceleration or displacement such that particle velocity can be readily and accurately determined from the records). The instantaneous vector sum of the three (3) directional components of vibration will be used to compute the maximum vibration level. A written memorandum of vibration intensity shall be submitted within 24 hours when specifically requested by the CITY, or without request when such intensity exceeds a peak particle velocity of

one and one-half inch per second.

END OF SECTION

SECTION 02 41 00

DEMOLITION AND DECONSTRUCTION

05/10

PART 1 GENERAL

1.1 PROJECT DESCRIPTION

1.1.1 Demolition/Deconstruction Plan

Prepare a combined Demolition and Deconstruction Plan and submit proposed salvage, demolition, deconstruction, and removal procedures for approval before work is started. Include in the plan procedures for careful removal and disposition of materials specified to be salvaged, coordination with other work in progress, a disconnection schedule of utility services, a detailed description of methods and equipment to be used for each operation and of the sequence of operations. Plans shall be approved by CITY prior to work beginning.

1.1.2 General Requirements

Do not begin demolition or deconstruction until authorization is received from the CITY. Remove rubbish and debris from the project site; do not allow accumulations to occur near the water. The work includes demolition, deconstruction, salvage of identified items and materials, and removal of resulting rubbish and debris. Remove rubbish and debris from CITY property daily, unless otherwise directed. Store materials that cannot be removed daily in areas specified by the CITY.

1.2 ITEMS TO REMAIN IN PLACE

Take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the CITY. Repair or replace damaged items as approved by the CITY. Coordinate the work of this section with all other work indicated. Construct and maintain shoring, bracing, and supports as required. Ensure that structural elements are not overloaded. Increase structural supports or add new supports as may be required as a result of any cutting, removal, deconstruction, or demolition work performed under this contract. Do not overload structural elements. Provide new supports and reinforcement for existing construction weakened by demolition, deconstruction, or removal work. Repairs, reinforcement, or structural replacement require approval by the CITY prior to performing such work.

1.2.1 Existing Construction Limits and Protection

Do not disturb existing construction beyond the extent indicated or necessary for installation of new construction. Provide temporary shoring and bracing for support of building components to prevent settlement or other movement. Provide protective measures to control accumulation and migration of dust and dirt in all work areas. Remove dust, dirt, and debris from work areas daily.

1.2.2 Weather Protection

For portions of the wall to remain, protect from the weather when possible during deconstruction. Where removal of existing overburden or concrete is necessary to accomplish work, have materials and workmen ready to provide adequate and temporary covering of exposed areas.

1.2.3 Trees

Protect trees within the project site which might be damaged during demolition or deconstruction, and which are indicated to be left in place, by a 6 foot high fence. Erect and secure fence a minimum of 5 feet from the trunk of individual trees or follow the outer perimeter of branches or clumps of trees. Replace any tree designated to remain that is damaged during the work under this contract with like-kind or as approved by the CITY.

1.2.4 Utility Service

Maintain existing utilities indicated to stay in service and protect against damage during demolition and deconstruction operations. Prior to start of work, utilities serving each area of alteration or removal will be shut off by the CITY and disconnected and sealed by the Contractor.

1.2.5 Facilities

Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities. Sheet Pile and mooring piles or any other structural components that are designed and constructed to stand without lateral support or shoring, and are determined to be in stable condition, must remain standing without additional bracing, shoring, or lateral support until demolished or deconstructed, unless directed otherwise by the CITY. Ensure that no elements determined to be unstable are left unsupported and place and secure bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, deconstruction, or demolition work performed under this contract.

The existing concrete panel wall is the most unstable on the east end of the wall nearest the boat ramp. The contractor should take every precaution when working in this area to protect the existing panels and other upland facilities.

1.3 BURNING

The use of burning at the project site for the disposal of refuse and debris will not be permitted.

1.4 AVAILABILITY OF WORK AREAS

Areas in which the work is to be accomplished will be available in accordance with the following schedule:

Seawall and upland adjacent to wall	Date: 7-days after the NTP
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Portion of Square south of Conch Republic Restaurant	TBD - depending on the issuance of the award and the notice to proceed.
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1.5 SUBMITTALS

CITY approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Demolition & Deconstruction Plan; G

1.6 QUALITY ASSURANCE

Submit timely notification of demolition, deconstruction, and renovation projects to Federal, State, Regional, and CITY authorities. Notify the FDEP, NOAA, the ACOE and the CITY in writing 10 working days prior to the commencement of work. Comply with federal, state, and local hauling and disposal regulations. Use of explosives will not be permitted.

1.6.1 Dust and Debris Control

Prevent the spread of dust and debris and avoid the creation of a nuisance in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, flooding, or pollution. Clean the work area daily. Sweep pavements as often as necessary to control the spread of debris that may result in foreign object damage potential to vehicular and/or pedestrian.

1.7 PROTECTION

1.7.1 Traffic Control Signs

- a. Where pedestrian and driver safety is endangered in the area of removal work, use barricades with flashing lights. Anchor barricades in a manner to prevent displacement by wind. Notify the CITY prior to beginning such work. Tripping or fall hazards should not be left unprotected overnight.
- b. Provide a minimum of 2 FAA type L-810 steady burning red obstruction lights on temporary structures (including cranes) over 100 feet above ground level. The use of LED based obstruction lights are not permitted.

1.7.2 Protection of Personnel

Before, during and after the demolition and deconstruction work continuously evaluate the condition of the structure being demolished and deconstructed and take immediate action to protect all personnel working in and around the project site. No area, section, or component of floors, roofs,

walls, columns, pilasters, or other structural element will be allowed to be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while workmen remove debris or perform other work in the immediate area.

1.8 FOREIGN OBJECT DAMAGE (FOD)

NOT USED

1.9 RELOCATIONS

Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Repair or replace items to be relocated which are damaged by the Contractor with new undamaged items as approved by the CITY.

1.10 EXISTING CONDITIONS

This item is provided for use by the contractor to verify the existing conditions described by the CITY. Before beginning any demolition or deconstruction work, survey the site and examine the drawings and specifications to determine the extent of the work. Record existing conditions in the presence of the CITY showing the condition of structures and other facilities adjacent to areas of alteration or removal. Photographs sized 4 inch will be acceptable as a record of existing conditions. Include in the record the elevation of the top of foundation walls, finish floor elevations, possible conflicting electrical conduits, plumbing lines, alarms systems, the location and extent of existing cracks and other damage and description of surface conditions that exist prior to before starting work. It is the Contractor's responsibility to verify and document all required outages which will be required during the course of work, and to note these outages on the record document. Submit survey results.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 EXISTING FACILITIES TO BE REMOVED

Inspect and evaluate existing structures onsite for reuse. Existing construction scheduled to be removed for reuse shall be disassembled. Dismantled and removed materials are to be separated, set aside, and prepared as specified, and stored or delivered to a collection point for reuse, remanufacture, recycling, or other disposal, as specified. Materials shall be designated for reuse onsite whenever possible.

3.1.1 Structures

- a. Remove existing structures indicated to be removed to top of existing seawall.
- b. Demolish and/or deconstruct structures in a systematic manner from the top of the structure to the ground. Demolish the concrete cap in small sections. Remove structural members and

mooring piles with a crane or other equipment (preferably from the upland), and lower to ground by means of suitable methods.

- c. Locate demolition and deconstruction equipment as far away from the face of the existing wall as possible so as to not impose excessive loads or surcharges on the structure.

3.1.2 Utilities and Related Equipment

3.1.2.1 General Requirements

Do not interrupt existing utilities serving the CITY's occupied or used facilities, except when authorized in writing by the CITY. Do not interrupt existing utilities serving facilities occupied and used by the CITY except when approved in writing and then only after temporary utility services have been approved and provided.

3.1.2.2 Disconnecting Existing Utilities

Remove existing utilities uncovered by work and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the CITY. When utility lines are encountered but are not indicated on the drawings, notify the CITY prior to further work in that area. Remove meters and related equipment and deliver to a location in accordance with instructions of the CITY.

3.1.3 Fencing

Remove only a portion of the fencing, gates and other related salvaged items scheduled for removal and transport to designated areas. Remove gates as whole units.

3.1.4 Paving and Slabs

Remove concrete and asphaltic concrete paving and slabs including aggregate base as required. Provide neat sawcuts at limits of wall-cap or other concrete removal as indicated. Pavement and slabs designated to be recycled and utilized in this project shall be moved, ground and stored as directed by the CITY. Pavement and slabs not to be used in this project shall be removed from the Installation at Contractor's expense.

3.1.5 Concrete

Saw concrete along straight lines to a depth of a minimum 2 inch. Make each cut perpendicular to the face and in alignment with the cut in the opposite face. Break out the remainder of the concrete provided that the broken area is concealed in the finished work, and the remaining concrete is sound. At locations where the broken face cannot be concealed, grind smooth or saw cut entirely through the concrete. Salvage removed concrete.

3.1.6 Structural Steel

Dismantle structural steel at field connections and in a manner that will prevent bending or damage. Salvage structural steel, angles, plates, columns and shapes. Flame-cutting torches are permitted when other methods of dismantling are not practical.

3.1.7 Miscellaneous Metal

Salvage light-gage and cold-formed metal pieces, such as steel studs, sections of steel sheet pile, accessories and similar items. Scrap metal shall become the Contractor's property. Recycle scrap metal as part of demolition and deconstruction operations. Provide separate containers to collect scrap metal and transport to a scrap metal collection or recycling facility, in accordance with the Waste Management Plan.

3.1.8 Carpentry

Salvage for reuse lumber, millwork items, and finished boards, and sort by type and size. Chip or shred and recycle salvaged wood unfit for reuse, except stained, painted, or treated wood.

3.1.9 Conduit and Miscellaneous Items

Salvage conduit except where embedded in concrete or masonry. Consider corroded, bent, or damaged conduit as scrap metal. Sort straight and undamaged lengths of conduit according to size and type. Classify supports, knobs, tubes, cleats, and straps as debris to be removed and disposed.

3.2 CONCURRENT EARTH-MOVING OPERATIONS

Do not begin excavation, filling, and other earth-moving operations that are sequential to demolition or deconstruction work in areas occupied by structures to be demolished or deconstructed until all demolition and deconstruction in the area has been completed and debris removed. Fill holes, open basements and other hazardous openings.

3.3 DISPOSITION OF MATERIAL

3.3.1 Title to Materials

Except for salvaged items specified in related Sections, and for materials or equipment scheduled for salvage, all materials and equipment removed and not reused or salvaged, shall become the property of the Contractor and shall be removed from CITY property. Title to materials resulting from demolition and deconstruction, and materials and equipment to be removed, is vested in the Contractor upon approval by the CITY of the Contractor's demolition, deconstruction, and removal procedures, and authorization by the CITY to begin demolition and deconstruction. The CITY will not be responsible for the condition or loss of, or damage to, such property after contract award. Showing for sale or selling materials and equipment on site is prohibited.

3.3.2 Reuse of Materials and Equipment

Remove and store materials in the Demolition and Deconstruction Plan to be reused or relocated to prevent damage, and reinstall as the work progresses.

3.3.3 Salvaged Materials and Equipment

Remove materials in the Demolition and Deconstruction Plan specified to be removed by the Contractor and that are to remain the property of the CITY, and deliver to a storage site as directed.

- a. Salvage items and material to the maximum extent possible.
- b. Store all materials salvaged for the Contractor as approved by the CITY and remove from CITY property before completion of the contract. On site sales of salvaged material is prohibited.
- c. Remove salvaged items to remain the property of the CITY in a manner to prevent damage, and packed or crated to protect the items from damage while in storage or during shipment. Items damaged during removal or storage must be repaired or replaced to match existing items. Properly identify the contents of containers.
- d. Remove historical items in a manner to prevent damage. Store the historical items for reuse in the project.

3.3.4 Unsalvageable and Non-Recyclable Material

Dispose of unsalvageable and non-recyclable noncombustible material in the disposal area approved to accept the waste. Dispose of unsalvageable and non-recyclable combustible material in the sanitary fill in this approved area.

3.4 CLEANUP

Remove debris and rubbish from basement and similar excavations. Remove and transport the debris in a manner that prevents spillage on streets or adjacent areas. Apply local regulations regarding hauling and disposal.

3.5 DISPOSAL OF REMOVED MATERIALS

3.5.1 Regulation of Removed Materials

Dispose of debris, rubbish, scrap, and other non-salvageable materials resulting from removal operations with all applicable federal, state and local regulations as contractually specified in the Waste Management Plan. Storage of removed materials on the project site is prohibited.

3.5.2 Burning on CITY Property

Burning of materials removed from demolished and deconstructed structures will not be permitted on CITY property.

3.5.3 Removal to Spoil Areas on CITY Property

Transport noncombustible materials removed from demolition and deconstruction structures to designated spoil areas on CITY property.

3.5.4 Removal from CITY Property

Transport waste materials removed from demolished and deconstructed structures, except waste soil, from CITY property for legal disposal. Dispose of waste soil as directed.

3.6 REUSE OF SALVAGED ITEMS

Recondition salvaged materials and equipment designated for reuse before installation. Replace items damaged during removal and salvage operations or restore them as necessary to usable condition.

-- End of Section --

REMOVAL AND SALVAGE OF HISTORIC CONSTRUCTION MATERIALS

PART 1 GENERAL

1.1 PROJECT DESCRIPTION

The work includes removal and salvage of identified historic items and materials, and removal of resulting rubbish and debris. General demolition of non-historic materials and removal of resulting rubbish and debris shall comply with the requirements of Section 02 41 00 DEMOLITION AND DECONSTRUCTION. Materials to be salvaged or recycled shall be stored daily in areas and manner specified by the CITY. In the interest of conservation, salvage and recycling shall be pursued to the maximum extent possible.

1.1.1 Dust Control

The amount of dust resulting from removal, salvage and demolition operations shall be controlled to prevent the spread of dust to occupied portions of the construction site and to avoid creation of a nuisance in the surrounding area. Use of water to control dust will not be permitted when it will result in, or create, damage to existing building materials and hazardous or objectionable conditions such as ice, flooding and pollution.

1.1.2 Protection

1.1.2.1 Protection of Existing Historic Property

Before beginning any removal, salvage or demolition work, survey the site and examine the drawings and specifications to determine the extent of the work. Take necessary precautions to avoid damage to existing historic items that are to remain in place, to be reused, or to remain the property of the CITY. Repair or restore items damaged by the Contractor to original condition, or replaced, as approved by the CITY. Coordinate the work of this section with all other work and shall construct and maintain shoring, bracing and supports, as required. Ensure that structural elements are not overloaded and shall provide additional supports as may be required as a result of any cutting, removal, or demolition work performed under this contract.

1.1.2.2 Protection from the Weather

The interior of buildings to remain and salvageable materials shall be protected from the weather at all times. Salvaged historic materials shall be stored out of contact with the ground and under weathertight covering if possible.

1.1.2.3 Environmental Protection

The contractor shall coordinate with the CITY for any additional environmental protection measures that arise as a result of the implementation of this specification.

1.2 SUBMITTALS

CITY approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Work Plan; G

1.3 QUALIFICATIONS

Provide qualified workers trained and experienced in recycling, removal and salvage of historic materials. A current point-of-contact for identified references shall be provided.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 SALVAGED ITEMS

Salvage items to the maximum extent possible. Prior to any demolition work, historic items to be salvaged shall be removed from the structure. Removal of salvageable items shall be accomplished by hand labor to the maximum extent possible. Care shall be taken to not damage portions of the structure to remain or items identified for salvage. Materials not scheduled for salvage or recycling shall be removed prior to any salvaging procedures. Keep a complete recording of all salvaged materials including the condition of such materials before, and after, salvage operations.

3.1.1 Site Work

The following site items shall be removed intact and salvaged: Mooring piles, white plastic pile caps, and the marginal portions of the five existing docks.

3.1.2 Concrete

The following concrete items shall be removed intact and salvaged: Contractor shall coordinate with the CITY to confirm the disposition of the concrete cap. For bidding purposes, the contractor should plan to demo and remove the concrete cap.

3.1.3 Masonry

Not Used

3.1.4 Metals

Not Used

3.1.5 Wood

The following materials shall be removed intact and salvaged: wood decking, wood stairs and handrails, ladders, timber mooring piles, header boards, and other timber products that can be reused if removed and stored in good condition. No wood that appears to have been damaged during the deconstruction process shall be reused.

3.1.6 Mechanical Equipment

The following mechanical equipment shall be removed intact and salvaged: Access gates to docks.

3.1.6 Storm water systems

All existing storm drainage and other upland facilities will be protected.

3.1.7 Electrical Equipment:

The following electrical fixtures and equipment shall be removed intact and salvaged: Electrical wiring on the docks shall be protected and reused. New wiring shall be provided from the main breaker panel to the proposed pull boxes. Existing solar powered field lighting will be protected and/or removed, stored and replaced.

3.2 RECYCLED MATERIALS

The following materials shall be recycled: timber piles, plastic pile caps, and portions of existing decking, electrical wiring serving the docks and other works as required. The following materials may be recycled (if possible): dimension lumber, scrap wood from form work, and rubble from concrete cap. Recycle materials to the maximum extent possible. Removal of recyclable materials shall be accomplished by hand labor wherever possible. Historic portions of the structure to remain and items identified for salvage shall not be damaged while removing materials for recycling. **No rubble or other recycled materials shall be placed between the old and new wall.**

3.3 DISPOSITION OF MATERIALS

Title to materials and equipment to be demolished, is vested in the Contractor upon receipt of notice to proceed. The CITY will not be responsible for the condition, loss or damage to such property after notice to proceed.

3.3.1 Material Salvaged for the Contractor

Temporarily store salvaged material as approved by the CITY and remove from CITY property before completion of the contract. Sale of salvaged material on the site is prohibited.

3.3.2 Items Salvaged for the CITY

Salvaged items to remain the property of the CITY shall be removed in a manner to prevent damage, packed or crated to protect the items from damage, or as directed by the CITY. Items damaged

during removal or storage shall be repaired or replaced to match existing items. Containers shall be properly identified as to contents. The following items reserved as property of the CITY shall be delivered to the areas designated: TBD. Contractor shall coordinate with CITY if materials are salvaged and not used on the project.

3.4 CLEAN-UP

Upon completion of the work, portions of structure to remain and adjacent areas and structures shall be cleaned of dust, dirt, and debris caused by salvage and demolition operations. Debris and rubbish shall be removed and transported in a manner that prevents spillage on streets or adjacent areas. Local regulations regarding hauling and disposal shall apply.

-- End of Section --

SECTION 03 10 00

CONCRETE FORMWORK

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall design and furnish all materials for concrete formwork, bracing, and supports and shall design and construct all falsework, all in accordance with the provisions of the Contract Documents.

1.02 RESPONSIBILITY

- A. The design and engineering of the formwork as well as safety considerations are the responsibility of the Contractor.

1.03 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Without limiting the generality of other requirements of these Specifications, all work specified herein shall conform to or exceed the requirements of the Florida Building Code and the applicable requirements of the following documents to the extent that the provisions of such documents are not in conflict with the requirements of this Section.
 - 1. Codes and Standards
The Building Code, as referenced herein, is the Florida Building Code (FBC).
 - 2. Government Standards
PS 1 U.S. Product Standard for Concrete Forms, Class I.
 - 3. Commercial Standards
ACI 347 Recommended Practice for Concrete Formwork.
ACI 318R Building Code Requirements for Reinforced Concrete.

1.04 QUALITY ASSURANCE

- A. The variation from established grade or lines shall not exceed 1/4 inch in 10 feet and there shall be no offsets or visible bulges or waviness in the finished surface. All tolerances shall be within the "Suggested Tolerances" specified in ACI 347. The Contractor shall grind smooth all fins and projections between formwork panels as directed by the Engineer.
- B. Curved forms shall be used for curved and circular structures that are cast-in-place. Straight panels will not be acceptable for forming curved structures.

PART 2 - PRODUCTS

2.01 FORM MATERIALS

- A. Except as otherwise expressly accepted by the Engineer, all lumber brought on the job site for use as forms, shoring, or bracing shall be new material. All forms shall be smooth surface forms and shall be of the following materials:

Footing sides -Construction grade Hem Fir or Douglas Fir

Walls -Steel or plywood panel

Columns -Steel, plywood or fiber glass Roof and floor

Slabs -Plywood

All other work -Steel panels, plywood or tongue and groove lumber

- A. Materials for concrete forms, formwork, and falsework shall conform to the following requirements:
1. Lumber shall be Southern Pine, construction grade or better, in conformance with U.S. Product Standard PS20.
 2. Plywood for concrete formwork shall be new, waterproof, synthetic resin bonded, exterior type Douglas Fir or Southern Pine plywood manufactured especially for concrete formwork and shall conform to the requirements of PS I for Concrete Forms, Class I, and shall be edge sealed. Thickness shall be as required to support concrete at the rate it is placed, but not less than 5/8-inch thick.

2.02 PREFABRICATED FORMS

- A. Form materials shall be metal, wood, plywood, or other acceptable material that will not adversely affect the concrete and will facilitate placement of concrete to the shape, form, line, and grade indicated. Metal forms shall be an acceptable type that will accomplish such results. Wood forms for surfaces to be painted shall be Medium Density Overlaid plywood, MDO Ext. Grade.

2.03 FORMWORK ACCESSORIES

- A. Exterior corners in concrete members shall be provided with 3/4-inch chamfers. Re-entrant corners in concrete members shall not have fillets unless otherwise shown.
- B. Form ties shall be provided with a plastic cone or other suitable means for forming a conical hole to insure that the form tie may be broken off back of the face of the concrete. The maximum diameter of removable cones for rod ties, or of other removable form-tie fasteners having a circular cross-section, shall not exceed 1-1/2 inches; and all such fasteners shall be such as to leave holes of regular shape for reaming.
- C. Form ties for water-retaining structures shall have integral waterstops. Removable taper ties may be used when acceptable to the Engineer. Taper ties shall not be used to cast water retaining structural walls. At other locations, a preformed neoprene or

polyurethane tapered plug sized to seat at the center of the wall shall be inserted in the hole left by the removal of the taper tie.

- D. Form release agent shall be a blend of natural and synthetic chemicals that employs a chemical reaction to provide quick, easy and clean release of concrete from forms. It shall not stain the concrete and shall leave the concrete with a paintable surface. Formulation of the form release agent shall be such that it would minimize formation of "Bug Holes" in cast-in-place concrete.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Forms to confine the concrete and shape it to the required lines shall be used wherever necessary. The Contractor shall assume full responsibility for the adequate design of all forms, and any forms which are unsafe or inadequate in any respect shall promptly be removed from the Work and replaced at the Contractor's expense. A sufficient number of forms of each kind shall be provided to permit the required rate of progress to be maintained. The design and inspection of concrete forms and falsework, shall comply with applicable local, state and Federal regulations. Plumb and string lines shall be installed before concrete placement and shall be maintained during placement. Such lines shall be used by Contractor's personnel and by the Engineer and shall be in sufficient number and properly installed. During concrete placement, the Contractor shall continually monitor plumb and string line form positions and immediately correct deficiencies.
- B. Concrete forms shall conform to the shape, lines, and dimensions of members as called for on the Drawings, and shall be substantially, free from surface defects, and sufficiently tight to prevent leakage. Forms shall be properly braced or tied together to maintain their position and shape under a load of freshly-placed concrete.
- C. All forms shall be true in every respect to the required shape and size, shall conform to the established alignment and grade, and shall be of sufficient strength and rigidity to maintain their position and shape under the loads and operations incident to placing and vibrating the concrete. Suitable and effective means shall be provided on all forms for holding adjacent edges and ends of panels and sections tightly together and in accurate alignment so as to prevent the formation of ridges, fins, offsets, or similar surface defects in the finished concrete. Plywood, 5/8 inch and greater in thickness, may be fastened directly to studding if the studs are spaced close enough to prevent visible deflection marks in the concrete. The forms shall be tight so as to prevent the loss of water, cement and fines during placing and vibrating of the concrete. Specifically, the bottom of wall forms that rest on concrete footings or slabs shall be provided with a gasket to prevent loss of fines and paste during placement and vibration of concrete. Such gasket may be a 1 to 1-1/2-inch diameter polyethylene rod held in position to the underside of the wall form. Adequate clean-out holes shall be provided at the bottom of each lift of forms. The size, number, and location of such clean-outs shall be as acceptable to the Engineer.

- D. Concrete construction joints will not be permitted at locations other than those shown or specified, except as may be acceptable to the Engineer. When a second lift is placed on hardened concrete, special precautions shall be taken in the way of the number, location, and tightening of ties at the top of the old lift and bottom of the new to prevent any unsatisfactory effect whatsoever on the concrete. Pipe stubs and anchor bolts shall be set in the forms where required.

3.02 EARTH FORMS

- A. All vertical surfaces of concrete members shall be formed, except where placement of the concrete against the ground is called for on the Drawings. Not less than 1 inch of concrete shall be added to the thickness of the concrete member as shown where concrete is permitted to be placed against trimmed ground in lieu of forms. Such permission will be granted only for members of comparatively limited height and where the character of the ground is such that it can be trimmed to the required lines and will stand securely without caving or sloughing until the concrete has been placed.

3.03 FOOTINGS, SLAB EDGES AND GRADE BEAMS

- A. Provide wood side forms for all footings, slab edges and grade beams.

3.04 APPLICATION - FORM RELEASE AGENT

- A. Apply form release agent on formwork in accordance with manufacturer's recommendations.

3.05 INSERTS, EMBEDDED PARTS AND OPENINGS

- A. Embedded Form Ties: Holes left by the removal of form tie cones shall be reamed with suitable toothed reamers so as to leave the surface of the holes clean and rough before being filled with mortar as specified for in Section 03350 entitled "Concrete Finishes". Wire ties for holding forms will not be permitted. No form-tying device or part thereof, other than metal, shall be left embedded in the concrete. Ties shall not be removed in such manner as to leave a hole extending through the interior of the concrete members. The use of snap-ties which cause spalling of the concrete upon form stripping or tie removal will not be permitted. If steel panel forms are used, rubber grommets shall be provided where the ties pass through the form in order to prevent loss of cement paste. Where metal rods extending through the concrete are used to support or to strengthen forms, the rods shall remain embedded and shall terminate not less than 1-inch back from the formed face or faces of the concrete.

3.06 FORM CLEANING

- A. Forms may be reused only if in good condition and only if acceptable to the Engineer. Light sanding between uses will be required wherever necessary to obtain uniform surface texture on all exposed concrete surfaces. Exposed concrete surfaces are defined

as surfaces which are permanently exposed to view. Unused tie rod holes in forms shall be covered with metal caps or shall be filled by other methods acceptable to the Engineer.

3.07 FORMWORK TOLERANCES

- A. Formwork shall be constructed to insure that finished concrete surfaces will be in accordance with the tolerances listed in ACI 347.
1. The following construction tolerances are hereby established and apply to finished walls and slab unless otherwise shown in the Drawings:

Item	Tolerance
Variation of the constructed linear outline from the established position in plan	In 10 feet: 1/4 inch; In 20 feet or more: 1/2 inch
Variation from the level or from the grades shown on the Drawings	In 10 feet: 1/4 inch; In 20 feet or more: 1/2 inch
Variation from the plum	In 10 feet: 1/4 inch; In 20 feet or more: 1/2 inch
Variation in the thickness of slabs and walls	Minus 1/4 inch; Plus 1/2 inch
Variation in the locations and sizes of slab and wall openings	Plus or minus 1/4 inch

3.08 FORM REMOVAL

- A. Remove top forms on sloping surfaces of concrete as soon as removal operations will not allow the concrete to sag. Perform any needed repairs or treatment required on sloping surfaces at once and follow immediately with the specified curing.
- B. The Contractor shall be responsible for the removal of forms and shores. Forms or shores shall not be removed before test cylinders have reached the specified minimum 28 day comprehensive strength for the class of concrete specified in Section 03300 entitled "Cast-in-Place Concrete", nor sooner than listed below:
- Grade beam side forms 3 days
 - Wall forms 3 days
 - Column forms 3 days
 - Beam and girder side forms 3 days
 - Beam bottoms and slab forms/shores 14 days

3.09 MAINTENANCE OF FORMS

- A. Forms shall be maintained at all times in good condition, particularly as to size, shape, strength, rigidity, tightness, and smoothness of surface. Forms, when in place, shall conform to the established alignment and grades. Before concrete is placed, the forms

shall be thoroughly cleaned. The form surfaces shall be treated with a nonstaining mineral oil or other lubricant acceptable to the Engineer. Any excess lubricant shall be satisfactorily removed before placing the concrete. Where field oiling of forms is required, the Contractor shall perform the oiling at least two weeks in advance of their use. Care shall be exercised to keep oil off the surfaces of steel reinforcement and other metal items to be embedded in concrete.

-- End of Section --

SECTION 03 30 00

CAST -IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall furnish all materials for concrete in accordance with the provisions of this Section and shall form, mix, place, cure, repair, finish, and do all other work as required to produce finished concrete, all in accordance with the requirements of the Contract Documents.
- B. The requirements in this section shall apply to the following types of concrete:
 - 1. Class A Concrete: Normal weight concrete used at all locations, unless otherwise noted.
 - 2. Class B Concrete: Normal weight concrete with pea-rock aggregate. Class B concrete shall be used only at locations indicated on the Drawings.
 - 3. Class C Concrete: Normal weight concrete used in electrical/ instrumentation ductbanks, pipe encasements and sidewalks.
 - 4. Tremie concrete: Concrete indicated to be placed underwater.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Without limiting the generality of other requirements of these Specifications, all work specified herein shall conform to or exceed the requirements of the Florida Building Code (FBC) and the applicable requirements of the following documents to the extent that the provisions of such documents are not in conflict with the requirements of this Section.
- B. Codes and Standards
 - 1. The Building Code, as referenced herein, shall be the Florida Building Code.
- C. Federal Specifications
 - 1. UU-B-790A (Int. Amd. 1) Building Paper, Vegetable Fiber (Kraft, Waterproofed, Water Repellant and Fire Resistant).
- D. Commercial Standards
 - ACI 214.1 R-81 Recommended Practice for Evaluation of Strength Test Results of Concrete.
 - AC1318R Building Code Requirements for Reinforced Concrete.
 - ACI 301 Specifications for Structural Concrete for Buildings.
 - ACI 315R Details and Detailing of Concrete Reinforcement.
 - ACI 347R Recommended Practice for Concrete Formwork.
 - ASTM C 31 Methods of Making and Curing Concrete Test Specimens in the Field.
 - ASTM C 33 Specification for Concrete Aggregates.
 - ASTM C 39 Test Method for Compressive Strength of Cylindrical Concrete Specimens.
 - ASTM C 94 Specification for Ready-Mixed Concrete.
 - ASTM C 114 Method for Chemical Analysis of Hydraulic Cement.

ASTM C 136	Method for Sieve Analysis of Fine and Coarse Aggregate.
ASTM C 143	Test Method for Slump of Portland Cement Concrete.
ASTM C 150	Specification for Portland Cement.
ASTM C 156	Test Method for Water Retention by Concrete Curing Materials.
ASTM C 157	Test Method for Length Change of Hardened Cement Mortar and Concrete.
ASTM C 192	Method of Making and Curing Concrete Test Specimens in the Laboratory.
ASTM C 260	Specification for Air-Entraining Admixtures for Concrete.
ASTM C 494	Specification for Chemical Admixtures for Concrete.

1.03 SUBMITTALS

- A. The design mix to be used shall be prepared by qualified persons and submitted for review. The design of the mix is the responsibility of the Contractor subject to the limitations of the specifications. Review processing of this submission will be required only as evidence that the mix has been designed by qualified persons and that the minimum requirements of the specifications have been met. Such review will in no way alter the responsibility of the Contractor to furnish concrete meeting the requirements of the specifications relative to strength and slump. If in the progress of the work the sources of materials change in characteristics or the Contractor requests a new source in writing, the Contractor shall, at his expense submit new test data and information for the establishment of a new design mix. Submit mix designs for all classes of concrete.
- B. Where ready-mix concrete is used, the Contractor shall provide delivery tickets at the time of delivery of each load of concrete. In addition to the information required by ASTM C94, each ticket shall show the mix number, cement content and water/cement ratio.
- C. Location of all proposed construction joints.
- D. Manufacturer's data on all admixtures.
- E. Concrete mix designs for each type of mix proposed and its intended locations.
- F. A schedule of all concrete placement with volume of concrete planned to be placed each day.
- G. A layout of all structures with all planned construction joint locations.

1.04 QUALITY ASSURANCE

- A. Plant equipment and facilities shall meet all requirements of the Check List for Certification of Ready Mixed Concrete Production facilities of the National Ready Mixed Concrete Association and ASTM C 94.
- B. Tests for compressive strength and slump of concrete will be performed as specified herein. Test for determining slump will be in accordance with the requirements of ASTM C 143.
- C. The cost of all tests, will be borne by the Contractor. The Contractor shall also be charged for the cost of any additional tests and investigation on work performed which does not meet the Specifications.
- D. Concrete for testing shall be supplied by the Contractor at no cost to the Owner, and the Contractor shall provide assistance to the Concrete Testing Company in obtaining samples. The Contractor shall dispose of and clean up all excess material.
- E. Construction Tolerances

1. The Contractor shall set and maintain concrete forms and perform finishing operations so as to ensure that the completed work is within the tolerances specified herein. Surface defects and irregularities are defined as finishes are to be distinguished from tolerances. Tolerance is the specified permissible variation from lines, grades, or dimensions shown. Where tolerances are not stated in the Specifications, permissible deviations will be in accordance with ACI 347 and Section 03100 entitled "Concrete Formwork".

1.05 FIELD SAMPLES

A. Field Compression Tests

1. Compression test specimens shall be taken during construction from the first placement of each class of concrete specified herein and at intervals thereafter as selected by the Engineer to insure continued compliance with these Specifications. At least one set of test specimens shall be made for each 50 yards of concrete placed. Each set of test specimens shall be a minimum of 5 cylinders.
2. Compression test specimens for concrete shall be made in accordance with ASTM C 31. Specimens shall be 6-inch diameter by 12-inch high cylinders.
3. Compression test shall be performed in accordance with ASTM C 39. One cylinder tested at 3 days, one test cylinders will be tested at 7 days and 2 at 28 days. The remaining cylinder will be held to verify test results, if needed.

B. Evaluation and Acceptance of Concrete

1. Evaluation and acceptance of the compressive strength of concrete shall be according to the requirements of ACI 318, Chapter 5 "Concrete Quality Mixing and Placing", and as specified herein.
2. If any concrete fails to meet these requirements, immediate corrective action shall be taken to increase the compressive strength for all subsequent batches of the type of concrete affected.
3. All concrete which fails to meet the ACI requirements and these specifications, is subject to removal and replacement at the cost of the Contractor.

PART 2 - PRODUCTS

2.01 CONCRETE MATERIALS

- A. Materials shall be delivered, stored, and handled so as to prevent damage by water or breakage. Only one brand of cement shall be used. Cement reclaimed from cleaning bags or leaking containers shall not be used. All cement shall be used in the sequence of receipt of shipments.
- B. All materials furnished and stored for the work shall comply with the requirements of ACI 301, as applicable.
- C. Materials for concrete shall conform to the following requirements:
 1. Cement shall be standard brand portland cement conforming to ASTM C 150 for

Type II. Portland cement shall contain not more than 0.60 percent alkalis. The term "alkalis" referred to herein is defined as the sum of the percentage of sodium oxide and 0.658 times the percentage of potassium oxide ($\text{Na}_2\text{O} + 0.658 \text{K}_2\text{O}$). These oxides shall be determined in accordance with ASTM C 114. A single brand of cement shall be used throughout the Work, and prior to its use, the brand shall be acceptable to the Engineer. The cement shall be suitably protected from exposure to moisture until used. Cement that has become lumpy shall not be used. Sacked cement shall be stored in such a manner so as to permit access for inspection and sampling. Certified mill test reports for each shipment of cement to be used shall be submitted to the Engineer if requested regarding compliance with these Specifications.

2. Water shall be potable, clean, and free from objectionable quantities of silty organic matter, alkali, salts and other impurities. The water shall be considered potable, for the purposes of this Section only, if it meets the requirements of the local governmental agencies.
3. Aggregates shall be obtained from pits acceptable to the Engineer, shall be non-reactive, and shall conform to the Florida Building Code (FBC) and ASTM C 33. Maximum size of coarse aggregate shall be as specified in Article 2.04, Paragraph B of this Section. Lightweight sand for fine aggregate will not be permitted.
 - a. Coarse aggregates shall consist of clean, hard, durable gravel, crushed gravel, crushed rock or a combination thereof. The coarse aggregates shall be prepared and handled in two or more size groups for combined aggregates with a maximum size not greater than 1 inch. When the aggregates are proportioned for each batch of concrete the two size groups shall be combined.
 - b. Fine aggregates shall be manufactured sand that is hard and durable.
 - c. Combined aggregates shall be well graded from coarse to fine sizes, and shall be uniformly graded between screen sizes to produce a concrete that has optimum workability and consolidation characteristics. Where a trial batch is required for a mix design, the final combined aggregate gradations will be established during the trial batch process.
 - d. When tested in accordance with "Potential Reactivity of Aggregates (Chemical Method)" (ASTM C 289), the ratio of silica released to reduction in alkalinity shall not exceed 1.0.
 - e. When tested in accordance with "Organic Impurities in Sands for Concrete" (ASTM C 40), the fine aggregate shall produce a color in the supernatant liquid no darker than the reference standard color solution.
 - f. When tested in accordance with "Resistance to Abrasion of Small size Coarse Aggregate by Use of the Los Angeles Machine" (ASTM C 131), the coarse aggregate shall show a loss not exceeding 42 percent after 500 revolutions, or 10.5 percent after 100 revolutions.
 - g. When tested in accordance with "Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate" (ASTM C 88), the loss resulting after five cycles shall not exceed 10 percent for fine or coarse aggregate when using sodium sulfate.
4. All cement, admixtures, sealers, and form release agents used in or on the concrete or mortar shall conform to NSF International (NSF) standard 61-2001 and Addendum 1.0-2001 to NSF Standard 61-2001.

5. Aggregate used in the concrete or mortar shall be clean (i.e. free of excess clay, silt, mica, organic matter, chemical salts and coated grains) and shall be essentially free of those metals and radionuclides regulated under applicable primary drinking water standards.

2.02 ADMIXTURES

- A. Air-entraining agent meeting the requirements of ASTM C 260, shall be used. Sufficient air-entraining agent shall be used to provide a total air content of 3 to 5 percent.
- B. Admixtures shall be required at the Engineer's discretion or, if not required, may be added at the Contractor's option to control the set, effect water reduction, and increase workability. In either case, the addition of an admixture shall be at the Contractor's expense. The use of an admixture shall be subject to acceptance by the Engineer. Concrete containing an admixture shall be first placed at a location determined by the Engineer. If the use of an admixture is producing an inferior end result, the Contractor shall discontinue use of the admixture. Admixtures specified herein shall conform to the requirements of ASTM C 494. The required quantity of cement shall be used in the mix regardless of whether or not an admixture is used. Admixtures shall contain no free chloride ions, be non-toxic after 30 days, and shall be compatible with and made by the same manufacturer as the air entraining admixture.
 1. Set controlling admixture shall be either with or without water-reducing properties. Where the air temperature at the time of placement is expected to be consistently over 80 degrees Fahrenheit, a set retarding admixture such as Sika Chemical Corporation's Plastiment, Master Builder's Pozzoloth 200R or equal shall be used. Where the air temperature at the time of placement is expected to be consistently under 40 degrees Fahrenheit, a set accelerating admixture such as Sika Chemical Corporation's Plastocrete 161 FL, Master Builder's Pozzoloth 50C, or equal shall be used.
 2. Low range water reducer shall be added to all structural concrete, and shall conform to ASTM C 494, Type A. It shall be either a hydroxylated carboxylic acid type or a dydroxylated polymer type. The quantity of admixture used and the method of mixing shall be in accordance with the manufacturer's instructions and recommendations.
 3. Water reducing and retarding admixture shall be in conformance with ASTM C 494 Type D free of chlorides, "MB-HC" by Master Builders, "WRDA-79" by Grace or equal.
 4. High range water reducer shall be sulfonated polymer conforming to ASTM C 494, Type For G.
 5. If the high range water reducing agent is added to the concrete at the batch plant, it shall be second generation type, Daracem 100, as manufactured by W.R. Grace & Co., Pozzolith 430R, as manufactured by Master Builders; or equal. High range water reducer shall be added to the concrete after all other ingredients have been mixed and initial slump has been verified.
 6. If the high range water reducer is added to the concrete at the job site, it shall be used in conjunction with a low range water reducer and shall be Pozzolith 400N and Pozzolith MBL82, as manufactured by Master Builders; WRDA 19 and WRDA 79, as manufactured by W.R. Grace & Co., or equal. Concrete shall have a slump of 3 inches.± 1/2 inch prior to adding the high range water reducing admixture at

the job site. The high range water reducing admixture shall be accurately measured and pressure injected into the mixer as a single dose by an experienced technician. A standby system shall be provided and tested prior to each day's operation of the job site system.

7. Concrete shall be mixed at mixing speed for a minimum of 30 mixer revolutions after the addition of the high range water reducer.
8. The Contractor shall submit certification from each admixture manufacturer that all admixtures utilized in the design mix are compatible with one another and properly proportioned.
9. Prohibited Admixtures: Calcium chloride, thiocyanate or admixtures containing more than 0.05 percent chloride ions are not permitted.
10. Certification: Written conformance to the above mentioned requirements and the chloride ion content of the admixture will be required from the admixture manufacturer prior to Mix design review by the Engineer.
11. For Class A, Class B and Class C Concrete, no flyash may be added.

1.03 ACCESSORIES

- A. Epoxy adhesives shall be the following products for the applications specified to be used in strict accordance with manufacturer's recommendations.
 1. For bonding freshly-mixed, plastic concrete to hardened concrete, Sikadur 32 Hi-Mod, LPL Epoxy Adhesive, as manufactured by Sika Chemical Corporation; Concesive 1001-LPL, as manufactured by Adhesive Engineering Company; or equal.
 2. For bonding hardened concrete or masonry to steel, Colma-Our Gel, Sikadur Hi-Mod Gel, or equal.
 3. Epoxy grouting of vertical and horizontal dowels in existing concrete: A two-component structural epoxy gel such as Rawl/Sika Foil-Fast Epoxy Injection Gel, Sikadur injection gel as manufactured by Sika Chemical Corp., EPCON G5 or approved equal. Place with pneumatic or manual injection gun.

1.04 CONCRETE MIX

- A. Concrete shall be composed of cement, admixtures, aggregates and water. These materials shall be of the qualities specified. The exact proportions in which these materials are to be used for different parts of the work will be determined by the Contractor. In general, the mix shall be designed to produce a concrete capable of being deposited so as to obtain maximum density and minimum shrinkage and, where deposited in forms, to have good consolidation properties and maximum smoothness of surface. Mix designs with more than 41 percent of sand of the total weight of fine and coarse aggregate shall not be used for Class A Concrete. The aggregate gradations shall be formulated to provide fresh concrete that will not promote rock pockets around reinforcing steel or embedded items. The proportions shall be changed whenever necessary or desirable to meet the required results at no additional cost to the Owner. All changes shall be subject to review by the Engineer.
- B. The proportions of cement, aggregates, admixtures and water used in the concrete shall be based on tests of grading and moisture content of materials, slump of concrete mixture, strength of concrete and the following factors:

1. Class A Concrete (All cast-in-place, tremied concrete and precast concrete unless otherwise noted).

Minimum cementitious materials content, per cubic yard	without flyash added: 611 lbs.
Maximum water-cementitious materials ratio, by weight	0.40
Slump range	3 inches to 4 inches with water reducing admixture 3-inch maximum before addition of high range water reducing admixture. 8-inch maximum after addition of high range water reducing admixture
Coarse Aggregate	#57 per ASTM C33
Compressive strength at 28 days F'c -	5,500 psi
Air Content	3% ± 1 %

2. Class B Concrete (At locations shown on the Drawings or specified herein).

Minimum cementitious materials content, per cubic yard	517 lbs.
Maximum water-cementitious materials ratio, by weight	0.50
Slump, maximum	5 inches
Compressive strength at 28 days - F'c	3,000 psi
Coarse Aggregate	Pearock
Air Content	3% ± 1%

3. Class C Concrete (Sidewalks)

Minimum cementitious materials content, per cubic yard	500 lbs.
Maximum water-cementitious materials ratio, by weight	0.55
Slump, maximum	5 inches
Compressive strength at 28 days - F'c	3,000 psi
Compressive strength at 28 days – F'c (Sidewalk only)	2,500 psi

Coarse Aggregate	#57 per ASTM C33
Air Content	2 ½ % ± 5 ½ %

- C. All Class A concrete, unless noted otherwise on the Drawings, shall be air entrained concrete and contain the high range water-reducing admixture (superplasticizer). A water reducing admixture may be added to the mix at the Contractor's option.
- D. The mix proportions used shall be changed subject to the limitation specified herein, whenever such change is necessary or desirable to secure the required strength, density, workability, and surface finish and the Contractor shall be entitled to no additional compensation because of such changes.

1.05 CONSISTENCY

- A. The quantity of water entering into a batch of concrete shall be just sufficient, with a normal mixing period, to produce a concrete which can be worked properly into place without segregation, and which can be compacted by the vibratory methods herein specified to give the desired density, impermeability and smoothness of surface. The quantity of water shall be changed as necessary, with variations in the nature or moisture content of the aggregates, to maintain uniform production of a desired consistency. The consistency of the concrete in successive batches shall be determined by slump tests in accordance with ASTM C 143. Slumps shall be 4 inches ± 1 inch measured at the form. Slump with high range water reducers shall be 6 inches ± 1 inch at the form.

1.06 READY-MIXED CONCRETE

- A. Ready-mixed concrete shall be used meeting the requirements as to materials, batching, mixing, transporting, and placing as specified herein and in accordance with ASTM C 94.
- B. Ready-mixed concrete shall be delivered to the site of the work, and discharge shall be completed within one and one-half hour after the addition of the cement to the aggregates or before the drum has been revolved 250 revolutions, whichever is first. Upon delivery from the truck concrete temperature shall not exceed 90 degrees Fahrenheit.
- C. Truck mixers shall be equipped with electrically-actuated counters by which the number of revolutions of the drum or blades may be readily verified. The counter shall be of the resettable, recording type. The counters shall be actuated at the time of starting mixers at mixing speeds.
- D. Each batch of concrete shall be mixed in a truck mixer for not less than 70 revolutions of the drum or blades at the rate of rotation designated by the manufacturer of equipment. Additional mixing, if any, shall be at the speed designated by the manufacturer of the equipment as agitating speed. All materials including mixing water shall be in the mixer drum before actuating the revolution counter for determining the number of revolution of mixing.

PART 3 - EXECUTION

1.01 PROPORTIONING AND MIXING

- A. Proportioning of the concrete mix shall conform to the requirements of Chapter 3 "Proportioning" of ACI 301; provided, that the maximum slump for any concrete shall not exceed the limits specified in this Section of the Specifications.
- B. Mixing of concrete shall conform to the requirements of Chapter 7 of ACI 301 Specifications.
- C. Retempering of concrete or mortar which has partially hardened will not be permitted.

1.02 PREPARATION

- A. Earth surfaces shall be thoroughly wetted by sprinkling, prior to the placing of any concrete, and these surfaces shall be kept moist by frequent sprinkling up to the time of placing concrete thereon. A vapor barrier specified in Section 07190 entitled "Vapor Barrier" shall be placed. The surface shall be free from standing water, mud, and debris at the time of placing concrete.
- B. No concrete shall be placed until the reinforcement steel and formwork have been erected in a manner acceptable to the Engineer. The Contractor shall notify the Engineer not less than two working days prior to Concrete Placement, allowing one day for review and any corrective measures which are required.
- C. Joints in Concrete
 - 1. Concrete surfaces upon or against which concrete is to be placed shall be given a roughened surface for good bond and a bonding agent shall be placed.
 - 2. After the surfaces have been prepared all approximately horizontal construction joints shall be covered with a layer of mortar approximately one-inch thick. The mortar shall have the same proportions of cement and sand as the regular concrete mixture. The water-cement ratio of the mortar in place shall not exceed that of the concrete to be placed upon it, and the consistency of the mortar shall be suitable for placing and working in the manner hereinafter specified. The mortar shall be spread uniformly and shall be worked thoroughly into all irregularities of the surface. Wire brooms shall be used where possible to scrub the mortar into the surface. Concrete shall be placed immediately upon the fresh mortar.
- D. Placing Interruptions
 - 1. When placing of concrete is to be interrupted long enough for the concrete to take a set, the working face shall be given a shape by the use of forms or other means, that will secure proper union with subsequent work; provided that construction joints shall be made only where acceptable to the Engineer. Cold joints will be sufficient cause for rejection of the work.
- A. Embedded Items
 - 1. No concrete shall be placed until all formwork, installation of parts to be embedded, reinforcing steel, and preparation of surfaces involved in the placing have been completed and accepted by the Engineer at least four hours before placement of concrete. All surfaces of forms and embedded items that have

become encrusted with dried grout from concrete previously placed shall be cleaned of all such grout before the surrounding or adjacent concrete is placed.

2. All inserts or other embedded items shall conform to the requirements herein.
- B. All reinforcement, anchor bolts, sleeves, inserts, and similar items shall be set and secured in the forms where shown on the Drawings or by shop drawings and shall be acceptable to the Engineer before any concrete is placed. Accuracy of placement is the responsibility of the Contractor.
- G. All anchor bolts called for on the drawings shall be cast-in-place in the concrete. Drilled, impact, adhesive or other types of anchors shall not be substituted for anchor bolts unless otherwise shown on the Drawings. Anchor bolts shall conform to the requirements set forth in Section 05500 entitled "Miscellaneous Fabrications."
- H. Casting New Concrete Against Old
 1. Where concrete is to be cast against old concrete (any concrete which is greater than 60 days of age), the surface of the old concrete shall be thoroughly cleaned and roughened by sand-blasting (exposing aggregate) to an amplitude of $\frac{1}{4}$ " prior to the application of an epoxy bonding agent.
- I. No concrete shall be placed in any structure until all water entering the space to be filled with concrete has been properly cut off or has been diverted by pipes, or other means, and carried out of the forms, clear of the work. No concrete shall be deposited underwater, except where shown on the Drawings to be placed by the tremie method, nor shall the Contractor allow still water to rise on any concrete until the concrete has attained its initial set. Water shall not be permitted to flow over the surface of any concrete in such manner and at such velocity as will injure the surface finish of the concrete. Pumping or other necessary dewatering operations for removing ground water, if required, will be subject to the review of the Engineer.
- J. Corrosion Protection
 1. Pipe, conduit, dowels, and other ferrous items required to be embedded in concrete construction shall be so positioned and supported prior to placement of concrete that there will be a minimum of 2 inches clearance between said items and any part of the concrete reinforcement. Securing such items in position by wiring or welding them to the reinforcement will not be permitted.
 2. Openings for pipes, inserts for pipe hangers and brackets, and the setting of anchors shall, where practicable, be provided for during the placing of concrete.
 3. Anchor bolts shall be accurately set, and shall be maintained in position by templates while being embedded in concrete.

4. The surfaces of all metalwork to be in contact with concrete shall be thoroughly cleaned of all dirt, grease, loose scale and rust, grout, mortar, and other foreign substances immediately before the concrete is placed.

1.03 PLACING CONCRETE

- A. Placing of concrete shall conform to the applicable requirements of Chapter 8 of ACI 301 and the requirements of this Section.
- C. Non-Conforming Work or Materials
 1. Concrete which upon or before placing is found not to conform to the requirements specified herein shall be rejected and immediately removed from the Work. Concrete which is not placed in accordance with these Specifications, or which is of inferior quality, shall be removed and replaced by and at the expense of the Contractor.
- D. Unauthorized Placement
 1. No concrete shall be placed except in the presence of duly authorized representative of the Engineer. The Contractor shall notify the Engineer at least 24 hours in advance of placement of any concrete.
- E. Placement in Wall Forms
 1. Concrete shall not be dropped through reinforcement steel or into any deep form, whether reinforcement is present or not, causing separation of the coarse aggregate from the mortar on account of repeatedly hitting rods or the sides of the form as it falls, nor shall concrete be placed in any form in such a manner as to leave accumulation of mortar on the form surfaces above the placed concrete. In such cases, some means such as the use of hoppers and, if necessary, vertical ducts of canvas, rubber, or metal shall be used for placing concrete in the forms in a manner that it may reach the place of final deposit without separation. In no case shall the free fall of concrete exceed 4 feet below the ends of ducts, chutes, or buggies.
 2. Concrete shall be uniformly distributed during the process of depositing and in no case after depositing shall any portion be displaced in the forms more than 6 feet in horizontal direction. Concrete in forms shall be deposited in uniform horizontal layers not deeper than 2 feet; and care shall be taken to avoid inclined layers or inclined construction joints except where such are required for sloping members. Each layer shall be placed while the previous layer is still soft. The rate of placing concrete in forms shall not exceed 5 feet of vertical rise per hour.
- F. Casting New Concrete Against Old
 1. An epoxy adhesive bonding agent shall be applied to set surfaces of construction joints according to the manufacturer's written recommendations.

G. Conveyor Belts and Chutes

1. All ends of chutes, hopper gates, and all other points of concrete discharge throughout the Contractor's conveying, hoisting and placing system shall be so designed and arranged that concrete passing from them will not fall separated into whatever receptacle immediately receives it. Conveyor belts, if used, shall be of a type acceptable to the Engineer. Chutes longer than 50 feet will not be permitted. Minimum slopes of chutes shall be such that concrete of the specified consistency will readily flow in them. If a conveyor belt is used, it shall be wiped clean by a device operated in such a manner that none of the mortar adhering to the belt will be wasted. All conveyor belts and chutes shall be covered. Sufficient illumination shall be provided in the interior of all forms so that the concrete at the places of deposit is visible from the deck or runway.

H. Placement in Slabs

1. Concrete placed in sloping slabs shall proceed uniformly from the bottom of the slab to the top, for the full width of the pour. As the work progresses, the concrete shall be vibrated and carefully worked around the slab reinforcement, and the surface of the slab shall be screeded in an up-slope direction.

I. Temperature of Concrete

1. The temperature of concrete when it is being placed shall be not more than 90 degrees F. Concrete ingredients shall not be heated to a temperature higher than that necessary to keep the temperature of the mixed concrete, as placed, from falling below the specified minimum temperature. If concrete is placed when the weather is such that the temperature of the concrete would exceed 90 degrees Fahrenheit, the Contractor shall employ effective means, such as precooling of aggregates and mixing water using ice or placing at night, as necessary to maintain the temperature of the concrete, as it is placed, below 90 degrees F. The Contractor shall be entitled to no additional compensation on account of the foregoing requirements. During summer months concrete pours shall be scheduled in the morning or early part of the day when temperatures are cooler.

J. Pumping Equipment

1. Pumping equipment and procedures if used shall conform to the recommendations contained in the report of ACI Committee 304 on Placing Concrete by Pumping Methods, ACI 304.2R. The specified slump shall be measured at the point of discharge. The loss of slump in pumping shall not exceed 1-1/2 inches.

- K. The order of placing concrete in all parts of the work shall be acceptable to the Engineer. In order to minimize the effects of shrinkage, the concrete shall be placed in units as bounded by construction joints shown on the Drawings. The placing of units shall be done by placing alternate units in a manner such that each unit placed shall have cured at least

7 days before the contiguous unit or units are placed, except that the corner sections of vertical walls shall not be placed until the 2 adjacent wall panels have cured at least 14 days.

- L. The surface of the concrete shall be level whenever a run of concrete is stopped. To insure a level, straight joint on the exposed surface of walls, a wood strip at least 3/4-inch thick shall be tacked to the forms on these surfaces. The concrete shall be carried about 1/2-inch above the underside of the strip. About one hour after the concrete is placed, the strip shall be removed and any irregularities in the edge formed by the strip shall be leveled with a trowel and ailaitance shall be removed.
- M. As concrete is placed in the forms or in excavations, it shall be thoroughly settled and compacted, throughout the entire depth of the layer which is being consolidated, into a dense, homogeneous mass, filling all corners and angles, thoroughly embedding the reinforcement, eliminating rock pockets, and bringing only a slight excess of water to the exposed surface of concrete during placement. Vibrators shall be high speed power vibrators (8000 to 10,000 rpm) of an immersion type in sufficient number and with (at least one) standby units as required.
- N. Care shall be used in placing concrete around waterstops. The concrete shall be carefully worked by rodding and vibrating to make sure that all air and rock pockets have been eliminated. Where flat-strip type waterstops are placed horizontally, the concrete shall be worked under the waterstops by hand, making sure that all air and rock pockets have been eliminated. Concrete surrounding the waterstops shall be given additional vibration, over and above that used for adjacent concrete placement to assure complete embedment of the waterstops in the concrete.
- O. Concrete in walls shall be internally vibrated and at the same time, stirred, or worked with suitable appliances, tamping bars, shovels, or forked tools until it completely fills the forms or excavations and closes snugly against all surfaces. Subsequent layers of concrete shall not be placed until the layers previously placed have been worked thoroughly as specified. Vibrators shall be provided in sufficient numbers, with standby units as required, to accomplish the results herein specified within 15 minutes after concrete of the prescribed consistency is placed in the forms. The vibrating head shall be kept from contact with the surfaces of the forms. Care shall be taken not to vibrate concrete excessively or to work it in any manner that causes segregation of its constituents.

1.04 CONCRETE FINISHING

- A. Concrete finishes are specified in Section 03 35 0 entitled "Concrete Finishes".

1.05 CURING AND PROTECTION

- A. Curing is specified in Section 03 37 0 entitled "Concrete Curing".

1.06 PLACING CONCRETE UNDER PRESSURE (PUMPING)

- A. Where concrete is conveyed and placed by mechanically applied pressure, the equipment shall have the capacity for the operation. The operation of the pump shall be such that a continuous stream of concrete without air pockets is produced. To obtain the least line resistance, the layout of the pipeline system shall contain a minimum number of bends with no change in pipe size. If two sizes of pipe must be used, the smaller diameter should be used at the pump end and the larger at the discharge end. When pumping is completed, the concrete remaining in the pipelines, if it is to be used, shall be ejected in such a manner that there will be no contamination of the concrete or separation of the ingredients.
- B. No aluminum parts shall be in contact with the concrete during the entire placing of concrete under pressure at any time.
- C. Prior to placing concrete under pressure, the Contractor shall submit the concrete mix design together with test results from a recognized testing laboratory proving the proposed mix meets all requirements. In addition, at the Contractor's option, an actual pumping test under field conditions may be performed prior to use of the accepted mix. This test requires a duplication of anticipated site conditions from beginning to end. The batching and truck mixing shall be the same as will be used; the same pump and operator shall be present and the pipe and pipe layouts will reflect the maximum height and distance contemplated.
- D. If the pumped concrete does not produce satisfactory end results, the Contractor shall discontinue the Pumping operation and proceed with the placing of concrete using conventional methods.
- E. The pumping equipment must have two cylinders and be designed to operate with one cylinder only in case the other one is not functioning. In lieu of this requirement, the Contractor may have a standby pump on the site during pumping.
- F. The minimum diameter of the hose (conduits) shall be four inches.
- G. Pumping equipment and hoses (conduits) that are not functioning properly shall be replaced.

1.07 ORDER OF PLACING CONCRETE

- A. In order to minimize the effects of shrinkage, the concrete shall be placed in units as bounded by construction joints shown on the Drawings and maximum lengths as indicated on Drawings. The placing of units shall be done by placing alternate units in a manner such that each unit placed shall be have cured at least seven days before the contiguous unit or units are placed, except that the corner sections of vertical walls shall not be placed until the two adjacent wall panels have cured at least 14 days.
- B. The surface of the concrete shall be level whenever a run of concrete is stopped.

1.08 DEFECTIVE CONCRETE

- A. As soon as forms are removed, all exposed surfaces shall be carefully examined and any irregularities shall be immediately rubbed or ground in a satisfactory manner in order to secure a smooth, uniform, and continuous surface. Plastering or coating of surfaces to be smoothed will not be permitted. No repairs shall be made until reviewed by the Engineer. In no case will extensive patching of honeycombed concrete be permitted. Concrete containing minor voids, holes, honeycombing, or similar depression defects shall have them repaired as specified herein. Concrete containing extensive voids, holes,

honeycombing, or similar depression defects, shall be completely removed and replaced. All repairs and replacements herein specified shall be promptly executed by the Contractor at its own expense.

- B. Defective surfaces to be repaired as specified in Article 3.06, Paragraph A of this Section, shall be cut back from trueline a minimum depth of 1/2 inch over the entire area. Feathered edges will not be permitted. Where chipping or cutting tools are not required in order to deepen the area properly, the surface shall be prepared for bonding by the removal of all laitance or soft material, and not less than 1/32-inch depth of the surface film from all hard portions. The material used for repair proposed shall consist of a mixture of one sack of cement to 3 cubic feet of sand. For exposed walls, the cement shall contain such a proportion of Atlas white portland cement as is required to make the color of the patch match the color of the surrounding concrete.
- C. Holes left by tie-rod cones shall be repaired in an acceptable manner with dry-packed cement grout or premixed patching material as accepted by the Engineer.
- D. All repairs shall be built up and shaped in such a manner that the completed work will conform to the requirements of Article 3.04 or 3.06 of this Section, as applicable, using acceptable methods which will not disturb the bond, cause sagging, or cause horizontal fractures. Surfaces of said repairs shall receive the same kind and amount of curing treatment as required for the concrete in the repaired section.
- E. Prior to backfilling, all cracks that may have developed shall be "vee'd" and filled with sealant conforming to the requirements of Section 03290 entitled, " Joints in Concrete". This repair method shall be done on the faces of members in contact with fill.

1.09 CARE AND REPAIR OF CONCRETE

- A. The Contractor shall protect all concrete against injury or damage from excessive heat, lack of moisture, overstress, or any other cause until final acceptance by the Owner. Particular care shall be taken to prevent the drying of concrete and to avoid roughening or otherwise damaging the surface. Any concrete found to be damaged, or which may have been originally defective, or which becomes defective at any time prior to the final acceptance of the completed work, or which departs from the established line or grade, or which, for any other reason, does not conform to the requirements of the Contract Documents, shall be satisfactorily repaired or removed and replaced with acceptable concrete at the Contractor's expense.

1.10 CONCRETE SEALER

- A. Contractor shall apply to the top surface of all finished concrete floor slabs and equipment pads a sealer specified in Section 09850 entitled "Painting".

- End of Section

-- End of Section --

SECTION 03 35 00

CONCRETE FINISHING

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 CONCRETE INSTITUTE INTERNATIONAL (ACI)

ACI 301 (2010; ERTA 2015) Specifications for Structural Concrete

1.2 SUBMITTALS

CITY approval is required for submittals with a "G" designation; submittals not having a "G" designation are for [information only]. When used, a designation following the "G" designation identifies the office that will review the submittal for the CITY. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-06 Manufacturer's Instructions

Dry Shake Finish

1.3 QUALITY ASSURANCE

1.3.1 Field Test Panels

Construct field test panels prior to beginning of work using the materials and procedures proposed for use on the job, to demonstrate the results to be attained. The quality and appearance of each panel is subject to the approval of the Contracting Officer, and, if not judged satisfactory, construct additional panels until approval is attained. Formed or finished surfaces in the completed structure must match the quality and appearance of the approved field example.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 FINISHING FORMED SURFACES

Forms, form materials, and form construction are specified in Section 03 10 00 CAST-IN-PLACE CONCRETE FORMING. Finish formed surfaces as specified herein. Unless another type of

architectural or special finish is specified, leave surfaces with the texture imparted by the forms except that defective surfaces must be repaired.

Maintain uniform color of the concrete by use of only one mixture without changes in materials or proportions for any structure or portion of structure Class A finish. The form panels used to produce the finish must be orderly in arrangement, with joints between panels planned in approved relation to openings, building corners, and other architectural features.

Do not reuse forms if there is any evidence of surface wear or defects that would impair the quality of the surface.

3.1.1 Class A Finish

Class A finish is required on all visually exposed surfaces of the seawall cap. Formed surfaces meet the requirements of ACI 301, surface finish SF-3.0.

3.1.2 Class B Finish

Class B finish is required where concrete cap is not visible. Formed surfaces meet the requirements of ACI 301, surface finish SF-2.0.

3.1.3 Architectural and Special Finishes

Architectural concrete finishes are specified in Section 03 33 00 CAST-IN-PLACE ARCHITECTURAL CONCRETE. Conform special finishes to the requirements specified herein.

3.1.3.1 Smooth Finish

After other concrete construction is complete in each overall separate contiguous area of the structure, apply smooth finish to the areas indicated. Use a mortar mix consisting of one part portland cement and two parts well-graded sand passing a No. 30 sieve, with water added to give the consistency of thick paint. Where the finished surface will not receive other applied surface, use white cement to replace part of the job cement to produce an approved color, which must be uniform throughout the surfaces of the structure. After the surface has been thoroughly wetted and allowed to approach surface dryness, vigorously apply the mortar to the area by clean burlap pads or by cork or wood-floating, to completely fill all surface voids. Scrape off excess grout with a trowel. As soon as it can be accomplished without pulling the mortar from the voids, rub the area with burlap pads having on their surface the same sand-cement mix specified above but without any mixing water, until all of the visible grout film is removed. Tightly stretch the burlap pads used for this operation around a board to prevent dishing the mortar in the voids. Complete the finish of any area in the same day, and make the limits of a finished area at natural breaks in the surface. Continuously moist cure the surface for 48 hours commencing immediately after finishing operations in each area. The temperature of the air adjacent to the surface must be not less than 50 degrees F for 24 hours prior to, and 48 hours after, the application. In hot, dry weather apply the smooth finish in shaded areas or at night, and never be apply when there is significant hot, dry wind.

3.1.3.2 Tooled Finish

Dress the thoroughly cured concrete at an approved age with approved electric, air, or hand tools to a uniform texture with a hand-tooled surface texture. The finish must be similar to and closely match the finish on the approved preconstruction test panel.

3.2 REPAIRS

Repair in accordance with ACI 301, Section 5.

3.3 FINISHING UNFORMED SURFACES

The finish of all unformed surfaces must meet the requirements of 03 31 29 Marine Concrete, when tested as specified herein.

3.3.1 General

The ambient temperature of spaces adjacent to unformed surfaces being finished and of the base on which concrete will be placed must not be less than 50 degrees F. Float finish unformed surfaces that are not to be covered by additional concrete or backfill, with additional finishing as specified below, and true to the elevation indicated. Bring surfaces to receive additional concrete or backfill to the elevation indicated, properly consolidate, and leave true and regular. Unless otherwise indicated, evenly slope exterior surfaces for drainage. Where drains are provided, evenly slope interior floors to the drains. Carefully make joints with a jointing or edging tool. Protect the finished surfaces from stains or abrasions. Grate tampers or "jitterbugs" cannot be used for any surfaces. The dusting of surfaces with dry cement or other materials or the addition of any water during finishing is not be permitted. If bleedwater is present prior to finishing, carefully drag off the excess water or remove by absorption with porous materials such as burlap. During finishing operations, take extreme care to prevent over finishing or working water into the surface; this can cause "crazing" (surface shrinkage cracks which appear after hardening) of the surface. Remove and replace any slabs with surfaces which exhibit significant crazing. During finishing operations, check surfaces with a 10 foot straightedge, applied in both directions at regular intervals while the concrete is still plastic, to detect high or low areas.

3.3.2 Trowel Finish

In accordance with ACI 301, Section 5.

3.3.3 Non-Slip Finish

Construct non-slip floors in accordance with ACI 301, Section 5.

-- End of Section --

SECTION 31 23 00

EXCAVATION AND FILL

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 in the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM C136/C136M	(2014) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C33/C33M	(2013) Standard Specification for Concrete Aggregates
ASTM D1140	(2014) Amount of Material in Soils Finer than the No. 200 (75-micrometer) Sieve
ASTM D1556/D1556M	(2015; E 2016) Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method
ASTM D1557	(2012; E 2015) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft ³) (2700 kN-m/m ³)
ASTM D1883	(2014) CBR (California Bearing Ratio) of Laboratory-Compacted Soils
ASTM D2487	(2011) Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D4318	(2010; E 2014) Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4759	(2011) Determining the Specification Conformance of Geosynthetics
ASTM D5084	(2010) Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter
ASTM D6938	(2015) Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ASTM D698	(2012; E 2014; E 2015) Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/cu. ft. (600 kN-m/cu. m.))

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA SW-846.3-3	(1999, Third Edition, Update III-A) Test Methods for Evaluating Solid Waste: Physical/Chemical Methods
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1.2 DEFINITIONS

1.2.1 Capillary Water Barrier

A layer of clean, poorly graded crushed rock, stone, or natural sand or gravel having a high porosity which is placed between the existing and proposed bulkheads without a vapor barrier to cut off the capillary flow of pore water to the area near the mudline or through the wall weep holes or knuckles.

1.2.2 Degree of Compaction

Degree of compaction is expressed as a percentage of the maximum density obtained by the test procedure presented in [ASTM D698][ASTM D1557], for general soil types, abbreviated as percent laboratory maximum density.

1.2.3 Hard Materials

Weathered rock, dense consolidated deposits, or conglomerate materials which are not included in the definition of "rock" but which usually require the use of heavy excavation equipment, ripper teeth, or jack hammers for removal.

1.2.4 Rock

Solid homogeneous interlocking crystalline material with firmly cemented, laminated, or foliated masses or conglomerate deposits, neither of which can be removed without systematic drilling and blasting, drilling and the use of expansion jacks or feather wedges, or the use of backhoe-mounted pneumatic hole punchers or rock breakers; also large boulders, buried masonry, or concrete other than pavement exceeding 1/2 cubic yard in volume.

1.3 SUBMITTALS

CITY approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the CITY. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Shoring and Sheeting Plan, Submit 15 days prior to starting work.

Copies of all supplier cut sheets and field test reports within 24 hours of the completion of the test.

1.4 DELIVERY, STORAGE, AND HANDLING

Perform in a manner to prevent contamination or segregation of materials.

1.5 CRITERIA FOR BIDDING

Base bids on the following criteria:

- a. Surface elevations are as indicated.

- b. Pipes or other artificial obstructions, except those indicated, will not be encountered.
- c. Ground water elevations indicated by the boring log were those existing at the time subsurface investigations were made and do not necessarily represent ground water elevation at the time of construction.
- d. Ground water elevation is 4-5 feet below existing surface elevation.
- e. Material character is indicated by the boring logs.
- f. Hard materials will be encountered in 100 percent of the excavations starting at the surface and continuing to full depth of drive below existing surface elevations.
- g. Suitable backfill in the quantities required is available from local suppliers on Rockland Key just north (east) of Key West.
- h. Blasting will not be permitted. Remove material in an approved manner.

1.6 REQUIREMENTS FOR OFF SITE SOIL

Not Used.

1.7 QUALITY ASSURANCE

1.7.1 Dewatering Work Plan

Not used.

1.7.2 Utilities

Movement of construction machinery and equipment over pipes and utilities during construction shall be at the Contractor's risk. Excavation made with power-driven equipment is not permitted within two feet of known CITY-owned utility or subsurface construction. For work immediately adjacent to or for excavations exposing a utility or other buried obstruction, excavate by hand. Start hand excavation on each side of the indicated obstruction and continue until the obstruction is uncovered or until clearance for the new grade is assured. Report damage to utility lines or subsurface construction immediately to the CITY.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

2.1.1 Satisfactory Materials

Any materials classified by ASTM D2487 as GW, SW, SP, free of debris, roots, wood, scrap material, vegetation, refuse, soft unsound particles, and deleterious, or objectionable materials. Unless

specified otherwise, the maximum particle diameter shall be specified by the engineer of record and shown on the plans for that location.

2.1.2 Unsatisfactory Materials

Materials which do not comply with the requirements for satisfactory materials. Unsatisfactory materials also include man-made fills, trash, refuse, construction debris, or backfills from previous construction. Unsatisfactory material also includes material classified as satisfactory which contains root and other organic matter, and stones larger than 3 inches. The CITY shall be notified of any contaminated materials.

2.1.3 Select Material

Provide materials classified as GW, GP, SW, SP, by ASTM D2487 where indicated. Coefficient of permeability shall be a minimum of 0.002 feet per minute when tested in accordance with ASTM D5084.

Bearing Ratio: At 0.1 inch penetration, the bearing ratio shall be determined in accordance with ASTM D1883 for a laboratory soaking period of not less than 4 days. The combined material shall conform to the following sieve analysis:]]

Sieve Size	Percent Passing by Weight
2 1/2 inches	100
No. 4	40 - 85
No. 10	20 - 80
No. 40	10 - 60
No. 200	5 - 25

2.2 POROUS FILL FOR CAPILLARY WATER BARRIER

Not Used.

2.3 BORROW

Obtain borrow materials required in excess of those furnished from excavations from sources outside of CITY property.

Obtain borrow materials required in excess of those furnished from excavations from sources outside of CITY property, except that borrow materials conforming to satisfactory material may be obtained from local suppliers. Dispose of materials from clearing and grubbing operations at the landfill indicated. If satisfactory borrow is used, strip top 12 inches of soil material and stockpile. After removal of borrow material, regrade borrow pit using stockpiled soil material to contours which will blend in with adjacent topography. Maximum side slopes shall be two horizontal to one vertical. Excavation and backfilling of borrow pit shall ensure proper drainage.

2.4 FILTER FABRIC

If the space between the existing wall and the proposed wall allows, provide a pervious sheet of polyester, nylon, glass or polypropylene filaments woven, spun bonded, fused, or otherwise manufactured into a nonraveling fabric with uniform thickness and strength. Fabric shall have the following manufacturer certified minimum average roll properties as determined by ASTM D4759:

PART 3 EXECUTION

3.1 PROTECTION

3.1.1 Drainage and Dewatering

Provide for the collection and disposal of surface and subsurface water encountered during construction.

3.1.1.1 Drainage

So that construction operations progress successfully, completely drain construction site during periods of construction to keep soil materials sufficiently dry. The Contractor shall establish/construct storm drainage features at the earliest stages of site development, and throughout construction grade the construction area to provide positive surface water runoff away from the construction activity and/or provide temporary drainage features and equipment as required to prevent erosion and undermining of existing seawall foundations and/or tie-back systems. When unsuitable working platforms for equipment operation and unsuitable soil support for subsequent construction features develop, remove unsuitable material and provide new soil material as specified herein. It is the responsibility of the Contractor to assess the soil and ground water conditions presented by the plans and specifications and to employ necessary measures to permit construction to proceed. Excavated slopes and backfill surfaces shall be protected to prevent erosion and sloughing. Excavation shall be performed so that the site, the area immediately surrounding the site, and the area affecting operations at the site shall be continually and effectively drained.

3.1.1.2 Dewatering

Groundwater flowing toward or into excavations shall be controlled to prevent sloughing of excavation slopes and walls, boils, uplift and heave in the excavation and to eliminate interference with orderly progress of construction. French drains, sumps, ditches or trenches will not be permitted within 3 feet of the foundation of any structure, except with specific written approval, and after specific contractual provisions for restoration of the foundation area have been made. Control measures shall be taken by the time the excavation reaches the water level in order to maintain the integrity of the in situ material. While the excavation is open, the water level shall be maintained continuously, at least 1 foot below the working level.

3.1.2 Underground Utilities

Location of the existing utilities indicated is approximate. The Contractor shall physically verify the location and elevation of the existing utilities indicated prior to starting construction. The Contractor shall contact the "Sunshine 811 One-Call of Florida (www.sunshine811.com)" and or the local Public Works Department for assistance in locating existing utilities.

3.1.3 Machinery and Equipment

Movement of construction machinery and equipment over pipes during construction shall be at the Contractor's risk. Repair, or remove and provide new pipe for existing or newly installed pipe that has been displaced or damaged.

3.2 SURFACE PREPARATION

3.2.1 Clearing and Grubbing

Unless indicated otherwise, remove trees, stumps, logs, shrubs, brush and vegetation and other items that would interfere with construction operations within the clearing limits. Remove stumps entirely. Grub out matted roots and roots over 2 inches in diameter to at least 18 inches below existing surface.

3.2.2 Stripping

Strip suitable soil from the site where excavation or grading is indicated and stockpile separately from other excavated material.

3.2.3 Unsuitable Material

Remove vegetation, debris, decayed vegetable matter, sod, mulch, and rubbish underneath paved areas or concrete slabs.

3.3 EXCAVATION

Excavate to contours, elevation, and dimensions indicated. Reuse excavated materials that meet the specified requirements for the material type required at the intended location. This specifically applies to the areas excavated for tie-back installation. Keep excavations free from water. Excavate soil disturbed or weakened by Contractor's operations, soils softened or made unsuitable for subsequent construction due to exposure to weather. Excavations below indicated depths will not be permitted except to remove unsatisfactory material. Unsatisfactory material encountered below the grades shown shall be removed as directed. Refill with satisfactory material and compact to 95 percent of ASTM D698 maximum density. Unless specified otherwise, refill excavations cut below indicated depth with satisfactory material 95 percent of ASTM D698 maximum density. Satisfactory material removed below the depths indicated, without specific direction of the CITY, shall be replaced with satisfactory materials to the indicated excavation grade; except as specified for spread footings. Determination of elevations and measurements of approved overdepth excavation of unsatisfactory material below grades indicated shall be done under the direction of the CITY.

3.3.1 Tie-back Trenches

Excavate to the dimension indicated. Grade bottom of trenches to provide uniform support for each section of tie-back bedding placement. Tamp if necessary to provide a firm bed. Recesses shall be excavated to accommodate turnbuckles so that tie-backs will be uniformly supported for the entire

length. Rock, where encountered, shall be excavated to a depth of at least 6 inches below the bottom of the tie-back.

3.3.2 Hard Material and Rock Excavation

Remove hard material and rock to elevations indicated in a manner that will leave foundation material in an unshattered and solid condition. Roughen level surfaces and cut sloped surfaces into benches for bond with concrete. Protect shale from conditions causing decomposition along joints or cleavage planes and other types of erosion. Removal of hard material and rock beyond lines and grades indicated will not be grounds for a claim for additional payment unless previously authorized by the CITY. Excavation of the material claimed as rock shall not be performed until the material has been cross sectioned by the Contractor and approved by the CITY. Common excavation shall consist of all excavation not classified as rock excavation.

3.3.3 Excavated Materials

Satisfactory excavated material required for fill or backfill shall be placed in the proper section of the permanent work required or shall be separately stockpiled if it cannot be readily placed. Satisfactory material in excess of that required for the permanent work and all unsatisfactory material shall be disposed of as specified in Paragraph "DISPOSITION OF SURPLUS MATERIAL."

3.3.4 Final Grade of Surfaces to Support Concrete

Excavation to final grade shall not be made until just before concrete is to be placed. For pile foundations, the excavation shall be stopped at an elevation 6 to 12 inches above the bottom of the footing before driving piles. After pile driving has been completed, the remainder of the excavation shall be completed to the elevations shown. Only excavation methods that will leave the foundation rock in a solid and unshattered condition shall be used. Approximately level surfaces shall be roughened, and sloped surfaces shall be cut as indicated into rough steps or benches to provide a satisfactory bond. Shales shall be protected from slaking and all surfaces shall be protected from erosion resulting from ponding or flow of water.

3.4 SUBGRADE PREPARATION

Unsatisfactory material in surfaces to receive fill or in excavated areas shall be removed and replaced with satisfactory materials as directed by the CITY. The surface shall be scarified to a depth of 6 inches before the fill is started. Sloped surfaces steeper than 1 vertical to 4 horizontal shall be plowed, stepped, benched, or broken up so that the fill material will bond with the existing material. When subgrades are less than the specified density, the ground surface shall be broken up to a minimum depth of 6 inches, pulverized, and compacted to the specified density. When the subgrade is part fill and part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches and compacted as specified for the adjacent fill. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. Compaction shall be accomplished by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, or other approved equipment well suited to the soil being compacted. Material shall be moistened or aerated as necessary to provide the moisture content that will readily facilitate obtaining the specified compaction with the equipment used. Minimum subgrade density shall be as specified herein.

3.5 SUBGRADE FILTER FABRIC

Place synthetic fiber filter fabric as indicated directly on prepared subgrade free of vegetation, stumps, rocks larger than 2 inches diameter and other debris which may puncture or otherwise damage the fabric. Repair damaged fabric by placing an additional layer of fabric to cover the damaged area a minimum of 3 feet overlap in all directions. Overlap fabric at joints a minimum of 3 feet. Obtain approval of filter fabric installation before placing fill or backfill. Place fill or backfill on fabric in the direction of overlaps and compact as specified herein. Follow manufacturer's recommended installation procedures.

3.6 FILLING AND BACKFILLING

Fill and backfill to contours, elevations, and dimensions indicated. Compact each lift before placing overlaying lift.

3.6.1 Common Fill Placement

Use satisfactory materials. Place in 6 inch lifts. Compact areas not accessible to rollers or compactors with mechanical hand tampers. Aerate material excessively moistened by rain to a satisfactory moisture content. Finish to a smooth surface by blading, rolling with a smooth roller, or both.

3.6.2 Backfill and Fill Material Placement

Provide for paved areas and under concrete slabs, except where select material is provided. Place in 6 inch lifts. Do not place over wet or frozen areas. Place backfill material adjacent to structures as the structural elements are completed and accepted. Backfill against concrete only when approved. Place and compact material to avoid loading upon or against the structure.

3.6.3 Select Material Placement

Provide under porous fill of structures not pile supported. Place in 6 inch lifts. Backfill adjacent to structures shall be placed as structural elements are completed and accepted. Backfill against concrete only when approved. Place and compact material to avoid loading upon or against structure.

3.6.4 Backfill and Fill Material Placement Over Conduit and at walls

Backfilling shall not begin until construction below finish grade has been approved, underground utilities systems have been inspected, tested and approved, forms removed, and the excavation cleaned of trash and debris. Backfill shall be brought to indicated finish grade and shall include backfill for outside grease interceptors and underground fuel tanks. Where pipe is coated or wrapped for protection against corrosion, the backfill material up to an elevation 2 feet above sewer lines and 1 foot above other utility lines shall be free from stones larger than 1 inch in any dimension. Heavy equipment for spreading and compacting backfill shall not be operated closer to foundation or retaining walls than a distance equal to the height of backfill above the top of footing; the area remaining shall be compacted in layers not more than 4 inches in compacted thickness with power-driven hand tampers suitable for the material being compacted. Backfill shall be placed carefully around pipes or tanks to avoid damage to coatings, wrappings, or tanks. Backfill shall not be placed

against foundation walls prior to 7 days after completion of the walls. As far as practicable, backfill shall be brought up evenly on each side of the wall and sloped to drain away from the wall.

3.6.5 Porous Fill Placement

Provide between existing and proposed seawall. Place in 4 inch lifts with a minimum of two passes of a hand plate-type compactor (as space allows).

3.6.6 Trench Backfilling

Backfill as rapidly as construction, testing, and acceptance of work permits. Place and compact backfill in 6 inch lifts to top of trench.

3.7 COMPACTION

Determine in-place density of existing subgrade; if required density exists, no compaction of existing subgrade will be required. Density requirements specified herein are for cohesionless materials. When cohesive materials are encountered or used, density requirements may be reduced by 5 percent.

3.7.1 General Site

Compact underneath areas designated for vegetation and areas outside the 5 foot line of the paved area or structure to 90percent of ASTM D698.

3.7.2 Structures, Spread Footings, and Concrete Slabs

Compact top 12 inches of subgrades to 95 percent of ASTM D698. Compact select material to 95 percent of ASTM D698.

3.7.3 Adjacent Area

Compact areas within 5 feet of structures to 90percent of ASTM D698.

3.8 FINISH OPERATIONS

3.8.1 Grading

Finish grades as indicated within one-tenth of one foot. Grade areas to drain water away from structures. Maintain areas free of trash and debris. For existing grades that will remain but which were disturbed by Contractor's operations, grade as directed.

3.8.2 Protection of Surfaces

Protect newly backfilled, graded, and/or topsoiled areas from traffic, erosion, and settlements that may occur. Repair or reestablish damaged grades, elevations, or slopes.

3.9 DISPOSITION OF SURPLUS MATERIAL

Remove from CITY property surplus or other soil material not required or suitable for filling or backfilling, and brush, refuse, stumps, roots, and timber.

3.10 FIELD QUALITY CONTROL

3.10.1 Sampling

Take the number and size of samples required to perform the following tests.

3.13.2 Testing

Perform one of each of the following tests for each material used. Provide additional tests for each source change.

3.13.2.1 Fill and Backfill Material Testing

Provide certifications from material supplier or test fill and backfill material in accordance with ASTM C136/C136M for conformance to ASTM D2487 gradation limits; ASTM D1140 for material finer than the No. 200 sieve; ASTM D4318 for liquid limit and for plastic limit; ASTM D698 or ASTM D1557 for moisture density relations, as applicable.

3.13.2.2 Select Material Testing

Provide certifications from the material supplier, or test select material in accordance with ASTM C136/C136M for conformance to ASTM D2487 gradation limits; ASTM D1140 for material finer than the No. 200 sieve; ASTM D698 or ASTM D1557 for moisture density relations, as applicable.

3.13.2.3 Porous Fill Testing

Test porous fill in accordance with ASTM C136/C136M for conformance to gradation specified in ASTM C33/C33M.

3.13.2.4 Density Tests

Test density in accordance with ASTM D1556/D1556M, or ASTM D6938.

-- End of Section --

SECTION 31 41 16

METAL SHEET PILING

08/09

PART 1 GENERAL

1.1 UNIT PRICES

1.1.1 Steel Sheet Piling, Grade 50, Type ASTM A690 (Marine Steel), minimum length and size as specified in the plans, Cold Rolled.

1.1.1.1 Payment

Payment for sheet piling quantities will be lump sum for fully furnished and installed project wall. Payment will cover all cost of shipping, furnishing, handling, storing and installing piling including placing, driving, cutting holes and other materials and work incident thereto.

1.1.1.2 Measurement

Lump sum.

1.1.1.3 Unit of Measure

Unit of measure: lump sum.

1.1.2 Cut-Offs

1.1.2.1 Payment

When pilings which have not been driven to penetration depths shown are directed to be cut off, except for cut-offs due to excessive battering, no payment will be made for cutting off each piling.

1.1.2.2 Measurement

No payment will be made for cut-off portions of pilings.

1.1.2.3 Unit of Measure

Unit of measure: N/A.

1.1.3 Splices

1.1.3.1 Payment

Payment will be lump sum part of wall installation.

1.1.3.2 Measurement

Lump sum.

1.1.3.3 Unit of Measure

Unit of measure: each.

1.2 ESTIMATED QUANTITIES

The estimated quantities of sheet piling listed in the unit price schedule of the contract, as to be furnished by the Contractor, are given for bidding purposes only. Sheet piling quantities for payment will consist of the linear feet of piling acceptably installed. Installed quantities will consist of all piling including fabricated sections driven between the required top and bottom elevations of pilings plus any additions thereto resulting from changes in design or alignment as provided in paragraph DRIVING.

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.

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M (2015; Errata 2015) Structural Welding Code - Steel

ASTM INTERNATIONAL (ASTM)

ASTM A6/A6M (2014) Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling
ASTM A690/A690M (2013a) Standard Specification for High-Strength Low-Alloy Nickel, Copper, Phosphorus Steel H-Piles and Sheet Piling with Atmospheric Corrosion Resistance for Use in Marine Environments

1.4 SUBMITTALS

CITY approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings
Metal Sheet Piling; G
SD-03 Product Data
Driving
Pile Driving Equipment; G
Pulling and Redriving; G
SD-08 Closeout Submittals
Pile Driving Record

1.5 QUALITY ASSURANCE

Not Used.

1.6 DELIVERY, STORAGE, AND HANDLING

Materials delivered to the site shall be new and undamaged and shall be accompanied by certified test reports. Provide the manufacturer's logo and mill identification mark on the sheet piling as

required by the referenced specifications. Store and handle sheet piling in the manner recommended by the manufacturer to prevent permanent deflection, distortion or damage to the interlocks; as a minimum, support on level blocks or racks spaced not more than 10 feet apart and not more than 2 feet from the ends. Storage of sheet piling should also facilitate required inspection activities and prevent damage to coatings and corrosion prior to installation.

PART 2 PRODUCTS

2.1 METAL SHEET PILING

Submit detail drawings for sheet piling, including fabricated sections, showing complete piling dimensions and details, driving sequence and location of installed piling.

- a. Include in the drawings details of top protection, special reinforcing tips, tip protection, lagging, splices, fabricated additions to plain piles, cut-off method, corrosion protection, and dimensions of templates and other temporary guide structures for installing piling. Provide details of the method for handling piling to prevent permanent deflection, distortion or damage to piling interlocks.
- b. Metal sheet piling shall be Grade 50, Type ASTM A690/A690M cold-formed.

2.1.1 Interlocks

The interlocks of sheet piling shall be free-sliding, provide a swing angle suitable for the intended installation but not less than 5 degrees when interlocked, and maintain continuous interlocking when installed.

2.1.2 General Requirements

Sheet piling including special fabricated sections shall be full-length sections of the dimensions shown. Provide fabricated sections conforming to the requirement and the piling manufacturer's recommendations for fabricated sections. Fabricated tees, wyes and cross pieces shall be fabricated of piling sections with a minimum web thickness specified by the EOR. Provide sheet piling with standard pulling holes.

2.2 APPURTENANT METAL MATERIALS

Provide metal plates, shapes, bolts, nuts, rivets and other appurtenant fabrication and installation materials conforming to manufacturer's standards and to the requirements specified in the respective sheet piling standards.

2.3 TESTS, INSPECTIONS, AND VERIFICATIONS

Requirements for material tests, workmanship and other measures for quality assurance shall be as specified.

2.3.1 Materials Tests

Submit certified materials tests reports showing that sheet piling and appurtenant metal materials meet the specified requirements, for each shipment and identified with specific lots prior to installing materials. Material test reports shall meet the requirements of ASTM A6/A6M. Perform materials tests conforming to the following requirements. Sheet piling and appurtenant materials shall be tested and certified by the manufacturer to meet the specified chemical, mechanical and section property requirements prior to delivery to the site. Testing of sheet piling for mechanical properties shall be performed after the completion of all rolling and forming operations. Testing of sheet piling shall meet the requirements of ASTM A6/A6M.

PART 3 EXECUTION

3.1 EARTHWORK

Perform in accordance with Section 31 23 00 EXCAVATION AND FILL. Pre-excavation will not be permitted. Backfill as indicated.

3.2 INSTALLATION

3.2.1 Pile Driving Equipment

Submit complete descriptions of sheet piling driving equipment including hammers (and vibratory hammers), extractors, protection caps and other installation appurtenances, prior to commencement of work. Descriptive information includes manufacturer's name, model numbers, capacity, rated energy, hammer details, cushion material, helmet, and templates. Provide pile driving equipment conforming to the following requirements.

3.2.1.1 Driving Hammers

Hammers shall be steam, air, or diesel drop, single-acting, double-acting, differential-acting, or vibratory type. The driving energy of the hammers shall be selected by the contractor according to the sheet selection and as recommended by the manufacturer for the piling weights and subsurface materials to be encountered. Repair damage to piling caused by use of a pile hammer with excess delivered force or energy.

3.2.1.2 Jetting Equipment

Jetting will not be permitted.

3.2.2 Placing and Driving

3.2.2.1 Placing

Any excavation required within the area where sheet pilings are to be installed shall be completed prior to placing sheet pilings. Pilings properly placed and driven shall be interlocked throughout their length with adjacent pilings to form a continuous diaphragm throughout the length or run of piling wall.

- a. Pilings shall be carefully located as indicated. Pilings shall be placed plumb with out-of-plumbness not exceeding 1/4 inch per foot of length and true to line. Place the pile so the face will not be more than 6 inches from vertical alignment at any point. Top of pile at elevation of cut-off shall be within 1/2 inch horizontally and 2 inches vertically of the location indicated. Manipulation of piles to force them into position will not be permitted. Check all piles for heave. Re-drive all heaved piles to the required tip elevation.
- b. Provide temporary wales, templates, master pilings or guide structures to ensure that the pilings are placed and driven to the correct alignment. Use a system of structural framing sufficiently rigid to resist lateral and driving forces and to adequately support the sheet piling until design tip elevation is achieved. Use two templates, at least, when placing each piling not less than 20 feet apart. Templates shall not move when supporting sheet piling. Fit templates with wood blocking to bear against the web of each alternate sheet pile and hold the sheet pile at the design location alignment. Provide outer template straps or other restraints as necessary to prevent the sheets from warping or wandering from the alignment. Mark template for the location of the leading edge of each alternate sheet pile. If in view, also mark the second level to assure that the piles are vertical and in position. If two guide marks cannot be seen, other means shall be used to keep the sheet pile vertical along its leading edge.

3.2.2.2 Driving

Submit records of the completed sheet piling driving operations, including a system of identification which shows the disposition of approved piling in the work, driving equipment performance data, piling penetration rate data, piling dimensions and top and bottom elevations of installed piling. The format for driving records shall be as directed. Prior to driving pilings in water, paint a horizontal line on both sides of each piling at a fixed distance from the bottom so that it will be visible above the water line after installation. This line shall indicate the profile of the bottom elevation of installed pilings and potential problem areas can be identified by abrupt changes in its elevation. Drive pilings with the proper size hammer and by approved methods so as not to subject the pilings to damage and to ensure proper interlocking throughout their lengths.

- a. Maintain driving hammers in proper alignment during driving operations by use of leads or guides attached to the hammer. Caution shall be taken in the sustained use of vibratory hammers when a hard driving condition is encountered to avoid interlock-melt or damages. Discontinue the use of vibratory hammers and impact hammers employed when the penetration rate due to vibratory loading is one foot or less per minute.
- b. Employ a protecting cap in driving when using impact hammers to prevent damage to the tops of pilings. Remove and replace pilings damaged during driving or driven out of interlock at the Contractor's expense.
- c. Drive pilings without the aid of a water jet. Before commencing the driving of the final 5 feet, firmly seat the pile in place by the application of a number of reduced energy hammer blows.
- d. Take adequate precautions to ensure that pilings are driven plumb. Where possible, drive Z-pile with the ball end leading. If an open socket is leading, a bolt or similar object placed in the bottom of the interlock will minimize packing material into it and ease driving for the next sheet.

If at any time the forward or leading edge of the piling wall is found to be out-of-plumb in the plane of the wall the piling being driven shall be driven to the required depth and tapered pilings shall be provided and driven to interlock with the out-of-plumb leading edge or other approved corrective measures shall be taken to insure the plumbness of succeeding pilings. The maximum permissible taper for any tapered piling shall be 1/8 inch per foot of length.

- e. Pilings in each run or continuous length of piling wall shall be driven alternately in increments of depth to the required depth or elevation. No piling shall be driven to a lower elevation than those behind it in the same run except when the pilings behind it cannot be driven deeper. Incrementally sequence driving of individual piles such that the tip of any sheet pile shall not be more than 4 feet below that of any adjacent sheet pile. When the penetration resistance exceeds five blows per inch, the tip of any sheet pile shall not be more than 2 feet below any adjacent sheet pile. If the piling next to the one being driven tends to follow below final elevation it may be pinned to the next adjacent piling.
- f. If obstructions restrict driving a piling to the specified penetration, the obstructions shall be removed or penetrated with a chisel beam. If the Contractor demonstrates that removal or penetration is impractical, make changes in the design alignment of the piling structure as directed to ensure the adequacy and stability of the structure. Pilings shall be driven to depths shown and shall extend up to the elevation indicated for the top of pilings. Piling driven to rock shall be seated individually on the rock. Pilings shall not be driven within 100 feet of concrete less than 7 days old.
- g. Pre-augering or spudding may be permitted if slopes cause the sheets to slide or as required by the EOR.

3.2.3 Cutting-Off and Splicing

Pilings driven to refusal or to the point where additional penetration cannot be attained and are extending above the required top elevation in excess of the specified tolerance shall be cut off to the required elevation. Pilings driven below the required top elevation and pilings damaged by driving and cut off to permit further driving shall be extended as required to reach the top elevation by splicing when directed at no additional cost to the CITY.

- a. Pilings adjoining spliced pilings shall be full length unless otherwise approved. Splicing of pilings shall be as indicated. Ends of pilings to be spliced shall be squared before splicing to eliminate dips or camber. Pilings shall be spliced together with concentric alignment of the interlocks so that there are no discontinuities, dips or camber at the abutting interlocks. Spliced pilings shall be free sliding and able to obtain the maximum swing with contiguous pilings. Shop and field welding, qualification of welding procedures, welders, and welding operators shall be in accordance with AWS D1.1/D1.1M.
- b. The tops of pilings excessively battered during driving shall be trimmed when directed, at no cost to the CITY. Piling cut-offs shall become the property of the Contractor and shall be removed from the site.
- c. Cut holes in pilings for bolts, rods, drains or utilities in a neat and workmanlike manner, as shown or as directed. Use a straight edge in cuts made by burning to avoid abrupt nicks. Bolt holes in

steel piling shall be drilled or may be burned and reamed by approved methods which will not damage the surrounding metal. Holes other than bolt holes shall be reasonably smooth and the proper size for rods and other items to be inserted. All holes in steel pilings on the wet side of cofferdams shall be made watertight by welding steel plates over the holes after the piling installation is completed. Do not use explosives for cutting.

3.2.4 Inspection of Driven Piling

Perform continuous inspection during pile driving. Inspect all piles for compliance with tolerance requirements. Bring any unusual problems which may occur to the attention of the CITY. Inspect the interlocked joints of driven pilings extending above ground. Pilings found to be out of interlock shall be removed and replaced at the Contractor's expense. Use divers or pole mounted camera to inspect underwater interlocked joints of cofferdam sheet piling. CITY divers may also inspect the interlocked joints. The inspection of cofferdams shall be performed after driving is completed, prior to filling each cell and connecting arc, and within 48 hours after filling each cell and arc.

3.2.5 Pulling and Redriving

Submit the proposed method of pulling sheet piling, prior to pulling any piling. Pull, as directed, selected pilings after driving to determine the condition of the underground portions of pilings. Any piling so pulled and found to be damaged, to the extent that its usefulness in the structure is impaired, shall be removed and replaced at the Contractor's expense. Pilings pulled and found to be in satisfactory condition shall be redriven when directed.

3.3 REMOVAL

The removal of sheet pilings shall consist of pulling, sorting, cleaning the interlocks, inventorying and storing previously installed sheet pilings as shown and directed.

3.3.1 Pulling

The method of pulling piling shall be approved. Provide pulling holes in pilings, as required. Extractors shall be of suitable type and size. Care shall be exercised during pulling of pilings to avoid damaging piling interlocks and adjacent construction. If the CITY determines that adjacent permanent construction has been damaged during pulling, the Contractor will be required to repair this construction at no cost to the CITY. Pull pilings one sheet at a time. Pilings fused together shall be separated prior to pulling, unless the Contractor demonstrates, to the satisfaction of the CITY, that the pilings cannot be separated. The Contractor will not be paid for the removal of pilings damaged beyond structural use due to proper care not being exercised during pulling.

3.3.2 Sorting, Cleaning, Inventorying and Storing

Pulled pilings shall be sorted, cleaned, inventoried and stored by type into groups as:

- a. Piling usable without reconditioning.
- b. Piling requiring reconditioning.

- c. Piling damaged beyond structural use.

3.4 INSTALLATION RECORDS

Maintain a pile driving record for each sheet pile driven. Indicate on the installation record: installation dates and times, type and size of hammer, rate of operation, total driving time, dimensions of driving helmet and cap used, blows required per foot for each foot of penetration, or number of feet per minute if vibratory hammer is used, final driving resistance in blows for final 6 inches, pile locations, tip elevations, ground elevations, cut-off elevations, and any reheading or cutting of piles. Record any unusual pile driving problems during driving. Submit complete records to the CITY.

-- End of Section --

SECTION 33 11 00

WATER UTILITY DISTRIBUTION PIPING

PART 1 GENERAL

1.1 SUBMITTALS

CITY approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Pipe, Fittings, Joints and Couplings; G Valves; G

Valve Boxes; G

SD-06 Test Reports

Bacteriological Samples; G

SD-08 Manufacturer's Instructions

Manufacturer's Instructions

1.2 QUALITY CONTROL

1.2.1 Regulatory Requirements

Comply with NSF/ANSI 61 and NSF 372 for materials for potable water piping, components and specialties for domestic water; comply with lead content requirements for "lead-free" plumbing as defined by the U.S. Safe Drinking Water Act effective January 2014.

Comply with NSF/ANSI 14 for plastic potable water piping and components. Provide plastic pipe and fittings, bearing the seal of the National Sanitation Foundation (NSF) for potable water service from the same manufacturer.

Comply with NFPA 24 for materials, installation, and testing of fire main piping and components.

1.3 DELIVERY, STORAGE, AND HANDLING

1.3.1 Delivery and Storage

Inspect materials delivered to site for damage. Unload and store with minimum handling and in accordance with manufacturer's instructions. Store materials on site in enclosures or under protective covering. Store plastic piping, jointing materials and rubber gaskets under cover out of direct sunlight. Do not store materials directly on the ground. Keep inside of pipes, fittings, valves,

and other accessories free of dirt and debris.

1.3.2 Handling

Handle pipe, fittings, valves, and other accessories in accordance with manufacturer's instructions and in a manner to ensure delivery to the trench in sound undamaged condition. Avoid injury to coatings and linings on pipe and fittings; make repairs if coatings or linings are damaged. Do not place other material, hooks, or pipe inside a pipe or fitting after the coating has been applied. Inspect the pipe for defects before installation. Carry, do not drag pipe to the trench. Use of pinch bars and tongs for aligning or turning pipe will be permitted only on the bare ends of the pipe. Clean the interior of pipe and accessories of foreign matter before being lowered into the trench and keep them clean during laying operations by plugging. Replace material found to be defective before or after laying with sound material without additional expense to the CITY. Store rubber gaskets that are not to be installed immediately, under cover out of direct sunlight.

Handle PVC pipe, fittings, and accessories in accordance with AWWA C605. Handle PE pipe, fittings, and accessories in accordance with AWWA M55.

PART 2 PRODUCTS

2.1 SYSTEM DESCRIPTION

2.1.1 Water Distribution Mains

Provide water distribution mains indicated as through 12 inch lines of PVC pipe. Provide water main accessories and valves as specified and where indicated.

2.2 PIPE, FITTINGS, JOINTS AND COUPLINGS

Submit manufacturer's standard drawings or catalog cuts, except submit both drawings and cuts for push-on joints. Include information concerning gaskets with submittal for joints and couplings.

2.3 VALVES

2.3.1 Rubber-Seated Butterfly Valves

Provide PVC rubber-seated butterfly valves and wafer type valves that match the performance requirements of AWWA C504. Wafer type valves not meeting laying length requirements are acceptable if supplied and installed with a spacer, providing the specified laying length. Meet all tests required by AWWA C504. Flanged-end valves are required in a pit. Provide a union or sleeve-type coupling in the pit to permit removal. Direct-bury mechanical-end valves 3 through 10 inches in diameter. Provide a valve box, means for manual operation, and an adjacent pipe joint to facilitate valve removal. Provide valve operators that restrict closing to a rate requiring approximately 60 seconds, from fully open to fully closed.

2.3.2 Valve Pits

Construct the valve pits at locations indicated or as required above and in accordance with the details shown.

2.4 DISINFECTION

Chlorinating materials are to conform to: Chlorine, Liquid: AWWA B301; Hypochlorite, Calcium and Sodium: AWWA B300.

PART 3 EXECUTION

3.1 PRECAUTIONS

3.1.1 Connections to Existing System

Perform all connections to the existing water system in the presence of the CITY.

3.1.2 Operation of Existing Valves

Do not operate valves within or directly connected to the existing water system unless expressly directed to do so by the CITY.

3.2 INSTALLATION OF PIPELINES

3.2.1 General Requirements for Installation of Pipelines

Submit manufacturer's instructions for pipeline installations. These manufacturer's instructions apply to all pipeline installation except as noted herein.

3.2.1.1 Location of Water Lines

Terminate the work covered by this section at a point approximately 5 feet from the building, unless otherwise indicated.

Do not lay water lines in the same trench with gas lines, fuel lines, electric wiring, or any other utility. Where nonferrous metallic pipe, e.g. copper tubing, cross any ferrous piping, provide a minimum vertical separation of 12 inches between pipes.

3.2.1.1.1 Water Piping Installation Parallel With Sewer Piping

3.2.1.1.1.1 Normal Conditions

Lay water piping at least 10 feet horizontally from a sewer or sewer manhole whenever possible. Measure the distance edge-to-edge. Provide at least 18 inches above the top (crown) of the sewer piping and the bottom (invert) of the water piping. The sewer piping is to be constructed of AWWA-compliant water pipe and pressure tested in place without leakage prior to backfilling where this vertical separation cannot be obtained. Shop drawings for the waste water disposal method are required. Test the sewer manhole in place to ensure watertight construction.

3.2.1.1.2 Installation of Water Piping Crossing Sewer Piping

- a. Normal Conditions: Provide a separation of at least 18 inches between the bottom of the water piping and the top of the sewer piping in cases where water piping crosses above sewer piping.
- b. Unusual Conditions: When local conditions prevent a vertical separation described above, construct sewer piping passing over or under water piping of AWWA-compliant ductile iron water piping, pressure tested in place without leakage prior to backfilling. Protect water piping passing under sewer piping by providing a vertical separation of at least 18 inches between the bottom of the sewer piping and the top of the water piping; adequate structural support for the sewer piping to prevent excessive deflection of the joints and the settling on and breaking of the water piping; and that the length, minimum 20 feet, of the water piping be centered at the point of the crossing so that joints are equidistant and as far as possible from the sewer piping.

3.2.1.2 Connections to Existing Water Lines

Make connections to existing water lines after coordination with the facility and with a minimum interruption of service on the existing line. Make connections to existing lines under pressure in accordance with the recommended procedures of the manufacturer of the pipe being tapped and as indicated on the utility plan.

3.2.2 Disinfection

Disinfection of systems supplying nonpotable water is not required.

Prior to disinfection, provide disinfection procedures, proposed neutralization and disposal methods of waste water from disinfection procedures as part of the disinfection submittal. Disinfect new water piping and existing water piping affected by Contractor's operations in accordance with AWWA C651. Fill piping systems with solution containing minimum of 50 parts per million of available chlorine and allow solution to stand for minimum of 24 hours. Flush solution from the systems with domestic water until maximum residual chlorine content is within the range of 0.2 and 0.5 parts per million, or the residual chlorine content of domestic water supply. Obtain at least two consecutive bacteriological samples from new water piping. Analyze samples by a certified laboratory, and submit the results of the bacteriological samples. Obtain approval by the CITY prior to the new water piping being placed into service.

3.3 FIELD QUALITY CONTROL

3.3.1 Field Tests and Inspections

Notify the CITY a minimum of five days in advance of hydrostatic testing. Coordinate the proposed method for disposal of waste water from hydrostatic testing. Perform field tests, and provide labor, equipment, and incidentals required for testing. Provide documentation that all items of work have been constructed in accordance with the Contract documents.

3.3.2 Testing Procedure

3.3.2.1 Hydrostatic Testing

Test the water system in accordance with the applicable CITY standard.

3.3.2.2 Leakage Testing

For leakage test, use a hydrostatic pressure not less than the maximum working pressure of the system. Leakage test may be performed at the same time and at the same test pressure as the pressure test.

3.4 CLEANUP

Upon completion of the installation of water lines and appurtenances, remove all debris and surplus materials resulting from the work.

- End of Section -

SECTION 33 40 00

STORM DRAINAGE UTILITIES

PART 1 GENERAL

1.1 MEASUREMENT AND PAYMENT

1.1.1 Pipe Culverts and Storm Drains

The length of pipe installed will be measured along the centerlines of the pipe from end to end of pipe. Pipe will be paid for at the contract unit price for the number of linear feet of culverts or storm drains placed in the accepted work.

1.1.2 Walls and Headwalls

Walls and headwalls will be measured by the number of cubic yards of reinforced concrete, plain concrete, or masonry used in the construction of the walls and headwalls. Wall and headwalls will be paid for at the contract unit price for the number of walls and headwalls constructed in the completed work.

1.2 SUBMITTALS

CITY approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data Placing Pipe

Submit printed copies of the manufacturer's recommendations for installation procedures of the material being placed, prior to installation.

SD-04 Samples

Pipe for Culverts and Storm Drains

1.3 DELIVERY, STORAGE, AND HANDLING

1.3.1 Delivery and Storage

Materials delivered to site shall be inspected for damage, unloaded, and stored with a minimum of handling. Materials shall not be stored directly on the ground. The inside of pipes and fittings shall be kept free of dirt and debris. Before, during, and after installation, plastic pipe and fittings shall be protected from any environment that would result in damage or deterioration to the material. Keep a copy of the manufacturer's instructions available at the construction site at all times and follow these instructions unless directed otherwise by the CITY. Solvents, solvent compounds, lubricants, elastomeric gaskets, and any similar materials required to install plastic pipe shall be stored in

accordance with the manufacturer's recommendations and shall be discarded if the storage period exceeds the recommended shelf life. Solvents in use shall be discarded when the recommended pot life is exceeded.

1.3.2 Handling

Materials shall be handled in a manner that ensures delivery to the trench in sound, undamaged condition. Pipe shall be carried to the trench, not dragged.

PART 2 PRODUCTS

2.1 PIPE FOR CULVERTS AND STORM DRAINS

Pipe for culverts and storm drains shall be of the sizes indicated and shall conform to the requirements specified.

2.1.1 Concrete Pipe

Manufactured in accordance with and conforming to ASTM C76, or ASTM C655. 2.2
MISCELLANEOUS MATERIALS

2.2.1 Concrete

Unless otherwise specified, concrete and reinforced concrete shall conform to the requirements for concrete under Section 03 30 00.00 10 CAST-IN-PLACE CONCRETE. The concrete mixture shall have air content by volume of concrete, based on measurements made immediately after discharge from the mixer, of 5 to 7 percent when maximum size of coarse aggregate exceeds 1-1/2 inches. Air content shall be determined in accordance with ASTM C231/C231M. Concrete covering deposited directly against the ground shall have a thickness of at least 3 inches between steel and ground. Expansion-joint filler material shall conform to ASTM D1751, or ASTM D1752, or shall be resin-impregnated fiberboard conforming to the physical requirements of ASTM D1752.

2.2.2 Mortar

Mortar for pipe joints, connections to other drainage structures, and brick or block construction shall conform to ASTM C270, Type M, except that the maximum placement time shall be 1 hour. The quantity of water in the mixture shall be sufficient to produce a stiff workable mortar. Water shall be clean and free of harmful acids, alkalis, and organic impurities. The mortar shall be used within 30 minutes after the ingredients are mixed with water. The inside of the joint shall be wiped clean and finished smooth. The mortar head on the outside shall be protected from air and sun with a proper covering until satisfactorily cured.

2.2.3 Brick

Brick shall conform to ASTM C62, Grade SW; ASTM C55, Grade S-I or S-II; or ASTM C32, Grade MS. Mortar for jointing and plastering shall consist of one part portland cement and two parts fine sand. Lime may be added to the mortar in a quantity not more than 25 percent of the volume of cement. The joints shall

be filled completely and shall be smooth and free from surplus mortar on the inside of the structure. Brick structures shall be plastered with 1/2 inch of mortar over the entire outside surface of the walls. For square or rectangular structures, brick shall be laid in stretcher courses with a header course every sixth course. For round structures, brick shall be laid radially with every sixth course a stretcher course.

PART 3 EXECUTION

3.1 EXCAVATION FOR PIPE CULVERTS, STORM DRAINS, AND DRAINAGE STRUCTURES

Excavation of trenches, and for appurtenances and backfilling for culverts and storm drains, shall be in accordance with the applicable portions of Section 31 00 00 EARTHWORK and the requirements specified below.

3.1.1 Trenching

The width of trenches at any point below the top of the pipe shall be not greater than the outside diameter of the pipe plus 12 inches to permit satisfactory jointing and thorough tamping of the bedding material under and around the pipe. Sheeting and bracing, where required, shall be placed within the trench width as specified, without any overexcavation. Where trench widths are exceeded, redesign with a resultant increase in cost of stronger pipe or special installation procedures will be necessary. Cost of this redesign and increased cost of pipe or installation shall be borne by the Contractor without additional cost to the CITY.

3.1.2 Removal of Unstable Material

Where wet or otherwise unstable soil incapable of properly supporting the pipe, as determined by the CITY, is unexpectedly encountered in the bottom of a trench, such material shall be removed to the depth required and replaced to the proper grade with select granular material, compacted as provided in paragraph BACKFILLING. When removal of unstable material is due to the fault or neglect of the Contractor while performing shoring and sheeting, water removal, or other specified requirements, such removal and replacement shall be performed at no additional cost to the CITY.

3.2 BEDDING

The bedding surface for the pipe shall provide a firm foundation of uniform density throughout the entire length of the pipe.

3.2.1 Concrete Pipe Requirements

When no bedding class is specified or detailed on the drawings, concrete pipe shall be bedded in granular material minimum 4 inch in depth in trenches with soil foundation. Depth of granular bedding in trenches with rock foundation shall be 1/2 inch in depth per foot of depth of fill, minimum depth of bedding shall be 8 inch up to maximum depth of 24 inches. The middle third of the granular bedding shall be loosely placed. Bell holes and depressions for joints shall be removed and formed so entire barrel of pipe is uniformly supported. The bell hole and depressions for the joints shall be not more than the length, depth, and width required for properly making the particular type of joint.

3.3 BACKFILLING

3.3.1 Backfilling Pipe in Fill Sections

For pipe placed in fill sections, backfill material and the placement and compaction procedures shall be as specified below. The fill material shall be uniformly spread in layers longitudinally on both sides of the pipe, not exceeding 6 inches in compacted depth, and shall be compacted by rolling parallel with pipe or by mechanical tamping or ramming. Prior to commencing normal filling operations, the crown width of the fill at a height of 12 inches above the top of the pipe shall extend a distance of not less than twice the outside pipe diameter on each side of the pipe or 12 feet, whichever is less.

3.3.2 Compaction

3.3.2.1 General Requirements

Cohesionless materials include gravels, gravel-sand mixtures, sands, and gravelly sands. Cohesive materials include clayey and silty gravels, gravel-silt mixtures, clayey and silty sands, sand-clay mixtures, clays, silts, and very fine sands. When results of compaction tests for moisture-density relations are recorded on graphs, cohesionless soils will show straight lines or reverse-shaped moisture-density curves, and cohesive soils will show normal moisture-density curves.

3.3.2.2 Minimum Density

Backfill over and around the pipe and backfill around and adjacent to drainage structures shall be compacted at the approved moisture content to the following applicable minimum density, which will be determined as specified below.

- a. Under airfield and heliport pavements, paved roads, streets, parking areas, and similar-use pavements including adjacent shoulder areas, the density shall be not less than 90 percent of maximum density for cohesive material and 95 percent of maximum density for cohesionless material, up to the elevation where requirements for pavement subgrade materials and compaction shall control.
- b. Under unpaved or turfed traffic areas, density shall not be less than 90 percent of maximum density for cohesive material and 95 percent of maximum density for cohesionless material.
- c. Under nontraffic areas, density shall be not less than that of the surrounding material.

- End of Section -

PART 6

SUPPLEMENTAL INFORMATION



Florida Department of Environmental Protection

South District Branch Office
2796 Overseas Highway, Suite 221
Marathon, Florida 33050
SouthDistrict@dep.state.fl.us

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Noah Valenstein
Secretary

June 30, 2017

City of Key West
Doug Bradshaw
c/o Stuart McGahee, Tetra Tech, Inc.
759 South Federal Highway, Suite 314
Stuart, Florida 34994
Stuart.McGahee@TetraTech.com

File No.: 0137939-018-EE, Monroe County

Dear Mr. Bradshaw:

On June 20, 2017, we received your request for verification of exemption to perform the following activities:

To repair an existing seawall at Key West, Florida in Key West Bight, Class III Waters, Section 31, Township 67 South, Range 25 East, Monroe County.

Your request has been reviewed to determine whether it qualifies for (1) a regulatory exemption, (2) proprietary authorization (related to state-owned submerged lands), and (3) federal approval that may be necessary for work in wetlands or waters of the United States.

Your project did not qualify for the federal review portion of this verification request. Activities, other than the installation of a boat lift, located in Monroe County are not eligible for federal authorization under the State Programmatic General Permit. Separate federal authorization may be required. This letter does not relieve you from the responsibility of obtaining other federal, state, or local authorizations that may be required for the activity.

1. Regulatory Review – VERIFIED

Based on the information submitted, the Department has determined that the activity as proposed is exempt, under Section 373.406(6) of the Florida Statutes, from the need to obtain a regulatory permit under Part IV of Chapter 373 of the Florida Statutes. This determination is made because the activity, in consideration of its type, size, nature, location, use and operation, is expected to

have only minimal or insignificant individual or cumulative adverse impacts on the water resources.

This exemption verification is based on the information you provided the Department and the statutes and rules in effect when the information was submitted. This verification may not be valid if site conditions materially change, the project design is modified, or the statutes or rules governing the exempt activity are amended. In the event you need to re-verify the exempt status for the activity, a new request and verification fee will be required. Any substantial modifications to the project design should be submitted to the Department for review, as changes may result in a permit being required.

2. Proprietary Review - GRANTED

The Department acts as staff to the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees) and issues certain authorizations for the use of sovereign submerged lands. The Department has the authority to review activities on sovereign submerged lands under Chapters 253 and 258 of the Florida Statutes, and Chapters 18-18, 18-20, and 18-21, Florida Administrative Code, as applicable.

The activity appears to be located on sovereign submerged lands owned by the Board of Trustees. The activity is not exempt from the need to obtain the applicable proprietary authorization. As staff to the Board of Trustees, the Department has reviewed the activity described above, and has determined that the activity qualifies for a letter of consent under Rule 18-21.005(1)(c), Florida Administrative Code, and Section 253.77 of the Florida Statutes to construct and use the activity on the specified sovereign submerged lands and as long as the work performed is located within the boundaries as described herein and is consistent with the terms and conditions herein.

During this term of this Letter of consent you shall maintain satisfactory evidence of sufficient upland interest as required by paragraph 18-21.004(3)(b), Florida Administrative Code. If such interest is terminated or the Board of Trustees determines that such interest did not exist on the date of issuance of this Letter of Consent, this Letter of Consent may be terminated by the Board of Trustees at its sole option. If the Board of Trustees terminates this Letter of Consent, you agree not to assert a claim or defense against the Board of Trustees arising out of this Letter of Consent.

Special Consent Conditions

1. The applicant agrees to indemnify, defend and hold harmless the Board of Trustees and the State of Florida from all claims, actions, lawsuits and demands in any form arising out of the authorization to use sovereignty submerged lands or the applicant's use and construction of structures on sovereignty submerged lands. This duty to indemnify and hold harmless will include any and all liabilities that are associated with the structure or activity including special assessments or taxes that are now or in the future assessed against the structure or activity during the period of the authorization.

2. Failure by the Board of Trustees to enforce any violation of a provision of the authorization or waiver by the Board of Trustees of any provision of the authorization will not invalidate the provision not enforced or waived, nor will the failure to enforce or a waiver prevent the Board of Trustees from enforcing the unenforced or waived provision in the event of a violation of that provision.
3. Applicant binds itself and its successors and assigns to abide by the provisions and conditions set forth in the authorization. If the applicant or its successors or assigns fails or refuses to comply with the provisions and conditions of the authorization, the authorization may be terminated by the Board of Trustees after written notice to the applicant or its successors or assigns. Upon receipt of such notice, the applicant or its successors or assigns will have thirty (30) days in which to correct the violations. Failure to correct the violations within this period will result in the automatic revocation of this authorization.
4. All costs incurred by the Board of Trustees in enforcing the terms and conditions of the authorization will be paid by the applicant. Any notice required by law will be made by certified mail at the address shown on page one of the authorization. The applicant will notify the Board of Trustees in writing of any change of address at least ten days before the change becomes effective.
5. This authorization does not allow any activity prohibited in a conservation easement or restrictive covenant that prohibits the activity.

General Conditions for Authorizations for Activities

All authorizations granted by rule or in writing under Rule 18-21.005, F.A.C., except those for geophysical testing, shall be subject to the general conditions as set forth in paragraphs (a) through (i) below. The general conditions shall be part of all authorizations under this chapter, shall be binding upon the grantee, and shall be enforceable under Chapter 253 or 258, Part II, F.S.

- (a) Authorizations are valid only for the specified activity or use. Any unauthorized deviation from the specified activity or use and the conditions for undertaking that activity or use shall constitute a violation. Violation of the authorization shall result in suspension or revocation of the grantee's use of the sovereignty submerged land unless cured to the satisfaction of the Board.
- (b) Authorizations convey no title to sovereignty submerged land or water column, nor do they constitute recognition or acknowledgment of any other person's title to such land or water.
- (c) Authorizations may be modified, suspended or revoked in accordance with their terms or the remedies provided in Sections 253.04 and 258.46, F.S., or Chapter 18-14, F.A.C.
- (d) Structures or activities shall be constructed and used to avoid or minimize adverse impacts to sovereignty submerged lands and resources.

- (e) Construction, use, or operation of the structure or activity shall not adversely affect any species which is endangered, threatened or of special concern, as listed in Rules 68A-27.003, 68A-27.004, and 68A-27.005, F.A.C.
- (f) Structures or activities shall not unreasonably interfere with riparian rights. When a court of competent jurisdiction determines that riparian rights have been unlawfully affected, the structure or activity shall be modified in accordance with the court's decision.
- (g) Structures or activities shall not create a navigational hazard.
- (h) Structures shall be maintained in a functional condition and shall be repaired or removed if they become dilapidated to such an extent that they are no longer functional. This shall not be construed to prohibit the repair or replacement subject to the provisions of Rule 18-21.005, F.A.C., within one year, of a structure damaged in a discrete event such as a storm, flood, accident, or fire.

Structures or activities shall be constructed, operated, and maintained solely for water dependent purposes, or for non-water dependent activities.

3. SPGP Review - NOT APPROVED

Your proposed activity as outlined on your application and attached drawings **does not qualify** for Federal authorization pursuant to the State Programmatic General Permit and a **separate permit** or authorization **may be required** from the Corps. A copy of your application has been forwarded to the Corps for their review. The Corps will issue their authorization directly to you or contact you if additional information is needed. If you have not heard from the Corps within 30 days from the date your application was received at the local FDEP Office, contact the Corps at the Miami Office at 9900 SW 107th Avenue, Suite 203, Miami, FL 33176-2785 or 305-526-7181 for status and further information. **Failure to obtain Corps authorization prior to construction could subject you to federal enforcement action by that agency.**

Authority for review an agreement with the USACOE entitled "Coordination Agreement Between the U. S. Army Corps of Engineers (Jacksonville District) and the Florida Department of Environmental Protection, or Duly Authorized Designee, State Programmatic General Permit", Section 10 of the Rivers and Harbor Act of 1899, and Section 404 of the Clean Water Act.

Additional Information

Please retain this letter. The activities may be inspected by authorized state personnel in the future to ensure compliance with appropriate statutes and administrative codes. If the activities are not in compliance, you may be subject to penalties under Chapter 373, F.S., and Chapter 18-14, F.A.C.

NOTICE OF RIGHTS

This action is final and effective on the date filed with the Clerk of the Department unless a petition for an administrative hearing is timely filed under Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. On the filing of a timely and sufficient petition, this action will not be final and effective until further order of the Department. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice.

Petition for Administrative Hearing

A person whose substantial interests are affected by the Department's action may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. Pursuant to Rule 28-106.201, F.A.C., a petition for an administrative hearing must contain the following information:

- (a) The name and address of each agency affected and each agency's file or identification number, if known;
- (b) The name, address, any email address, any facsimile number, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination;
- (c) A statement of when and how the petitioner received notice of the agency decision;
- (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;
- (e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action;
- (f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and
- (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

The petition must be filed (received by the Clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000 or by email to Agency_clerk@dep.state.fl.us. Also, a copy of the petition shall be mailed to the applicant at the address indicated above at the time of filing.

Time Period for Filing a Petition

In accordance with Rule 62-110.106(3), F.A.C., petitions for an administrative hearing by the applicant must be filed within 21 days of receipt of this written notice. Petitions filed by any persons other than the applicant, and other than those entitled to written notice under Section 120.60(3), F.S. must be filed within 21 days of publication of the notice or within 21 days of receipt of the written notice, whichever occurs first. Under Section 120.60(3), F.S., however,

any person who has asked the Department for notice of agency action may file a petition within 21 days of receipt of such notice, regardless of the date of publication. The failure to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

Extension of Time

Under Rule 62-110.106(4), F.A.C., a person whose substantial interests are affected by the Department's action may also request an extension of time to file a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, before the applicable deadline for filing a petition for an administrative hearing. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

Mediation

Mediation is not available in this proceeding.

FLAWAC Review

The applicant, or any party within the meaning of Section 373.114(1)(a) or 373.4275, F.S., may also seek appellate review of this order before the Land and Water Adjudicatory Commission under Section 373.114(1) or 373.4275, F.S. Requests for review before the Land and Water Adjudicatory Commission must be filed with the Secretary of the Commission and served on the Department within 20 days from the date when the order is filed with the Clerk of the Department.

Judicial Review

Any party to this action has the right to seek judicial review pursuant to Section 120.68, F.S., by filing a Notice of Appeal pursuant to Rules 9.110 and 9.190, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, M.S. 35, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this action is filed with the Clerk of the Department.

Thank you for applying to the Submerged Lands and Environmental Resource Permit Program. If you have any questions regarding this matter, please contact us by telephone at (239) 344-5600 or by e-mail at SouthDistrict@dep.state.fl.us. When referring to this project, please reference the file number listed above.

Executed in Orlando, Florida

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION



Megan Mills
Permitting Program Administrator
South District


CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this document and authorization to use sovereignty submerged lands, including all copies, were sent to the addressee and to the following listed persons:

U.S. Army Corps of Engineers, [Miami](#) Corp (SEAppls@usace.army.mil)

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to Section 120.52(7), F.S., with the designated Department clerk, receipt of which is hereby acknowledged.


Clerk

June 30, 2017
Date

Enclosures:

31 Pages, Project drawings
373.406(6), F.S.

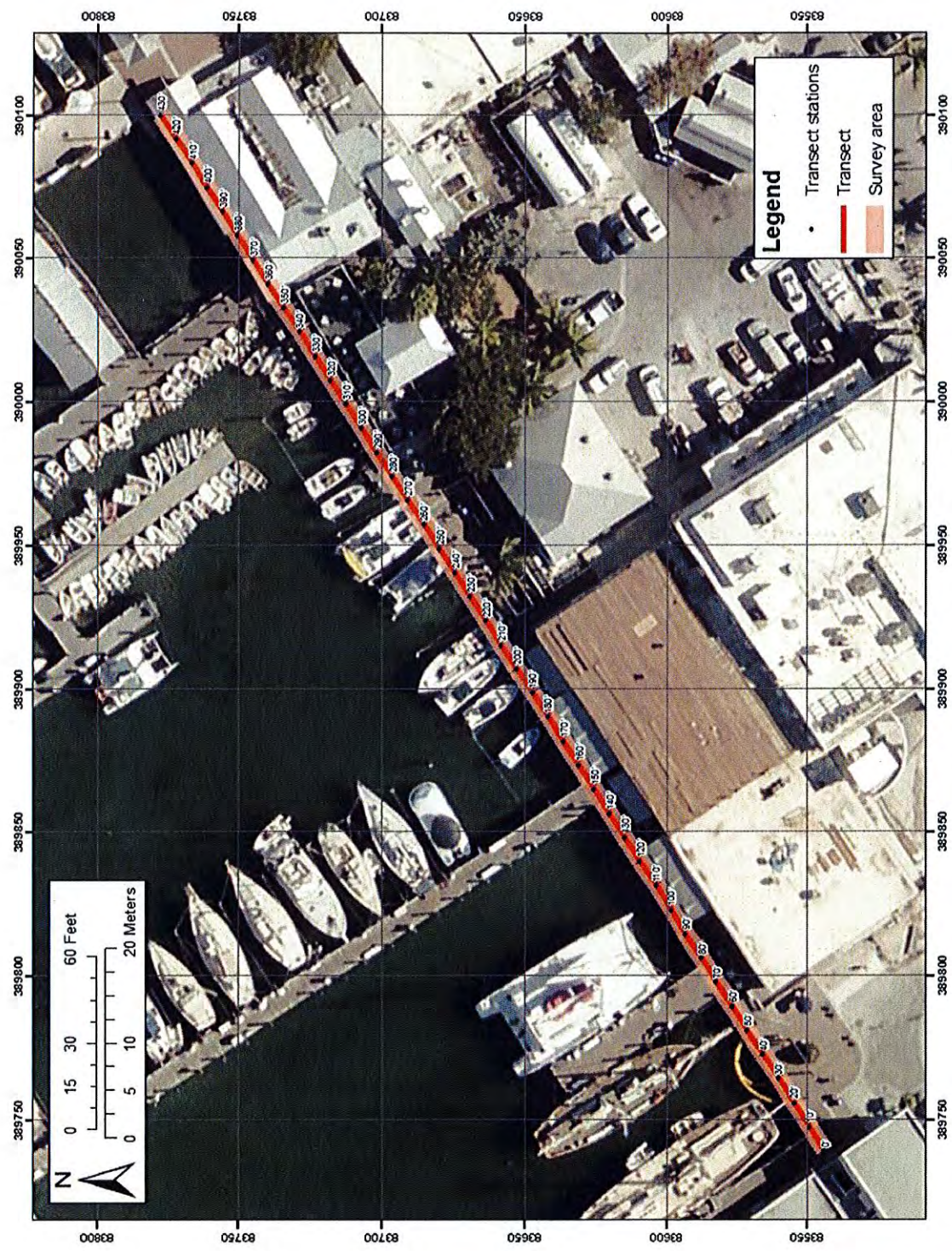


Figure 2. Survey area and transect location

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JUN 19 2017

D.E.P. Marathon

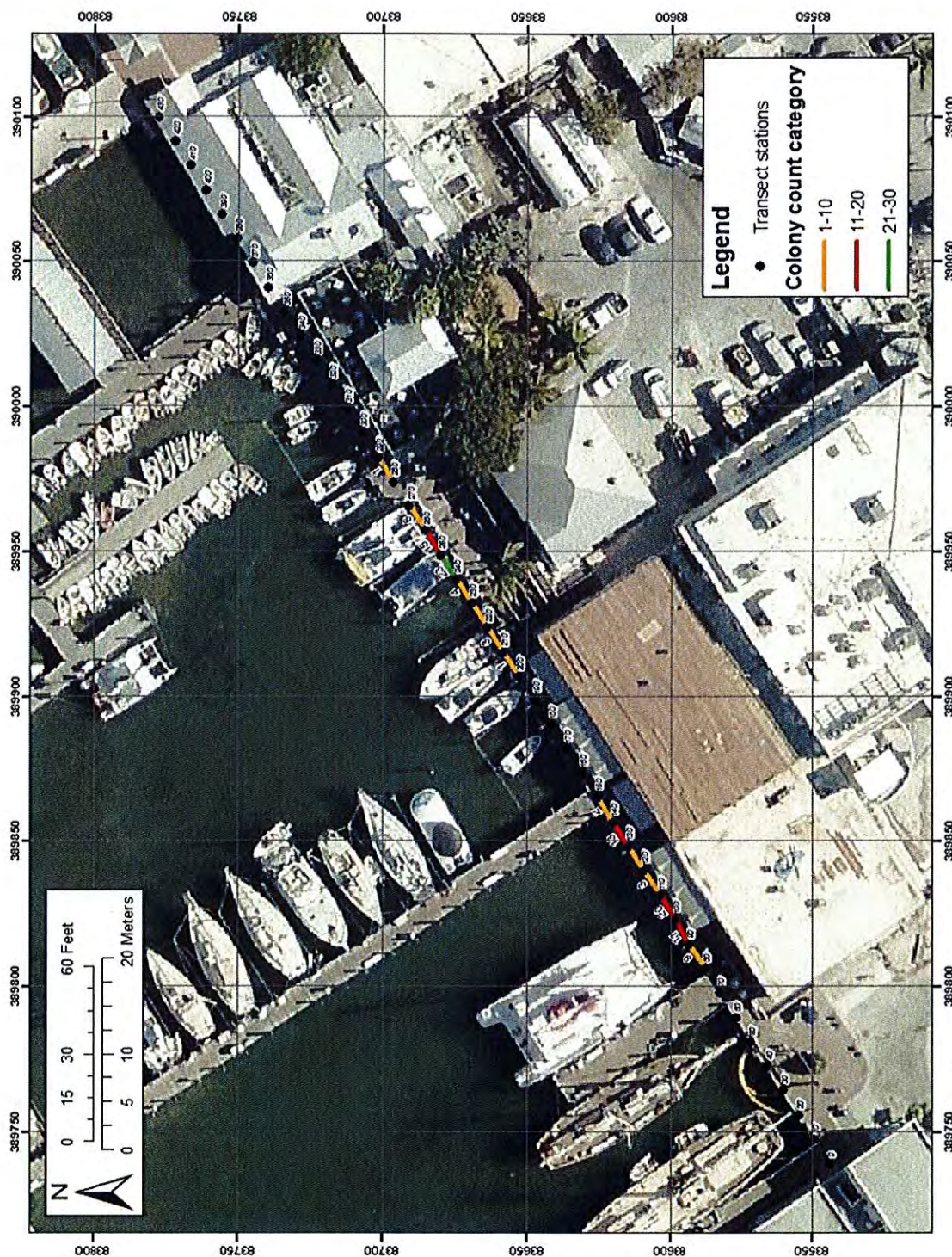


Figure 3. Coral inventory by transect segment (10-ft.)

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JUN 20 2017
D.E.P. Marathon

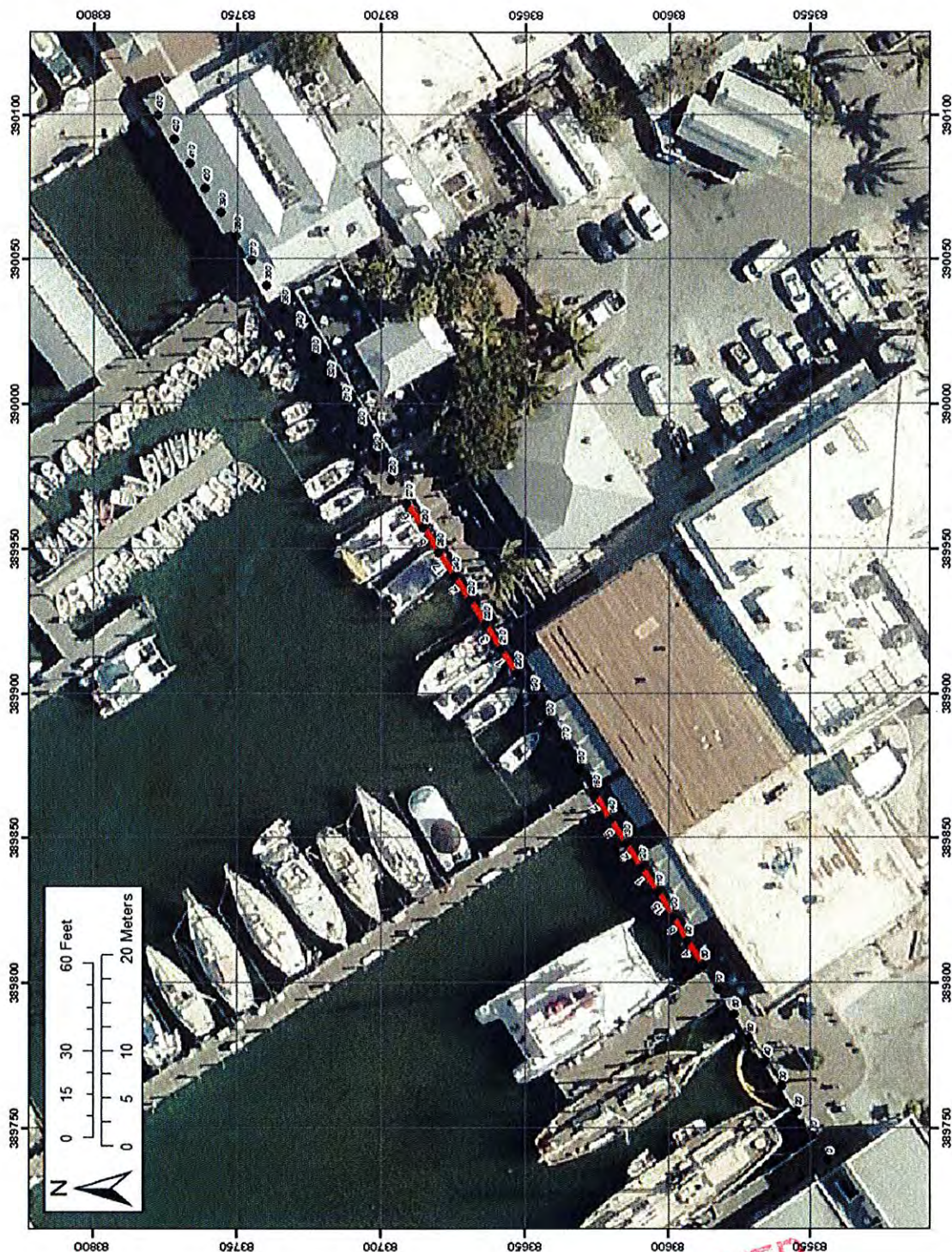


Figure 4. Coral inventory of stony corals in <5 cm size class by transect segment (10-ft)

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D.E.P. Marathon

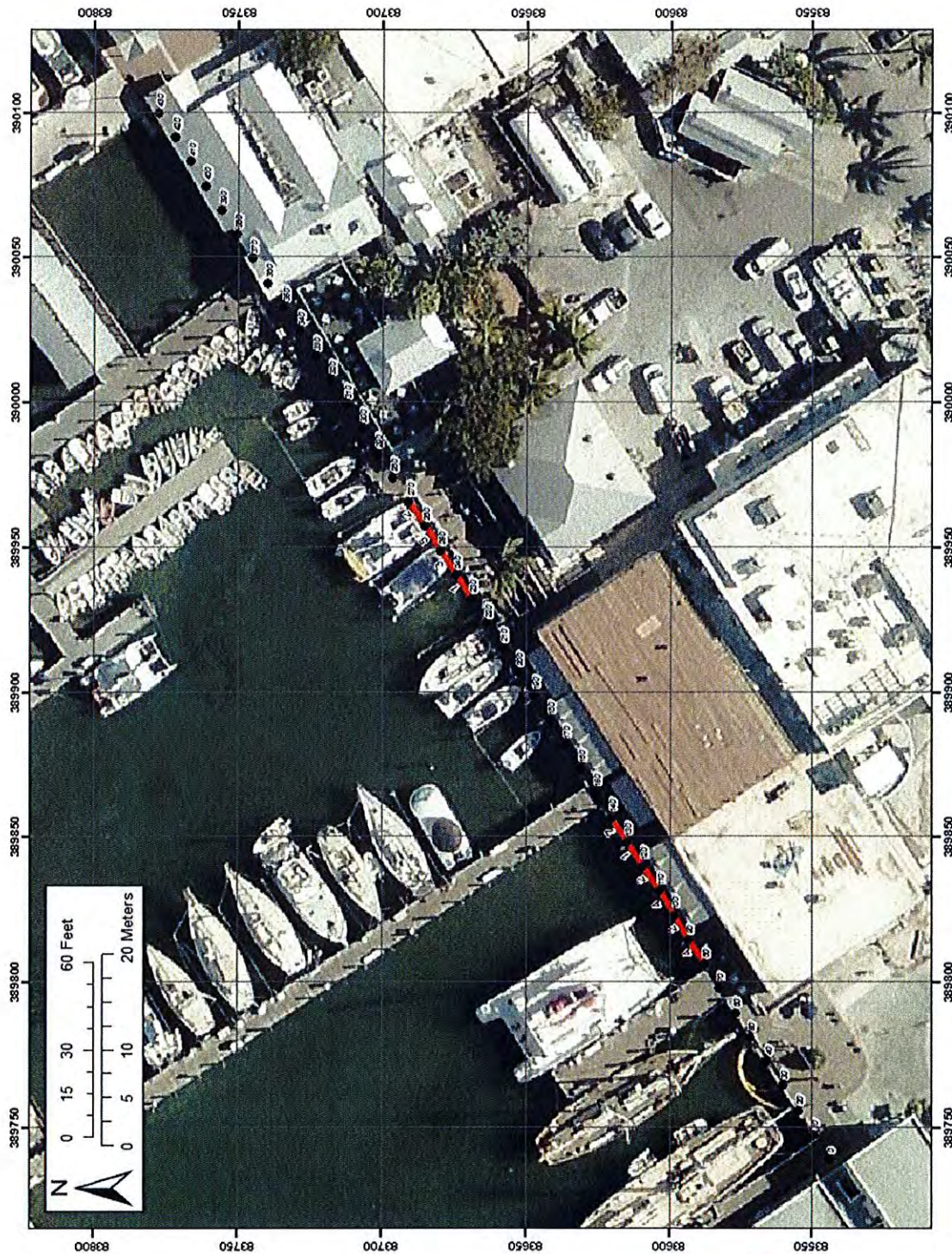


Figure 5. Coral inventory of stony corals in 5–10 cm size class by transect segment (10-ft)

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JUN 20 2017
D.E.P. Marathon

Turtle Kraals Bulkhead Coral Inventory and Benthic Resource Survey Report
 Key West, FL



Figure 6. Coral inventory of stony corals in 11–15 cm size class by transect segment (10-ft)

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 JUN 20 2017
 D.E.P. Marathon



Figure 7. Seagrass cover by transect segment (10-ft)

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JUN 20 2017
D.E.P. Marathon



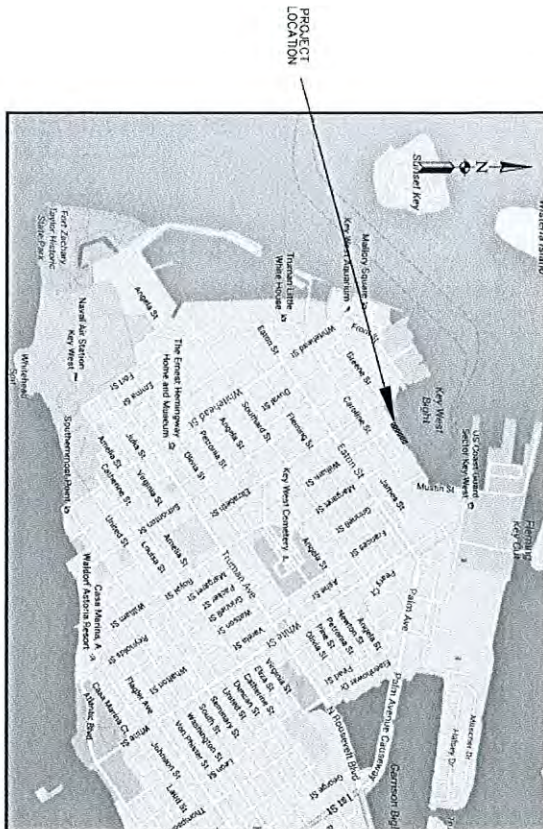
EXEMPT

File Number:
0137939-018-EE



CITY OF KEY WEST TURTLE KRAALS SEAWALL REPAIR

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JUN 20 2017
D.E.P. Marathon

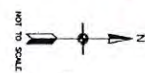


TURTLE KRAALS SEAWALL, KEY WEST, FLORIDA

VICINITY MAP

SHEET #	TITLE	DATE	REVISION
G-001	COVER SHEET AND VICINITY MAP	5/26/2017	0
G-002	TURTLE KRAALS LOCATION AND ACCESS	5/26/2017	0
G-003	VICINITY MAP AND DIRECTIONS TO SITE	5/26/2017	0
G-004	USDA/NRCS SOIL MAP	5/26/2017	0
G-001	EXISTING CONDITIONS SURVEY	5/26/2017	0
G-002	CONSTRUCTION PLAN	5/26/2017	0
G-003	SEAWALL CROSS-SECTIONS	5/26/2017	0
G-004	SEAWALL CROSS-SECTIONS	5/26/2017	0
G-005	SEAWALL CROSS-SECTIONS	5/26/2017	0
G-006	SEAWALL CROSS-SECTIONS	5/26/2017	0
G-007	SEAWALL CROSS-SECTIONS	5/26/2017	0
G-008	SEAWALL CROSS-SECTIONS	5/26/2017	0
G-009	SEAWALL CROSS-SECTIONS	5/26/2017	0
G-010	SEAWALL CROSS-SECTIONS	5/26/2017	0
G-011	SEAWALL CROSS-SECTIONS	5/26/2017	0
G-012	SEAWALL FACE VIEW	5/26/2017	0
G-013	SEAWALL FACE VIEW	5/26/2017	0
G-014	SEAWALL FACE VIEW	5/26/2017	0
G-015	SEAWALL FACE VIEW	5/26/2017	0
G-016	SEAWALL FACE VIEW	5/26/2017	0
G-017	SEAWALL FACE VIEW	5/26/2017	0
G-018	SEAWALL FACE VIEW	5/26/2017	0
G-019	SEAWALL FACE VIEW	5/26/2017	0
G-020	SEAWALL FACE VIEW	5/26/2017	0
G-021	SEAWALL FACE DEFICIENCIES LIST	5/26/2017	0

INDEX OF SHEETS



GULF OF MEXICO

NOT TO SCALE

STATE OF FLORIDA

PROFESSIONAL ENGINEER

License No. 57536

McGHEE

STATE OF FLORIDA

PROFESSIONAL ENGINEER

License No. 57536

McGHEE

STATE OF FLORIDA

PROFESSIONAL ENGINEER

License No. 57536

McGHEE

STATE OF FLORIDA

PROFESSIONAL ENGINEER

License No. 57536

McGHEE

STATE OF FLORIDA

PROFESSIONAL ENGINEER

License No. 57536

McGHEE

FOR PERMITTING
NOT FOR CONSTRUCTION

Sheet Reference:
G-001
Sheet 1 of 25

CITY OF KEY WEST
TURTLE KRAALS SEAWALL REPAIR
COVER SHEET AND VICINITY MAP
KEY WEST, MONROE COUNTY, FLORIDA

TETRA TECH INC.
750 SOUTH FEDERAL HWY
SUITE 314
MIAMI, FL 33134
TEL: (772) 781-3400
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed by:
S. MCGHEE
Drawn by:
S. MARTINEZ
Checked by:
S. MARTINEZ
Reviewed by:
S. MARTINEZ
Design file no:
TURTLE KRAALS
Scale:
AS SHOWN



FOR PERMITTING
NOT FOR CONSTRUCTION

Sheet Reference:
G-002
Sheet 2 of 25

CITY OF KEY WEST
TURTLE KRAALS SEAWALL REPAIR
TURTLE KRAAL'S LOCATION AND ACCESS
KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH INC.
750 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2836
TEL: (772) 781-3400
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed by:	S. MCGAHIE
Drawn By:	F. MARTINEZ
Checked By:	--
Reviewed By:	--
Design file no:	11-000000
Scale:	AS SHOWN

[illegible]

[illegible]

**FOR PERMITTING
NOT FOR CONSTRUCTION**

Sheet Reference:
G-003
Sheet 3 of 25

**CITY OF KEY WEST
TURTLE KRAALS SEAWALL REPAIR**

VICINITY MAP AND DIRECTIONS TO SITE

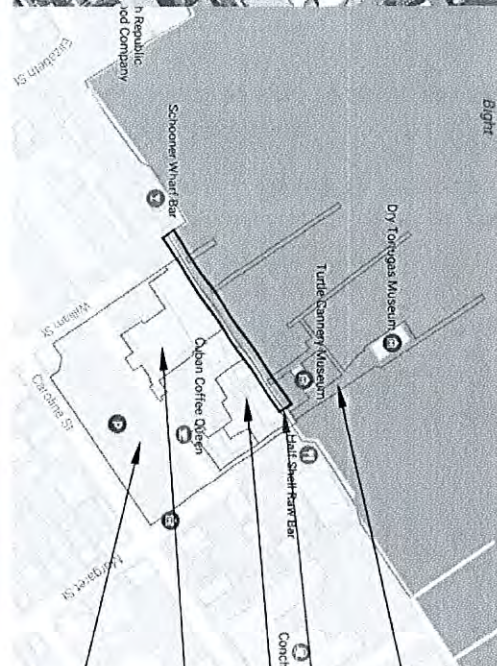
KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH INC.
759 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411

CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed by:	S. MCGAHEE
Drawn By:	F. MARTINEZ
Checked By:	--
Reviewed By:	--
Design file no.	19-008-0000
Scale:	AS SHOWN



PARCEL ID: 00660.0000
 ORIGIN: CITY OF KEY WEST
 LOCATION: 800 BLK CAROLINE ST., KEY WEST, FL
 LEGAL DESCRIPTION:
 NW LOT 1 & 2 SQR 10 (W/W/A PUBLIC PARKING LOT
 WITHIN KEY WEST BRIGHT)

PARCEL ID: 72062-004-2
OWNER: CITY OF KEY WEST
LOCATION: 201 WILLIAM ST., KEY WEST, FL 34290
LEGAL DESCRIPTION: NW PT LOT 2 SQR 10 (WATERFRONT BUILDING)

PARCEL ID: 72002-0044
OWNER: CITY OF KEY WEST
LOCATION: 231 MARLBOROUGH ST, KEY WEST
LEGAL DESCRIPTION:
KW PT SOR 10 (TURTLE POINT) (SEA)

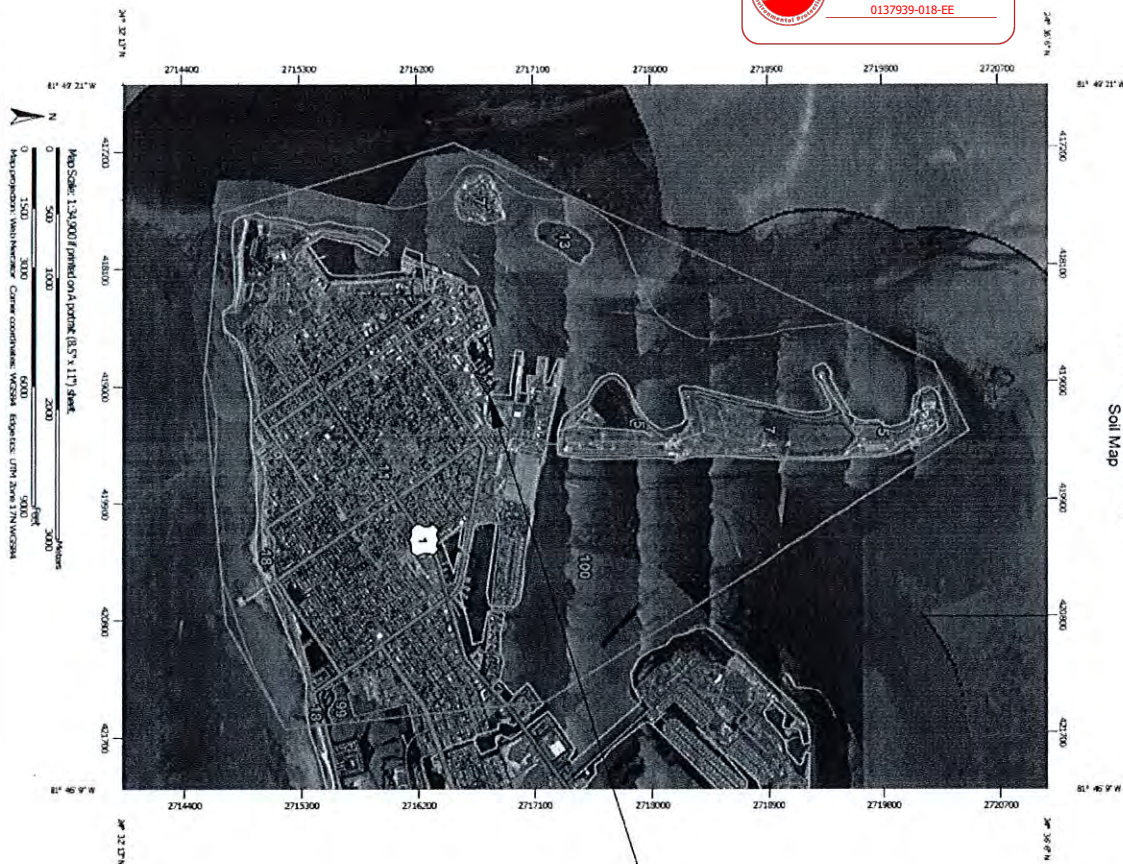
Mc
ENSE

PARCEL ID: 720R2.00-67
OWNER: CITY OF NEW WEST
LOCATION: 120 MARQUART STREET, NEW WEST,
LOCAL DISTRICT/REGIONAL:





Custom Soil Resource Report
Soil Map



Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5	Islandic muck, local	9.5	0.2%
7	Udentsic Urban land complex	272.0	5.9%
11	Urban land	1,529.2	33.2%
13	Korymba very gravelly loam, extremely stony	21.5	0.5%
15	Beaches	10.5	0.2%
99	Water	18.2	0.4%
100	Waters of the Atlantic Ocean	2,181.5	48.0%
Subtotals for Soil Survey Area		4,042.3	
Totals for Area of Interest		4,346.4	

11—Urban land

Map Unit Symbol

Map Unit Name

Acres in AOI

Percent of AOI

11

Urban land

1,529.2

33.2%

Description of Urban Land

Setback

Location

Urban land

Urban land

Urban land

Urban land

Urban land

Urban land

Urban land

Urban land

Urban land

Urban land

Urban land

Urban land

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Urban land

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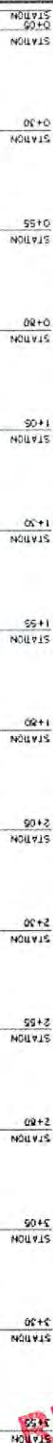


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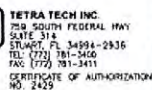
CITY OF KEY WEST
TURTLE KRAALS SEAWALL REPAIR
USDA/NRCS SOIL MAP
KEY WEST, MONROE COUNTY, FLORIDA

TETRA TECH INC.
750 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34904-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
CENTRAL FLORIDA
NO. 2429

Designed By:
S. MCGAHEE
Drawn By:
M. MARTINEZ
Checked By:
M. MARTINEZ
Reviewed By:
M. MARTINEZ
Design file no:
10010000
Date:
10/15/2016
By:
S. MCGAHEE

Sheet Reference
C-001
Sheet 5 of 25

KEY WEST, MONROE COUNTY, FLORIDA

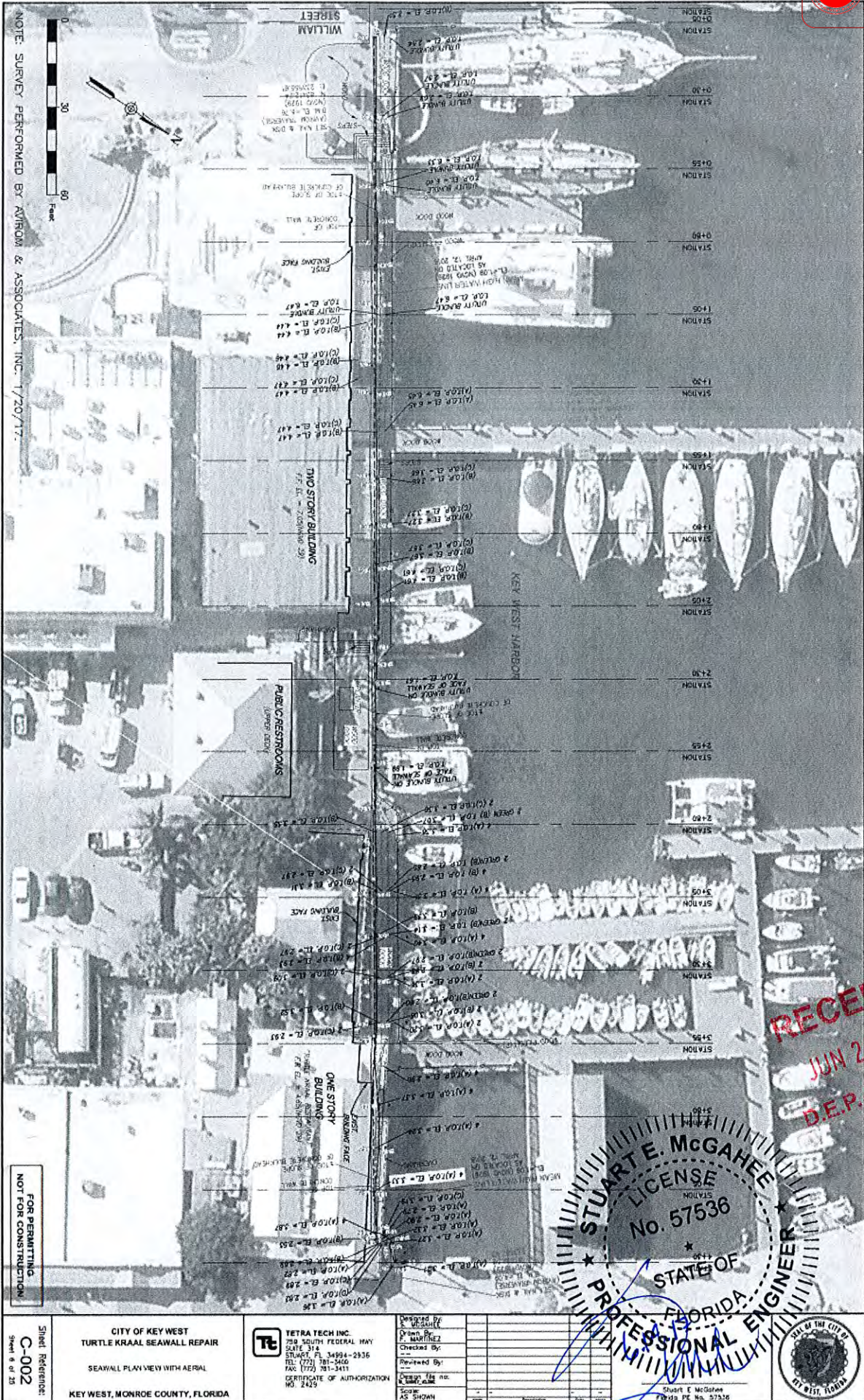


Designed by: S. WIGGANS
Drawn By: P. MARTINEZ
Checked By: ---
Reviewed By: ---
Design file n: M. JONES, JONES
Scale: AS SHOWN





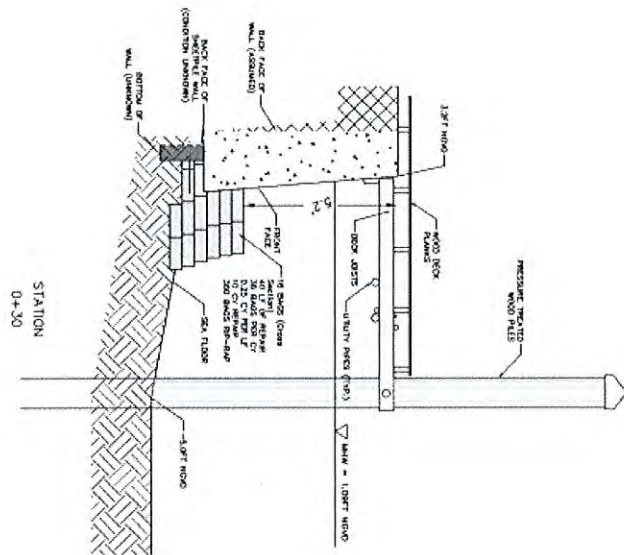
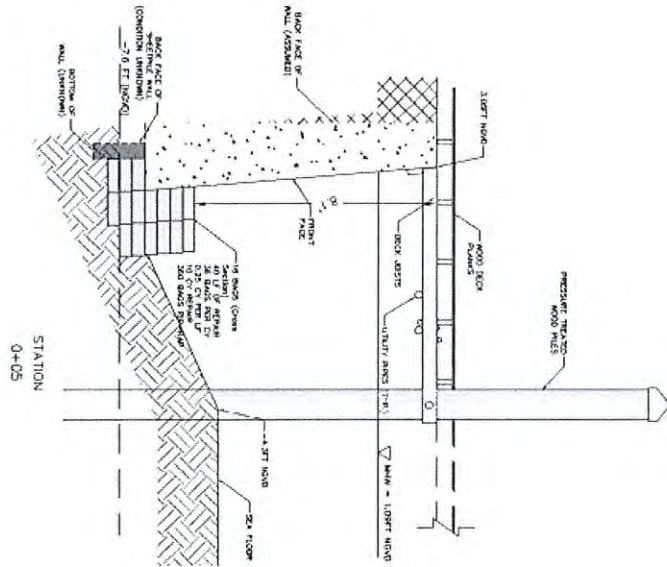
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File Number:
0137939-018-EE





EXEMPT

File Number:
0137939-018-EE



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Sheet Reference:
C-003
Sheet 7 of 25

CITY OF KEY WEST
TURTLE KRAAL SEAWALL REPAIR
SEAWALL CROSS SECTIONS
KEY WEST, MONROE COUNTY, FLORIDA

TE TETRA TECH INC.
200 SOUTH FEDERAL HWY
SUITE 314
MIAMI, FL 33135
TEL: (772) 781-3400
FAX: (772) 781-3411
CERTIFICATE OF REGISTRATION
NO. 2429

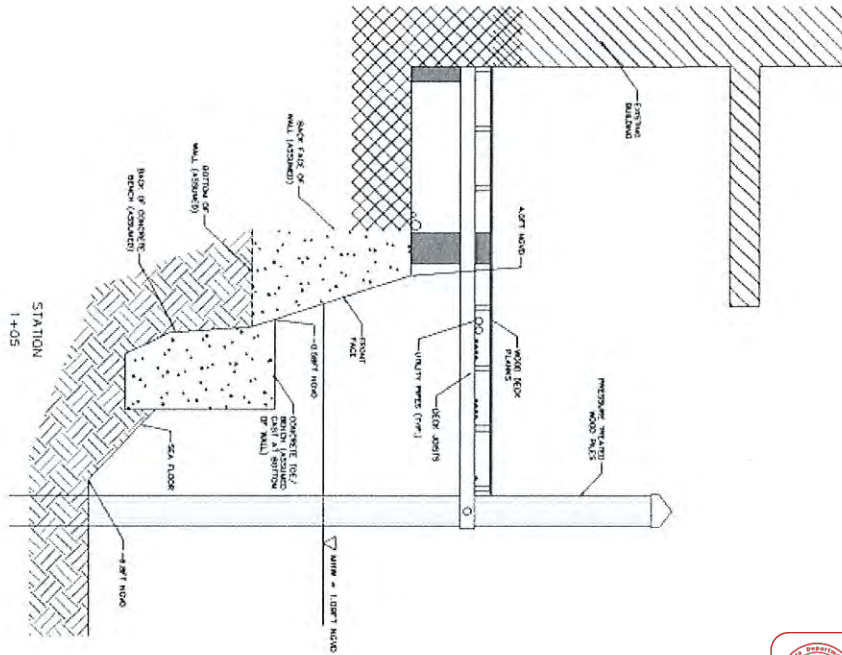
Designed by:	S. McGAHEE
Checked by:	S. McGAHEE
Reviewed by:	S. McGAHEE
Drawn by:	S. McGAHEE
Scale:	AS SHOWN
Date:	06/20/2017



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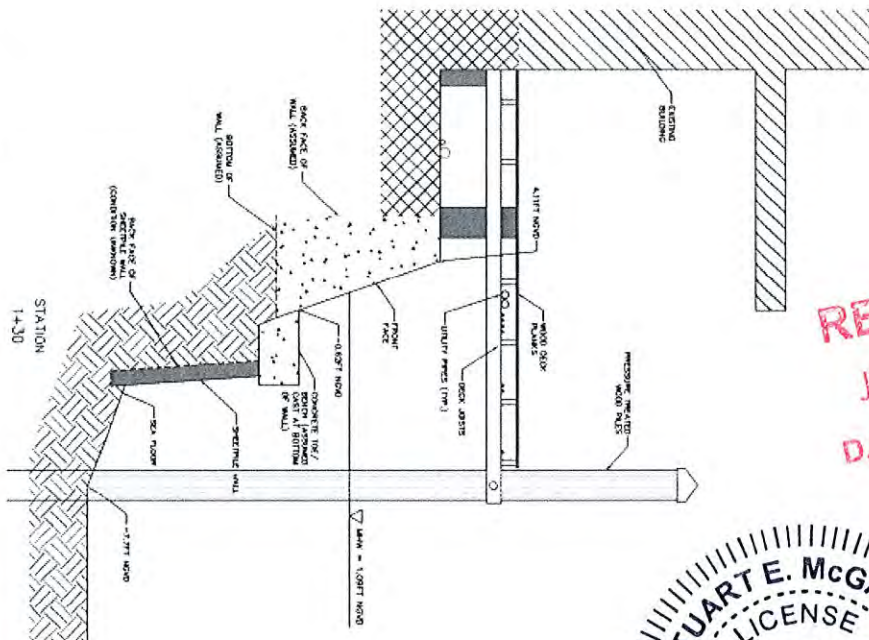


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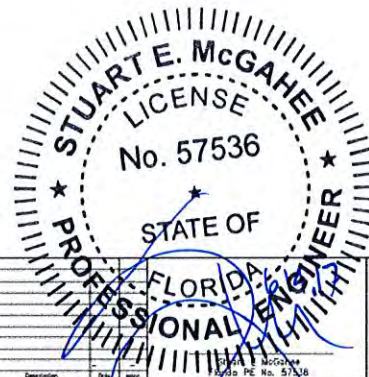


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C-005
Sheet 9 of 25

CITY OF KEY WEST
TURTLE KRAAL SEAWALL REPAIR
SEAWALL CROSS SECTIONS
KEY WEST, MONROE COUNTY, FLORIDA

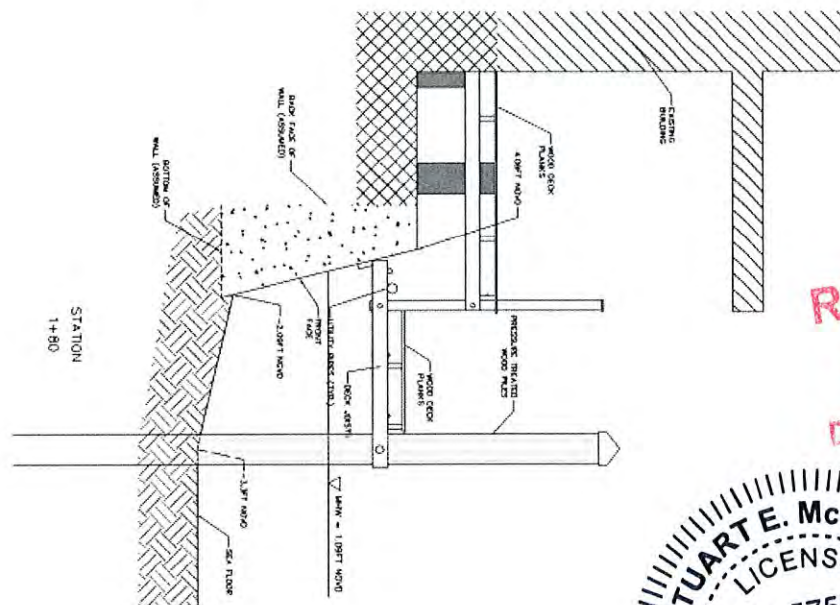
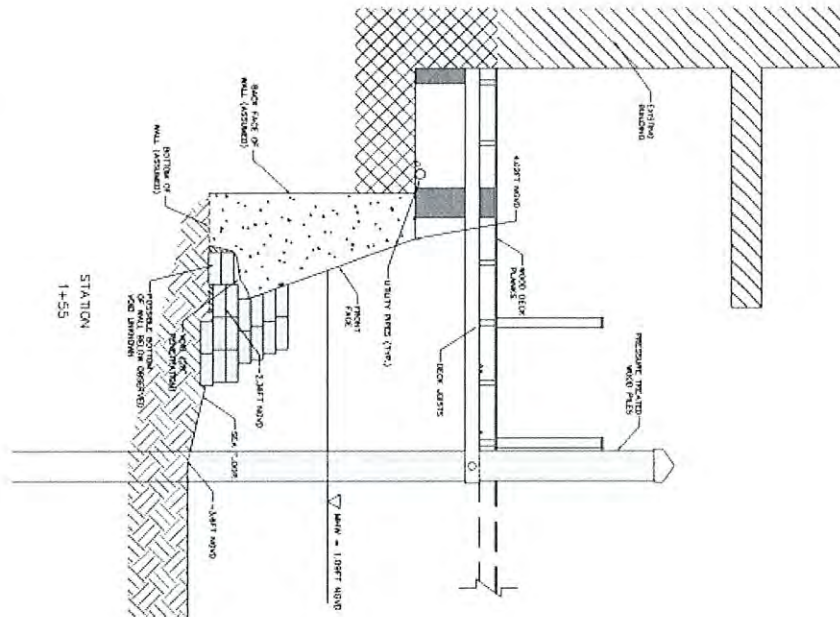


TETRA TECH INC.
750 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34991-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

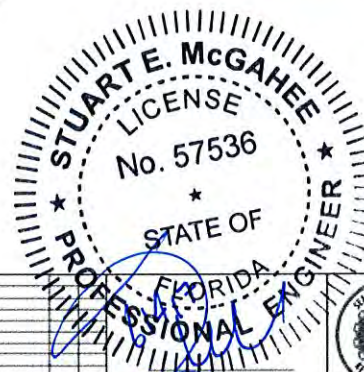
Designed By: S. MCGAHEE
Checked By: C. MARTINEZ
Reviewed By: [Signature]
Date: 6/1/17
Scale: AS SHOWN

No.	Description	Date	Rev.
1	Issue for Review	5/1/17	1
2	Issue for Construction	6/1/17	1





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Sheet Reference:
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Sheet 10 of 25

CITY OF KEY WEST
TURTLE KRAAL SEAWALL REPAIR

SEAWALL CROSS SECTIONS

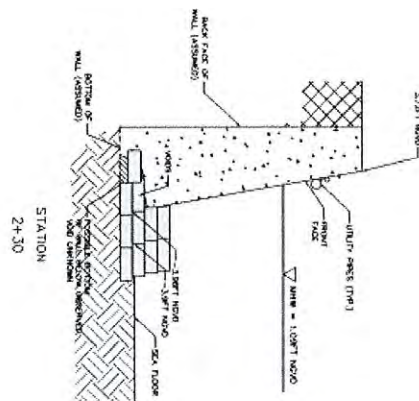
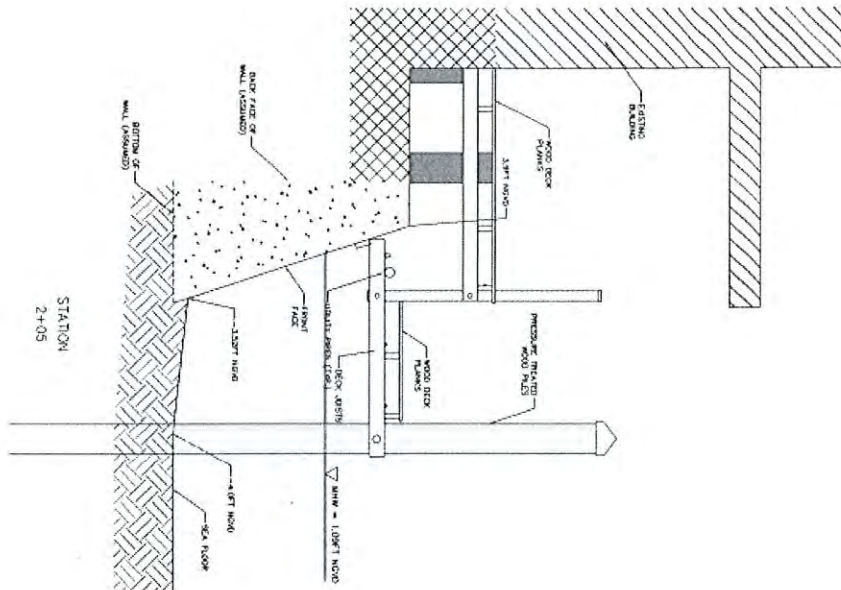
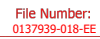
KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH INC.
750 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed by: S. McGAHIE
Drawn By: P. MARTINEZ
Checked By: ---
Reviewed By: ---
Design File #: N. 1000000000
Scale: AS SHOWN

OFFICE OF PROFESSIONAL REGULATION
FLORIDA
Shirley McGhee
Florida PE No. 57536



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Sheet 11 of 25

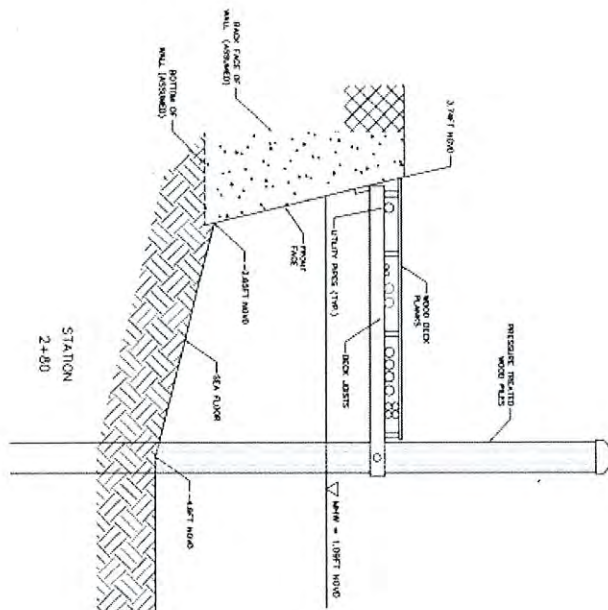
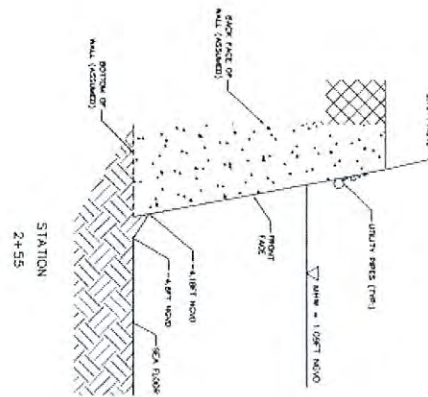
CITY OF KEY WEST
TURTLE KRAAL SEAWALL REPAIR
SEAWALL CROSS-SECTIONS
KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH INC.
759 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed by	S. M. SAHIE
Drawn By:	F. MARTINEZ
Checked By:	--
Reviewed By:	--
Design File no.	10-1000-0000
Scale:	AS SHOWN

Shyart E. McGeehee
Florida PE No. 57538



CITY OF KEY WEST
TURTLE KRAAL SEAWALL REPAIR
SEAWALL CROSS SECTIONS
KEY WEST, MONROE COUNTY, FLORIDA



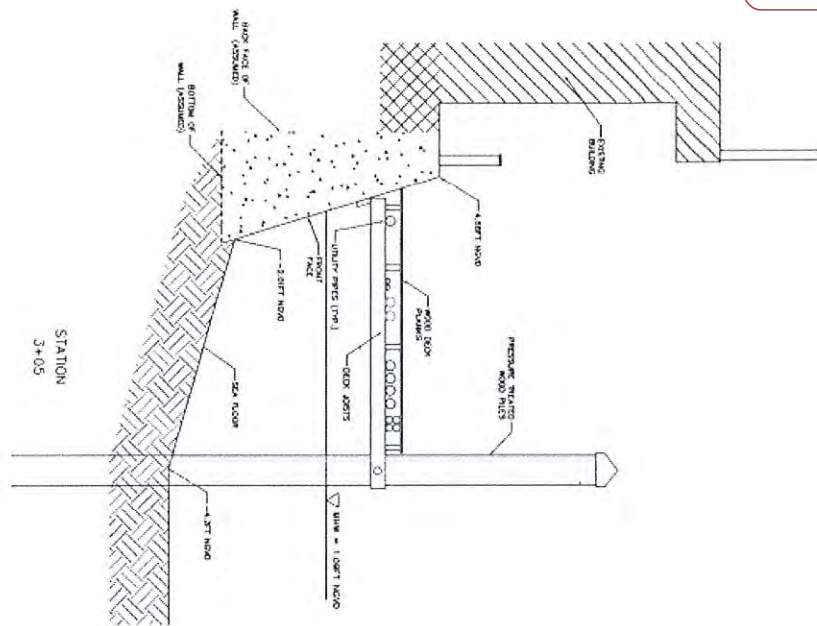
Designed by:	S. MORGAN
Drawn by:	F. MARTINEZ
Checked by:	--
Reviewed by:	--
Design file no:	W. 1000.1000
Scale:	AS SHOWN



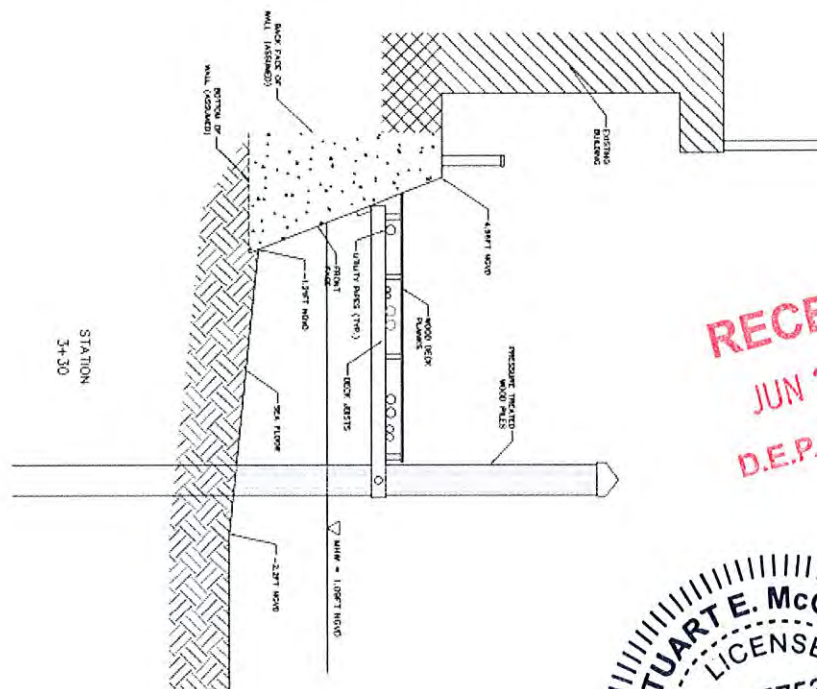


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STATION
3+05



STATION
3+30

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Sheet Reference:
C-009
Sheet 13 of 25

CITY OF KEY WEST
TURTLE KRAAL SEAWALL REPAIR

SEAWALL CROSS SECTIONS

KEY WEST, MONROE COUNTY, FLORIDA

TE TETRA TECH INC.
250 SOUTH FEDERAL HWY
SUITE 314
TALLAHASSEE, FL 32304-2836
TEL: (772) 781-2400
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed by:
S. McGAHEE
Checked By:
S. MARTINEZ
Reviewed By:
S. McGAHEE
Design file no:
S. McGAHEE
AS SHOWN

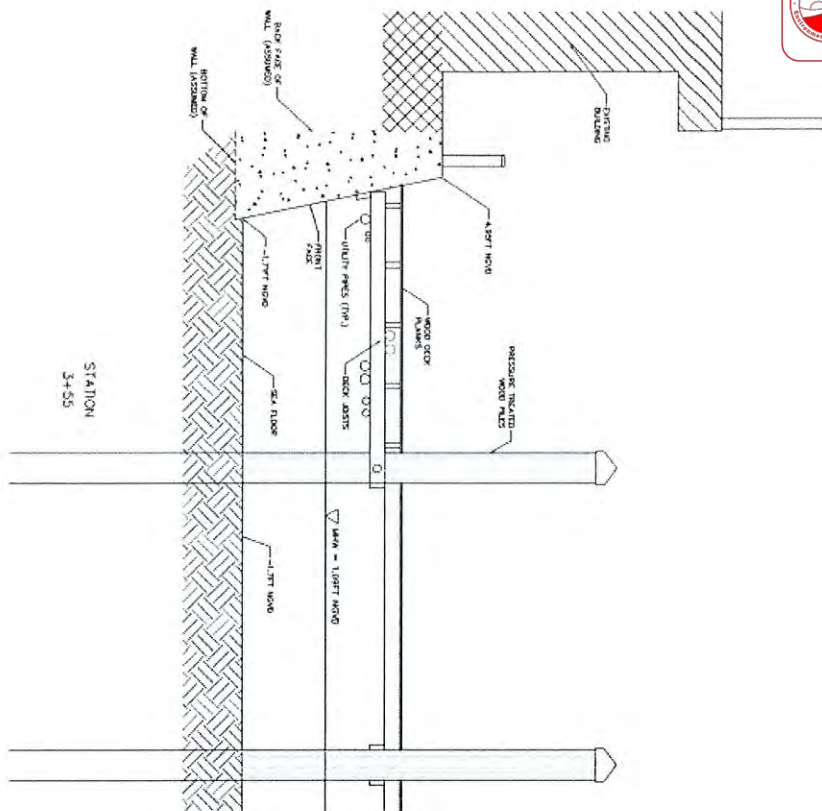
Rev	Description	Date	By



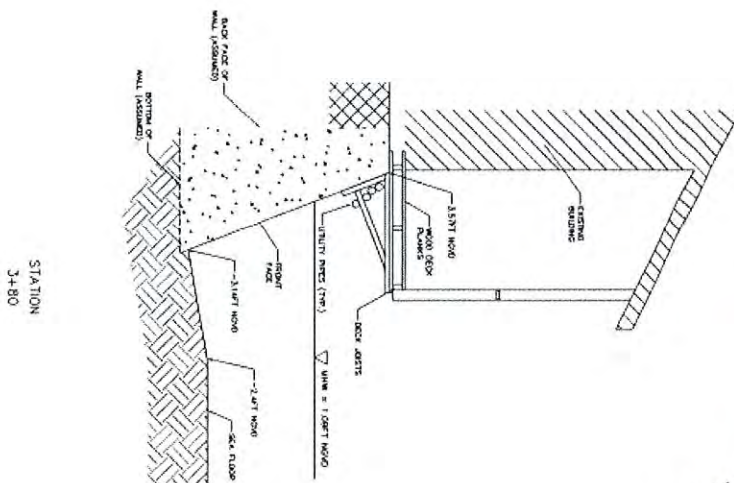


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0137939-018-EE



STATION
3+55



STATION
3+80

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STUART E. McGAHEE

LICENSE

No. 57536

STATE OF FLORIDA

PROFESSIONAL ENGINEER



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Sheet Reference:
C-010
Sheet 14 of 25

CITY OF KEY WEST
TURTLE KRAAL SEAWALL REPAIR

SEAWALL CROSS SECTIONS

KEY WEST, MONROE COUNTY, FLORIDA

 **TETRA TECH INC.**
200 SOUTH FEDERAL HWY
SUITE 314
MIAMI, FL 33135
TEL: (772) 781-2400-2938
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed by:
S. McGAHEE
Checked by:
S. McGAHEE
Reviewed by:
S. McGAHEE
Design File No:
S. McGAHEE
Scale:
AS SHOWN

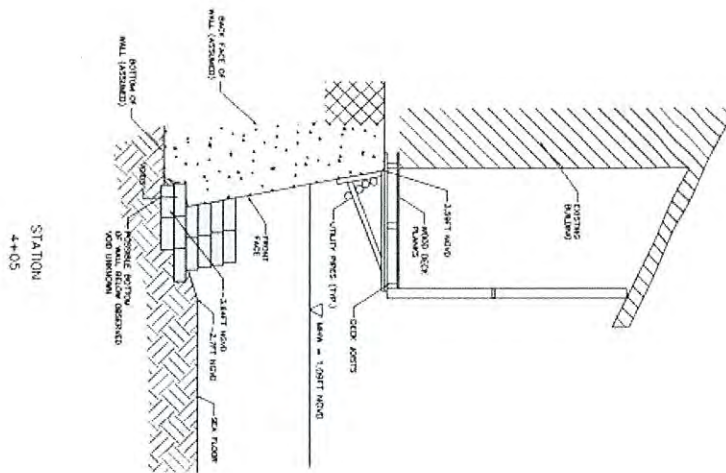
No.	Description	Date	By	Appr.

STUART E. McGAHEE
Professional Engineer
Florida PE No. 57536

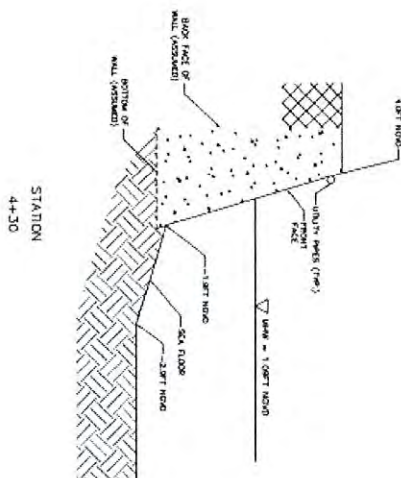


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STATION
4+05



STATION
4+30

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Sheet Reference:
C-011
Sheet 15 of 25

CITY OF KEY WEST
TURTLE KRAAL SEAWALL REPAIR
SEAWALL CROSS SECTIONS
KEY WEST, MONROE COUNTY, FLORIDA

TE TETRA TECH INC.
750 SOUTH FEDERAL WAY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-5400
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed by:
S. McGAHEE
Checked by:
S. McGAHEE
Reviewed by:
S. McGAHEE
Design file no:
S. McGAHEE
Scale:
AS SHOWN

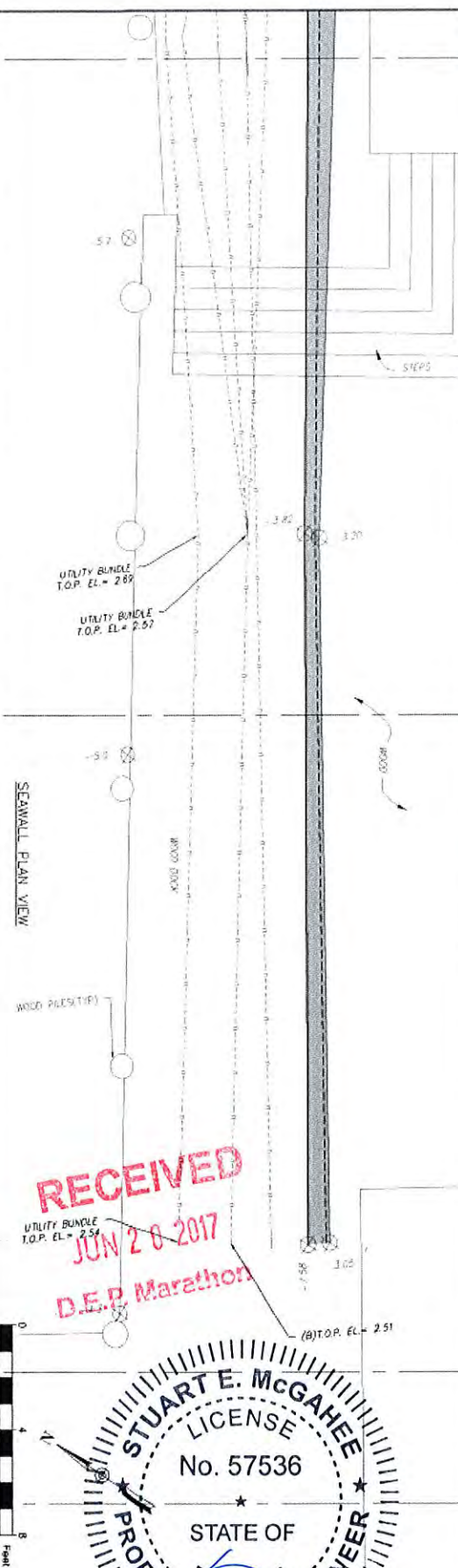
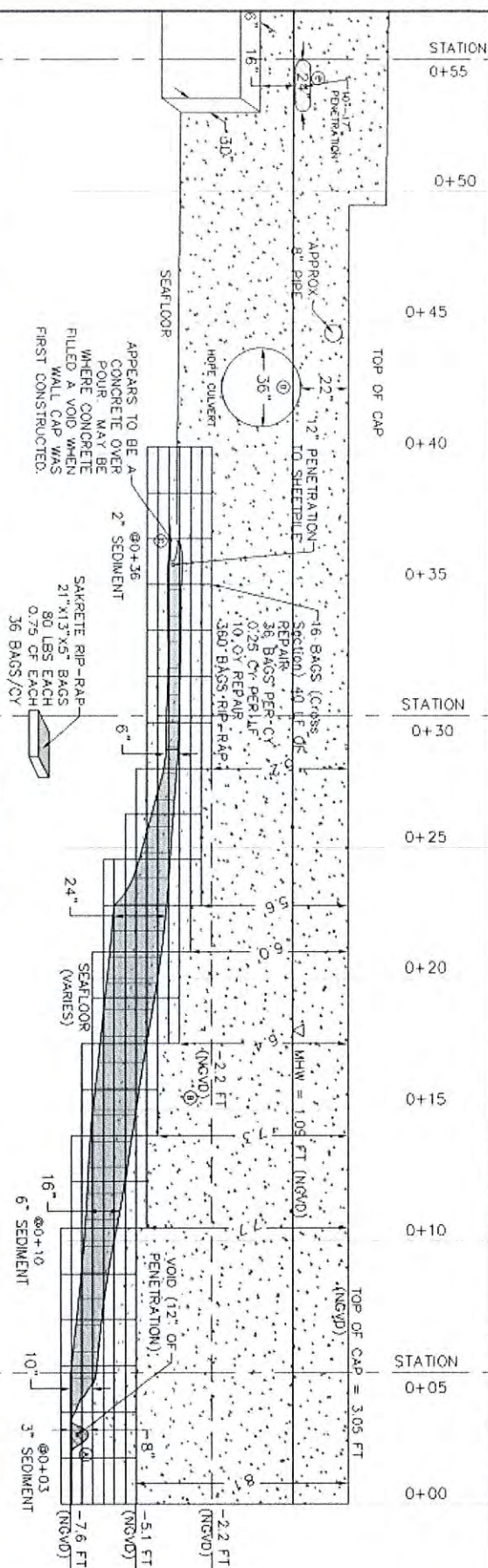
Date	Description	By	Appr.

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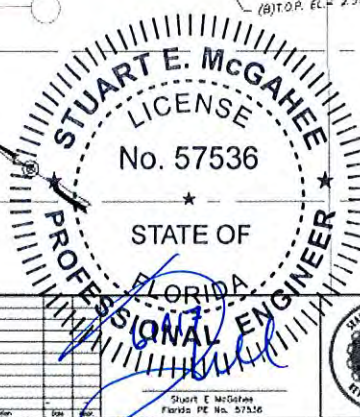
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= 254
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Sheet Reference:
C-012
Sheet 16 of 25

CITY OF KEY WEST
TURTLE KRAAL SEAWALL REPAIR

SEAWALL FACE VIEW

KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH INC.
750 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed by: S. MCRAHEE
Drawn By: F. MARTINEZ
Checked By: --
Reviewed By: --
Design file n N. 2000.0000
Scale AS SHOWN

[illegible]

NOTE: SURVEY PERFORMED BY AIROM & ASSOCIATES, INC. 1/20/17.
SEAWALL FACE INVESTIGATION PERFORMED SEPARATELY FROM SURVEY.

SEAWALL FACE VIEW



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Sheet Reference:
C-013
Sheet 17 of 25

CITY OF KEY WEST
TURTLE KRAAL SEAWALL REPAIR

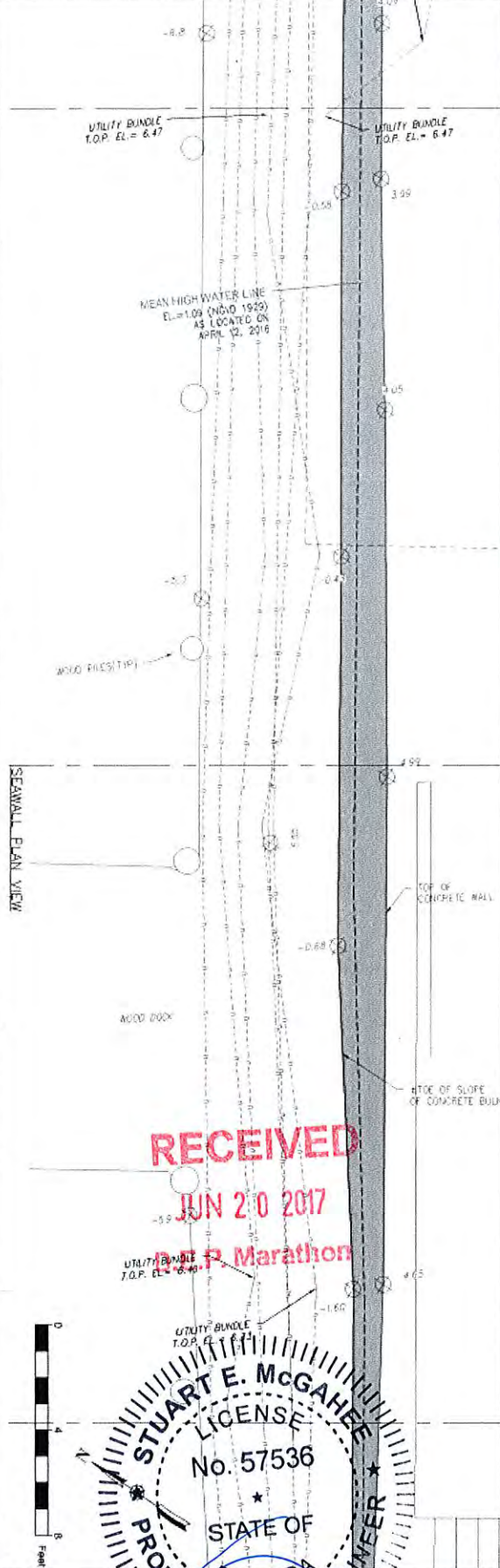
SEAWALL FACE VIEW

KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH INC.
200 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL (772) 381-5400
FAX (772) 381-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed By:
E. McGAHEE
Drawn By:
C. MARTINEZ
Checked By:
-
Reviewed By:
-
Checked with no:
-
Scale:
AS SHOWN



SEAWALL PLAN VIEW







NOTE: SURVEY PERFORMED BY AVIROM & ASSOCIATES, INC. 1/20/17.
SEAWALL FACE INVESTIGATION PERFORMED SEPARATELY FROM SURVEY.



SEAFLOR

(N) 6" AT WIDEST
WITH SPALLING
(POSSIBLE CONSTRUCTION
JOINT)

TOP OF CAP

STATION
2+05

2+00

1495

1+90

1+85

STATION
1+50

1+75

1+70

1+65

1460

STATION
1+55

1+50

SEAWALL FACE VIEW

Q1+80 - 25'
SEDIMENT

SEAFLOOR

$$\therefore \sum M_H W_i = 1.09 \text{ PT} \cdot \text{NGVD}$$

TOP OF CAP

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NOT FOR CONSTRUCTION**

Sheet References
C-015
Sheet 19 of 25

CITY OF KEY WEST
TURTLE KRAAL SEAWALL REPAIR

SEAWALL FACE VIEW

KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH INC.
750 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed By: S. VIGARIE
Drawn By: P. MARTINEZ
Checked By: ---
Reviewed By: ---
Design file no. A. 500.0000
Scale: AS SHOWN

SEAWALL PLAN VIEW

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(b)(7)(D) EL - 3 6
(c)(7)(D) EL - 3 6



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SEAWALL FACE INVESTIGATION PERFORMED SEPARATELY FROM SURVEY

SEAWALL FACE VIEW

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Sheet References
C-016
Sheet 20 of 25

SECTION)
K. 24 BAGS
P TOTAL

Q2+51 - <2"
SEDIMENT

SEA FLOOR

(12-30)
PENETRATION) 8"

—HEAVY
DEBRIS—

--	--

SEAFLOOR

---HEAVY
DEBRIS---

--	--	--

OF K
AL SE

COU

TOP OF CAP

TOP OF CAF

 $\dot{V}_{MHW} = 1.09\text{ FT}^3/\text{SEC}$

Joint :

6. A1 MILES
WITH SPALP.

7

TETRA TECH INC.
759 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

STATION
2+55

 $2+50$ $2+45$

2+40

 $2+35$

STATION

2+25

 $2+20$

2+15

 $2+10$

STATION

2+00

SEAWALL PLAN VIEW

KEV WEST MARBON

TOP OF
CONCRETE WALL

LTOP OF SLOPE
OF CONCRETE BULKHEAD

UTILITY BUNDLE ON
FACE OF SEAWALL
I.O.P. EL = 1.67

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NOTE: SURVEY PERFORMED BY AMROM & ASSOCIATES, INC. 1/20/17.
SEAWALL FACE INVESTIGATION PERFORMED SEPARATELY FROM SURVEY.

SEAWALL FACE VIEW

0 4 8 Feet

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Sheet Reference:
C-017
Sheet 21 of 25

CITY OF KEY WEST
TURTLE KRAAL SEAWALL REPAIR

SEAWALL FACE VIEW

KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH INC.
789 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL (772) 781-3456
FAX (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2425

Designed By:
Checked By:
Reviewed By:
Drawn By:
Scale:
AS SHOWN

STUART E. MCGAHEE
LICENSE
No. 57536
STATE OF
FLORIDA
PROFESSIONAL ENGINEER



SEAWALL PLAN VIEW

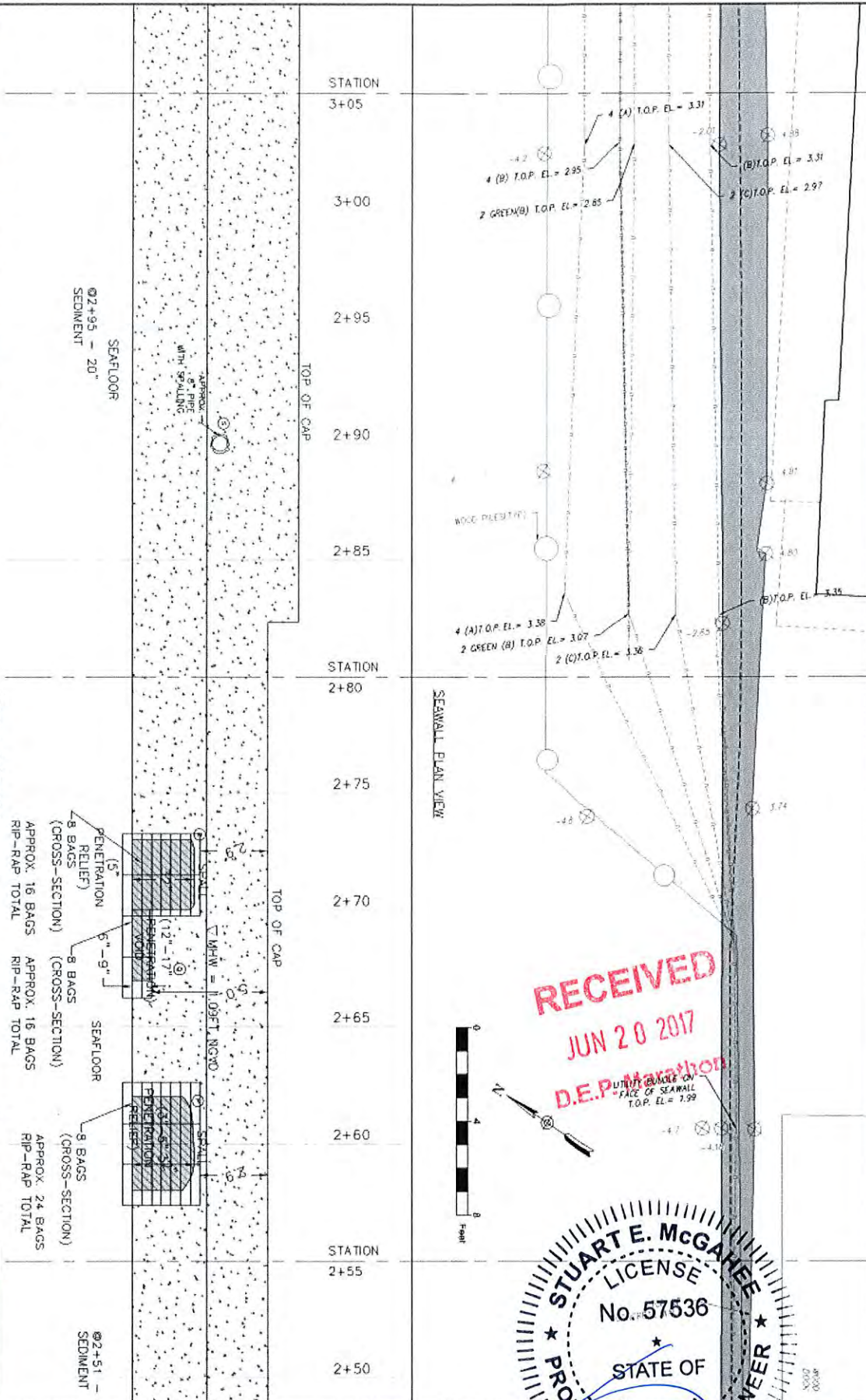
0 4 8 Feet

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D.E.P. Marathon
UTILITY MARKER ON
FACE OF SEAWALL
T.O.P. EL. = 2.99

STUART E. MCGAHEE
LICENSE
No. 57536
STATE OF
FLORIDA
PROFESSIONAL ENGINEER



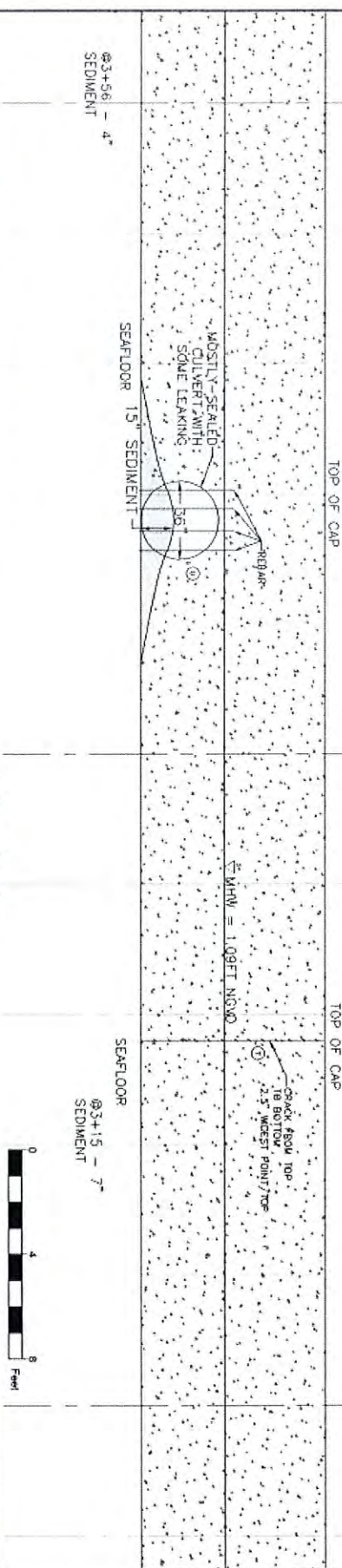


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File Number:
0137939-018-EE

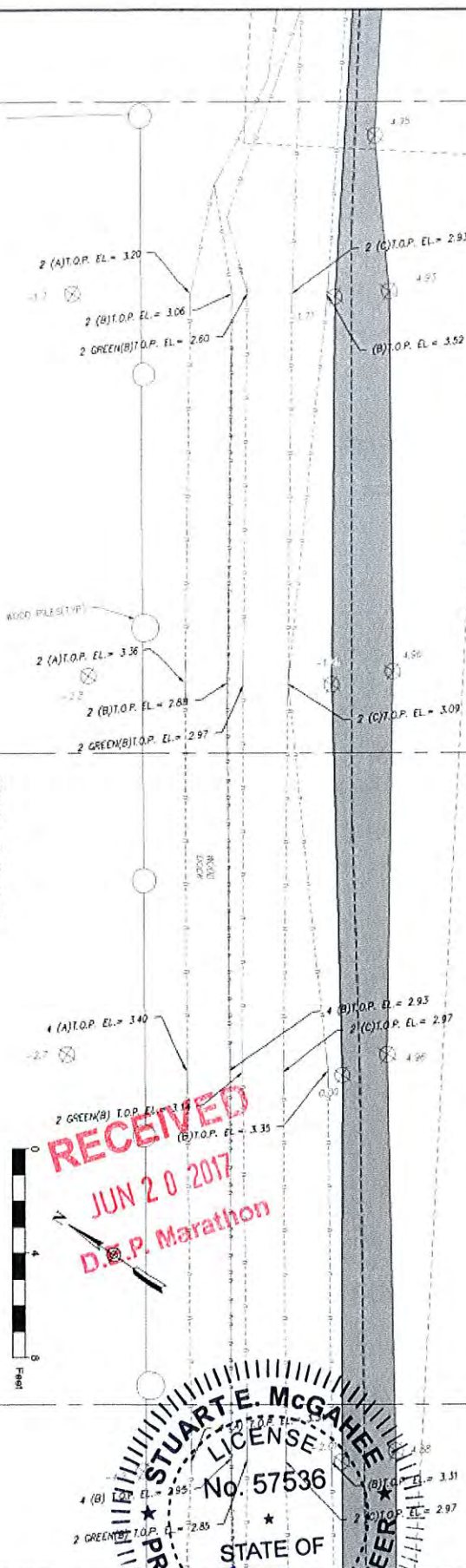
NOTE: SURVEY PERFORMED BY AIROM & ASSOCIATES, INC. 1/20/17.
SEAWALL FACE INVESTIGATION PERFORMED SEPARATELY FROM SURVEY.

SEAWALL FACE VIEW



STATION
3+55
3+50
3+45
3+40
3+35
3+30
3+25
3+20
3+15
3+10
3+05
3+00

SEAWALL PLAN VIEW



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Sheet 22 of 25

CITY OF KEY WEST
TURTLE KRAAL SEAWALL REPAIR
SEAWALL FACE VIEW
KEY WEST, MONROE COUNTY, FLORIDA

TETRA TECH INC.
200 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL (772) 381-5450
FAX (772) 381-5451
CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed By:
P. MARTINEZ
Checked By:
Reviewed By:
Drawn By:
Scale:
AS SHOWN

Sheet 22 of 25
Date: 6/14/2017
Time: 11:52:00



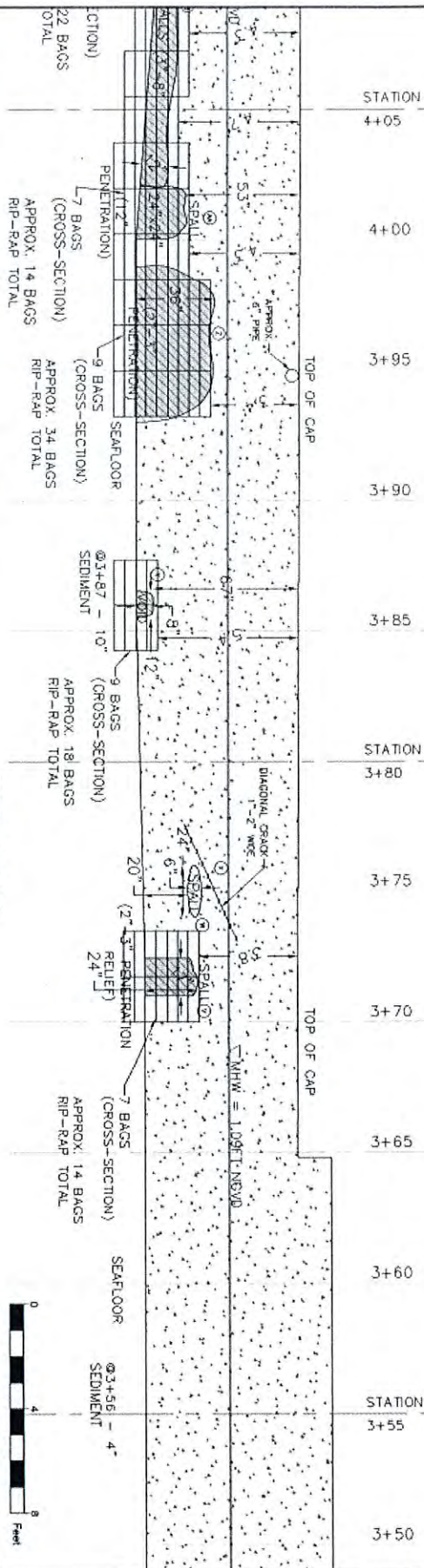


EXEMPT

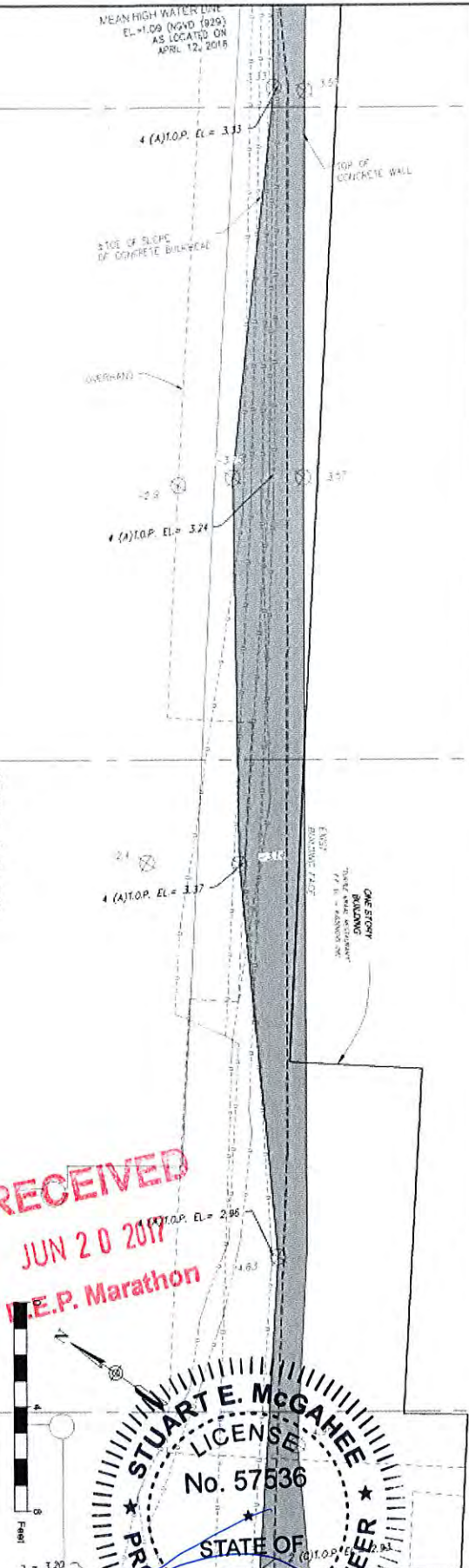
File Number:
0137939-0 8-EE

NOTE: SURVEY PERFORMED BY AMROM & ASSOCIATES, INC. 1/20/17.
SEAWALL FACE INVESTIGATION PERFORMED SEPARATELY FROM SURVEY.

SEAWALL FACE VIEW



SEAWALL PLAN VIEW



RECEIVED
JUN 20 2017
W.E.P. Marathon

STUART E. MCGAHEE
LICENSE
No. 57536
STATE OF FLORIDA
PROFESSIONAL ENGINEER

CITY OF KEY WEST
TURTLE KRAAL SEAWALL REPAIR
SEAWALL FACE VIEW
KEY WEST, MONROE COUNTY, FLORIDA

TETRA TECH INC.
250 SOUTH FEDERAL WAY
SUITE 314
ST. PETERSBURG, FL 34784-2936
TEL: (772) 381-5600
FAX: (772) 381-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

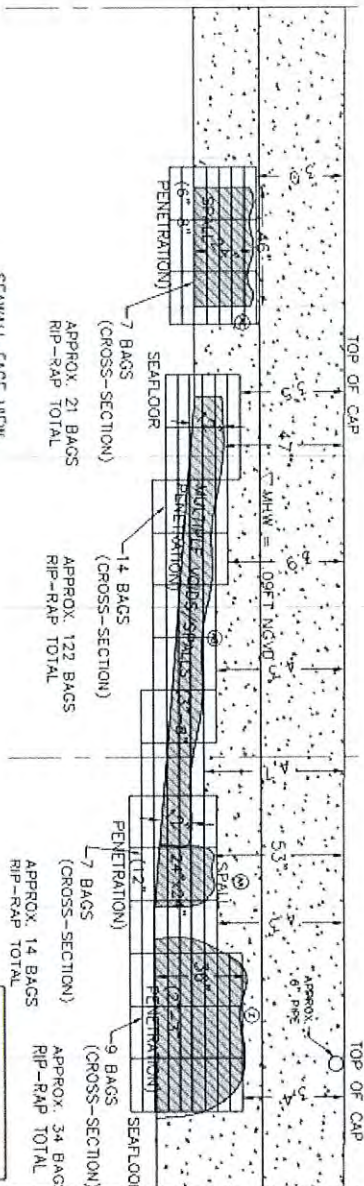
Designed By: S. W. Smith
Drawn By: M. Smith
Checked By: M. Smith
Reviewed By: M. Smith
Checked By: M. Smith
Scale: AS SHOWN



NOTE: SURVEY PERFORMED BY AVIRON & ASSOCIATES, INC. 1/20/17.
SEAWALL FACE INVESTIGATION PERFORMED SEPARATELY FROM SURVEY.



SEAWALL FACE VIEW



FOR PERMITTING
NOT FOR CONSTRUCTION

Sheet Reference
C-020
Sheet 24 of 25

CITY OF KEY WEST
TURTLE KRAAL SEAWALL REPAIR

SEAWALL FACE VIEW

KEY WEST, MONROE COUNTY, FLORIDA

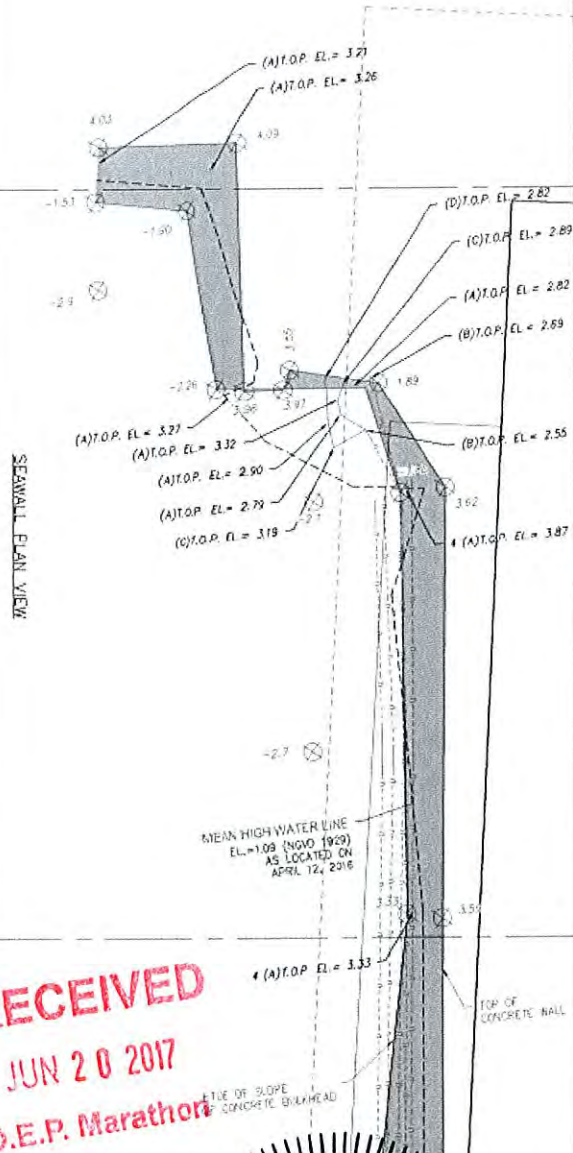


TETRA TECH INC.
700 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 381-5400
FAX: (772) 381-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed by:
P. VIGOR
Drawn by:
P. MARTINEZ
Checked by:
P. MARTINEZ
Reviewed by:
P. MARTINEZ
Checked by:
P. MARTINEZ
Scale:
AS SHOWN



MARGARET STREET



RECEIVED
JUN 20 2017
D.E.P. Marathon

STUART E. MCGAHER
LICENSE
No. 57536
STATE OF
FLORIDA
PROFESSIONAL ENGINEER



**EXEMPT**File Number:
0137939-018-EE

DEFECT	DEFICIENCY TYPE	DESCRIPTION	APPROXIMATE LOCATION (STATIONS)	HEIGHT (IN)	WIDTH (IN)	DEPTH/PENETRATION (IN)	APPROX. VOLUME (CF)
A	VOID/SPALL	VOID	0+02 TO 0+03	8	12	12	0.666667
B	SCOUR	EXPOSED SHEETPILE	0+03 TO 0+36	24	396	12	66
C	OVERPOUR	EXCESS CONCRETE	0+36	N/A	N/A	N/A	
D	OPEN CULVERT	OPEN CULVERT WITH NO MANHOLE GRATE	0+41 TO 0+44	36	36	N/A	
E	VOID/SPALL	VOID	0+53 TO 0+55	0.5	24	17	0.118056
F	CRACK	CRACK/SPALL AT CAP WITH SOME EXPOSED REBAR	0+65 TO 0+75	29	120	N/A	
G	VOID/SPALL	SPALL WITH SOME EXPOSED REBAR	0+80 TO 0+82	24	24	N/A	
H	VOID/SPALL	VOID IN TOE/BENCH	0+83	3	10	8	0.138889
I	EXPOSED SHEETPILE	POSSIBLE SHEETPILE FOR REPAIR WITH CONCRETE CAP	1+08 TO 1+31	76	276	N/A	
J	VOID/SPALL	AREA OF VOIDS	1+33 TO 1+50	16	204	34	64.22222
K	CRACK	2-3" TOP-TO-BOTTOM CRACK	1+51	82	3	N/A	
L	VOID/SPALL	VOID	1+51 TO 1+54	12	36	28	7
M	CRACK	6" TOP-TO-BOTTOM CRACK	2+04	72	6	N/A	
N	VOID/SPALL	AREA OF VOIDS	2+09 TO 2+29	8	240	6	6.666667
O	VOID/SPALL	VOID	2+32 TO 2+35	8	36	33	5.5
P	VOID/SPALL	SPALL	2+58 TO 2+62	32	48	5	4.444444
Q	VOID/SPALL	VOID	2+67 TO 2+70	9	36	17	3.1875
R	VOID/SPALL	SPALL	2+70 TO 2+73	32	36	5	3.333333
S	VOID/SPALL	PIPE WITH SPALLING	2+90	8	8	2	0.074074
T	CRACK	2.5" TOP-TO-BOTTOM CRACK	3+19	82	2.5	N/A	
U	LEAKING CULVERT	MOSTLY-SEALED 36" CULVERT	3+38 TO 3+41	36	36	N/A	
V	VOID/SPALL	SPALL	3+71 TO 3+73	24	17	3	0.708333
W	VOID/SPALL	SPALL	3+74 TO 3+76	6	24	3	0.25
X	CRACK	1-2" DIAGONAL CRACK	3+73 TO 3+78	60	2	N/A	
Y	VOID/SPALL	VOID	3+86	8	12	UNKNOWN	
Z	VOID/SPALL	SPALL	3+93 TO 3+99	36	72	3	4.5
AA	VOID/SPALL	SPALL	4+00 TO 4+02	24	24	12	4
AB	VOID/SPALL	AREA OF VOIDS	4+02 TO 4+17	12	180	8	10
AC	VOID/SPALL	SPALL	4+20 TO 4+24	24	48	8	5.333333
TOTAL AREA OF VOID/SPALL							120.1435

TYPE OF DEFICIENCY

EXPOSED SHEETPILE WALL BOTTOM

VOID/SPALL

CRACK

OTHER/POSSIBLE DEFICIENCY

RECEIVED

JUN 15 2017

D.E.P. Marathon

FOR PERMITTING
NOT FOR CONSTRUCTIONSheet Reference:
C-021
Sheet 25 of 25CITY OF KEY WEST
TURTLE KRAAL SEAWALL REPAIR

SEAWALL FACE DEFICIENCIES LIST

KEY WEST, MONROE COUNTY, FLORIDA

TETRA TECH INC.
709 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429Designed By:
Drawn By:
Checked By:
Reviewed By:
Scale:
AS SHOWN

Date	Description



Title XXVIII
NATURAL RESOURCES;
CONSERVATION, RECLAMATION,
AND USE

Chapter 373
WATER RESOURCES

373.406 Exemptions. — The following exemptions shall apply:

(6) Any district or the department may exempt from regulation under this part those activities that the district or department determines will have only minimal or insignificant individual or cumulative adverse impacts on the water resources of the district. The district and the department are authorized to determine, on a case-by-case basis, whether a specific activity comes within this exemption. Requests to qualify for this exemption shall be submitted in writing to the district or department, and such activities shall not be commenced without a written determination from the district or department confirming that the activity qualifies for the exemption.



Florida Department of Environmental Protection

South District Branch Office
2796 Overseas Highway, Suite 221
Marathon, Florida 33050
SouthDistrict@dep.state.fl.us

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Noah Valenstein
Secretary

January 31, 2018

City of Key West
Doug Bradshaw
c/o David Frodsham and Francisco Martinez, Tetra Tech, Inc.
759 South Federal Highway, Suite 314
Stuart, Florida 34994
Dave.Frodsham@TetraTech.com
Francisco.Martinez@TetraTech.com

File No.: 0137939-021-EE, Monroe County

Dear Mr. Bradshaw:

On January 26, 2018, we received your request for verification of exemption to perform the following activities:

To repair/replace 700 linear feet of seawall within 18 inches of the existing seawall from the northern end of Williams St at Key West Bight spanning west and north to the north side of Conch Republic, Key West, Class III Waters, Section 31, Township 67 South, Range 25 East, Monroe County.

Your request has been reviewed to determine whether it qualifies for (1) regulatory exemptions, (2) proprietary authorization (related to state-owned submerged lands), and (3) federal approval that may be necessary for work in wetlands or waters of the United States.

Your project did not qualify for the federal review portion of this verification request. Additional authorization must be obtained prior to commencement of the proposed activity. This letter does not relieve you from the responsibility of obtaining other federal, state, or local authorizations that may be required for the activity. Please refer to the specific section(s) dealing with that portion of the review for advice on how to proceed.

1. Regulatory Review – VERIFIED

Based on the information submitted, the Department has verified that the activity as proposed is exempt under Chapter 62-330.051(12)(b), Florida Administrative Code, and Section 403.813

(1)(e) of the Florida Statutes from the need to obtain a regulatory permit under Part IV of Chapter 373 of the Florida Statutes.

This exemption verification is based on the information you provided the Department and the statutes and rules in effect when the information was submitted. This verification may not be valid if site conditions materially change, the project design is modified, or the statutes or rules governing the exempt activity are amended. In the event you need to re-verify the exempt status for the activity, a new request and verification fee will be required. Any substantial modifications to the project design should be submitted to the Department for review, as changes may result in a permit being required.

2. Proprietary Review - GRANTED

The Department acts as staff to the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees) and issues certain authorizations for the use of sovereign submerged lands. The Department has the authority to review activities on sovereign submerged lands under Chapters 253 and 258 of the Florida Statutes, and Chapters 18-18, 18-20, and 18-21, Florida Administrative Code, as applicable.

The activities appear to be located on sovereign submerged lands owned by the Board of Trustees. The activities are not exempt from the need to obtain the applicable proprietary authorization. As staff to the Board of Trustees, the Department has reviewed the activities described above, and has determined that the activities qualify for a letter of consent under Rule 18-21.005(1)(c), Florida Administrative Code, and Section 253.77 of the Florida Statutes to construct and use the activities on the specified sovereign submerged lands and as long as the work performed is located within the boundaries as described herein and is consistent with the terms and conditions herein.

During this term of this Letter of consent you shall maintain satisfactory evidence of sufficient upland interest as required by paragraph 18-21.004(3)(b), Florida Administrative Code. If such interest is terminated or the Board of Trustees determines that such interest did not exist on the date of issuance of this Letter of Consent, this Letter of Consent may be terminated by the Board of Trustees at its sole option. If the Board of Trustees terminates this Letter of Consent, you agree not to assert a claim or defense against the Board of Trustees arising out of this Letter of Consent.

Special Consent Conditions

1. The applicant agrees to indemnify, defend and hold harmless the Board of Trustees and the State of Florida from all claims, actions, lawsuits and demands in any form arising out of the authorization to use sovereignty submerged lands or the applicant's use and construction of structures on sovereignty submerged lands. This duty to indemnify and hold harmless will include any and all liabilities that are associated with the structure or activity including special assessments or taxes that are now or in the future assessed against the structure or activity during the period of the authorization.

2. Failure by the Board of Trustees to enforce any violation of a provision of the authorization or waiver by the Board of Trustees of any provision of the authorization will not invalidate the provision not enforced or waived, nor will the failure to enforce or a waiver prevent the Board of Trustees from enforcing the unenforced or waived provision in the event of a violation of that provision.
3. Applicant binds itself and its successors and assigns to abide by the provisions and conditions set forth in the authorization. If the applicant or its successors or assigns fails or refuses to comply with the provisions and conditions of the authorization, the authorization may be terminated by the Board of Trustees after written notice to the applicant or its successors or assigns. Upon receipt of such notice, the applicant or its successors or assigns will have thirty (30) days in which to correct the violations. Failure to correct the violations within this period will result in the automatic revocation of this authorization.
4. All costs incurred by the Board of Trustees in enforcing the terms and conditions of the authorization will be paid by the applicant. Any notice required by law will be made by certified mail at the address shown on page one of the authorization. The applicant will notify the Board of Trustees in writing of any change of address at least ten days before the change becomes effective.
5. This authorization does not allow any activity prohibited in a conservation easement or restrictive covenant that prohibits the activity.

General Conditions for Authorizations for Activities

All authorizations granted by rule or in writing under Rule 18-21.005, F.A.C., except those for geophysical testing, shall be subject to the general conditions as set forth in paragraphs (a) through (i) below. The general conditions shall be part of all authorizations under this chapter, shall be binding upon the grantee, and shall be enforceable under Chapter 253 or 258, Part II, F.S.

- (a) Authorizations are valid only for the specified activity or use. Any unauthorized deviation from the specified activity or use and the conditions for undertaking that activity or use shall constitute a violation. Violation of the authorization shall result in suspension or revocation of the grantee's use of the sovereignty submerged land unless cured to the satisfaction of the Board.
- (b) Authorizations convey no title to sovereignty submerged land or water column, nor do they constitute recognition or acknowledgment of any other person's title to such land or water.
- (c) Authorizations may be modified, suspended or revoked in accordance with their terms or the remedies provided in Sections 253.04 and 258.46, F.S., or Chapter 18-14, F.A.C.
- (d) Structures or activities shall be constructed and used to avoid or minimize adverse impacts to sovereignty submerged lands and resources.

- (e) Construction, use, or operation of the structure or activity shall not adversely affect any species which is endangered, threatened or of special concern, as listed in Rules 68A-27.003, 68A-27.004, and 68A-27.005, F.A.C.
- (f) Structures or activities shall not unreasonably interfere with riparian rights. When a court of competent jurisdiction determines that riparian rights have been unlawfully affected, the structure or activity shall be modified in accordance with the court's decision.
- (g) Structures or activities shall not create a navigational hazard.
- (h) Structures shall be maintained in a functional condition and shall be repaired or removed if they become dilapidated to such an extent that they are no longer functional. This shall not be construed to prohibit the repair or replacement subject to the provisions of Rule 18-21.005, F.A.C., within one year, of a structure damaged in a discrete event such as a storm, flood, accident, or fire.

Structures or activities shall be constructed, operated, and maintained solely for water dependent purposes, or for non-water dependent activities.

3. SPGP Review - NOT APPROVED

Your proposed activities as outlined on your application and attached drawings **does not qualify** for Federal authorization pursuant to the State Programmatic General Permit and a **separate application is required** to the Corps. Please contact the Corps at the Miami Office at 9900 SW 107th Avenue, Suite 203, Miami, FL 33176-2785, or by telephone at (305)-526-7181, or electronically at SEAPPLS@usace.army.mil for further information. **Failure to obtain Corps authorization prior to construction could subject you to federal enforcement action by that agency.**

Authority for review an agreement with the USACOE entitled "Coordination Agreement Between the U. S. Army Corps of Engineers (Jacksonville District) and the Florida Department of Environmental Protection, or Duly Authorized Designee, State Programmatic General Permit", Section 10 of the Rivers and Harbor Act of 1899, and Section 404 of the Clean Water Act.

Additional Information

Please retain this letter. The activities may be inspected by authorized state personnel in the future to ensure compliance with appropriate statutes and administrative codes. If the activities are not in compliance, you may be subject to penalties under Chapter 373, F.S., and Chapter 18-14, F.A.C.

NOTICE OF RIGHTS

This action is final and effective on the date filed with the Clerk of the Department unless a petition for an administrative hearing is timely filed under Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. On the filing of a timely and sufficient petition, this action will not be final and effective until further order of the Department. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice.

Petition for Administrative Hearing

A person whose substantial interests are affected by the Department's action may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. Pursuant to Rule 28-106.201, F.A.C., a petition for an administrative hearing must contain the following information:

- (a) The name and address of each agency affected and each agency's file or identification number, if known;
- (b) The name, address, any email address, any facsimile number, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination;
- (c) A statement of when and how the petitioner received notice of the agency decision;
- (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;
- (e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action;
- (f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and
- (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

The petition must be filed (received by the Clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000 or by email to Agency_clerk@dep.state.fl.us. Also, a copy of the petition shall be mailed to the applicant at the address indicated above at the time of filing.

Time Period for Filing a Petition

In accordance with Rule 62-110.106(3), F.A.C., petitions for an administrative hearing by the applicant must be filed within 21 days of receipt of this written notice. Petitions filed by any persons other than the applicant, and other than those entitled to written notice under Section 120.60(3), F.S. must be filed within 21 days of publication of the notice or within 21 days of receipt of the written notice, whichever occurs first. Under Section 120.60(3), F.S., however, any person who has asked the Department for notice of agency action may file a petition within

21 days of receipt of such notice, regardless of the date of publication. The failure to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

Extension of Time

Under Rule 62-110.106(4), F.A.C., a person whose substantial interests are affected by the Department's action may also request an extension of time to file a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, before the applicable deadline for filing a petition for an administrative hearing. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

Mediation

Mediation is not available in this proceeding.

FLAWAC Review

The applicant, or any party within the meaning of Section 373.114(1)(a) or 373.4275, F.S., may also seek appellate review of this order before the Land and Water Adjudicatory Commission under Section 373.114(1) or 373.4275, F.S. Requests for review before the Land and Water Adjudicatory Commission must be filed with the Secretary of the Commission and served on the Department within 20 days from the date when the order is filed with the Clerk of the Department.

Judicial Review

Any party to this action has the right to seek judicial review pursuant to Section 120.68, F.S., by filing a Notice of Appeal pursuant to Rules 9.110 and 9.190, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, M.S. 35, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this action is filed with the Clerk of the Department.

Thank you for applying to the Submerged Lands and Environmental Resource Permit Program. If you have any questions regarding this matter, please contact us by telephone at (239) 344-5600 or by e-mail at SouthDistrict@dep.state.fl.us. When referring to this project, please reference the file number listed above.

Executed in Orlando, Florida

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Megan Hill

Megan Mills
Permitting Program Administrator
South District

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this document and authorization to use sovereignty submerged lands, including all copies, were sent to the addressee and to the following listed persons:

U.S. Army Corps of Engineers, Miami Office, SEAppls@usace.army.mil

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to Section 120.52(7), F.S., with the designated Department clerk, receipt of which is hereby acknowledged.

Elizabeth Williamson

Clerk

Date

Enclosures:

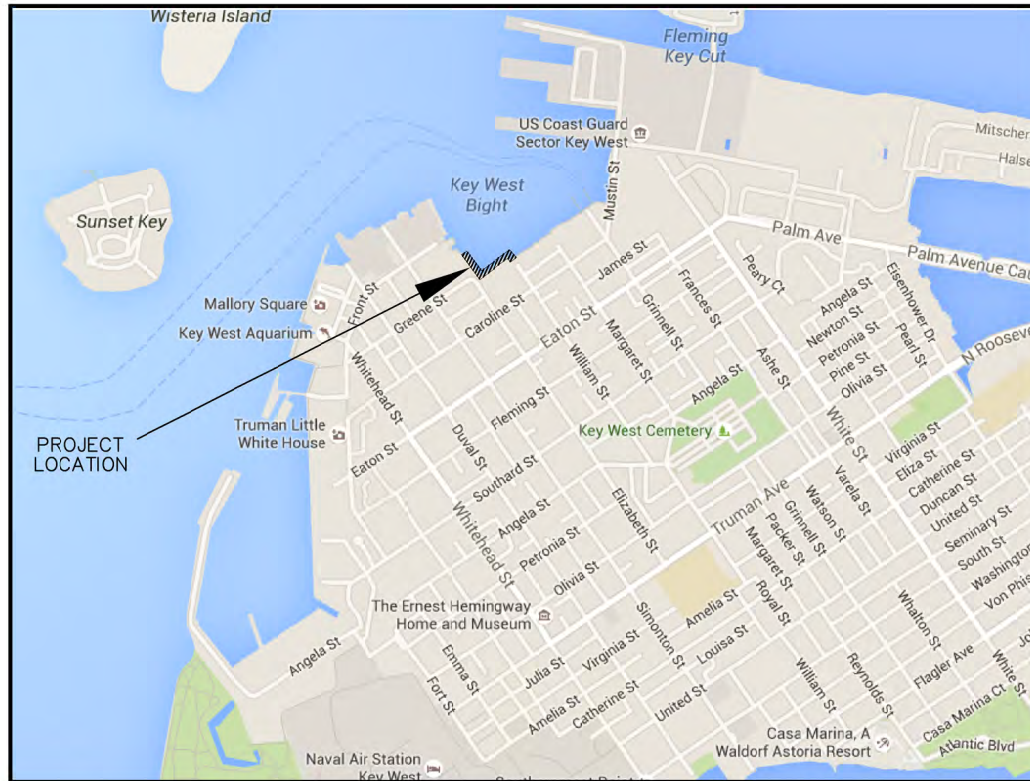
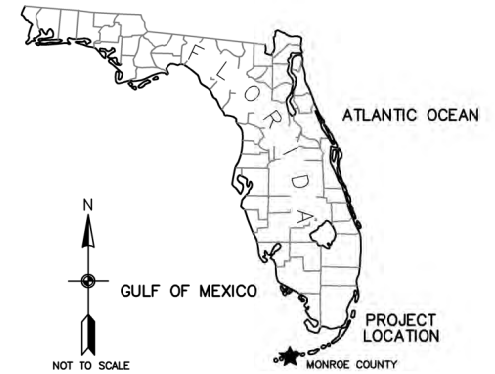
12 Project drawings
62-330.051(12)(b), F.A.C./403.813(1)(e), F.S.



CITY OF KEY WEST

SCHOONER WHARF TO CONCH REPUBLIC SEAWALL REPAIR

SEAWALL REPAIR PERMITTING



VICINITY MAP

KEY WEST BIGHT, KEY WEST, FLORIDA

Received
Electronically
Jan 26, 2018
South District



INDEX OF SHEETS

SHEET #	TITLE	LATEST UPDATE	REV.
G-001	COVER SHEET AND VICINITY MAP	1/25/2018	0
G-002	KEY WEST BIGHT LOCATION AND ACCESS	1/25/2018	0
G-003	VICINITY MAP AND DIRECTIONS TO SITE	1/25/2018	0
G-004	USDA/NRCS SOIL MAP	1/25/2018	0
C-101	SEAWALL PLAN VIEW	1/25/2018	0
C-102	SEAWALL PLAN VIEW	1/25/2018	0
C-103	SEAWALL REPAIR DESIGN PLAN VIEW	1/25/2018	0
C-104	SEAWALL REPAIR DESIGN PLAN VIEW	1/25/2018	0
C-105	SEAWALL REPAIR CROSS-SECTIONS	1/25/2018	0
C-106	SEAWALL REPAIR CROSS-SECTIONS	1/25/2018	0
C-107	SEAWALL REPAIR CROSS-SECTIONS	1/25/2018	0
C-108	DETAILS	1/25/2018	0



EXEMPT

File Number:
0137939-022 EE

FOR PERMITTING
NOT FOR CONSTRUCTION



CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR

COVER SHEET AND VICINITY MAP

KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH, INC.
759 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed by:
--
Drawn By:
F. MARTINEZ
Reviewed By:
D. FRCDHAM
Date:
1/25/18
Design file no:
KW_SC_PERMIT_COVER.V1.DWG
Scale:
AS SHOWN

Sheet Reference:
G-001
Sheet 1 of 12

Received
Electronically
Jan 26, 2018
South District



FOR PERMITTING
NOT FOR CONSTRUCTION



CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR

KEY WEST BIGHT LOCATION AND ACCESS

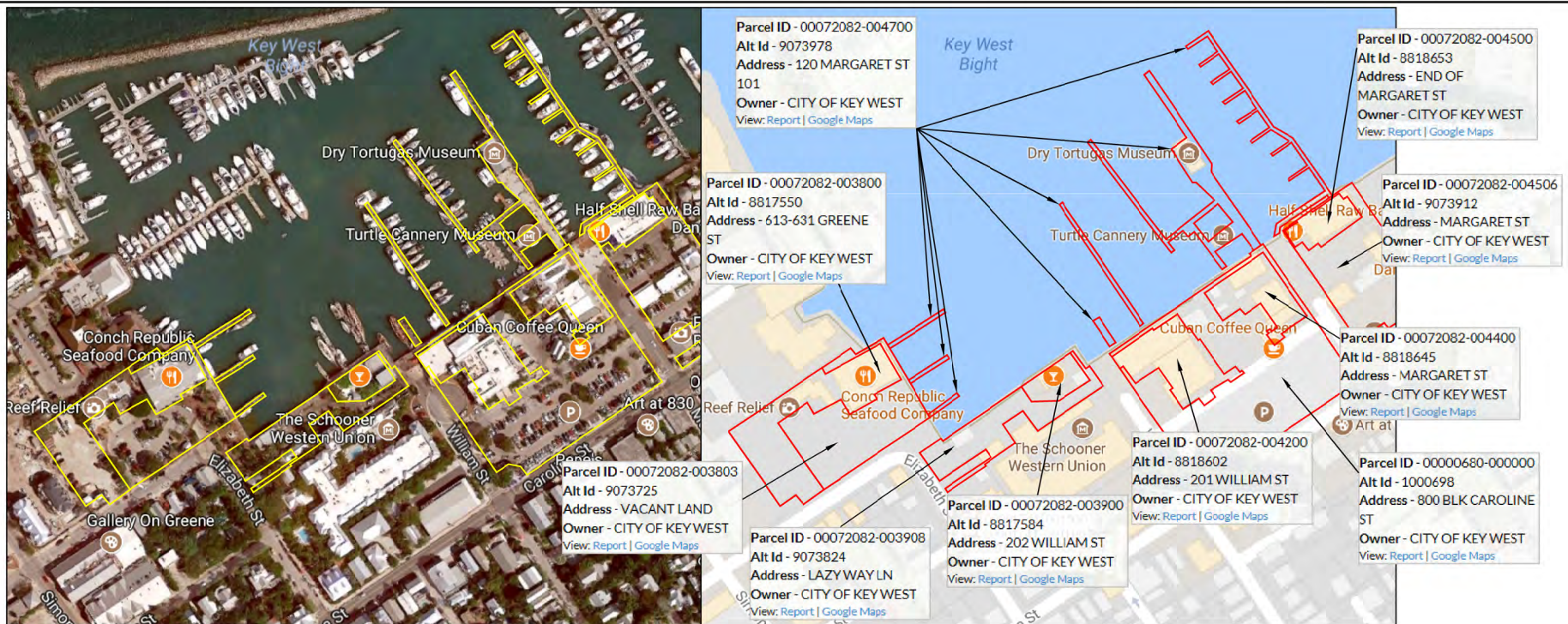
KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH, INC.
759 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-3400
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CERTIFICATE OF AUTHORIZATION
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Designed by:
--
Drawn By:
F. MARTINEZ
Reviewed By:
D. FRODSHAM
Date:
1/25/18
Design file no:
KW_SC_PERMIT_COVER.V1.DWG
Scale:
AS SHOWN

Sheet Reference:
G-002
Sheet 2 of 12



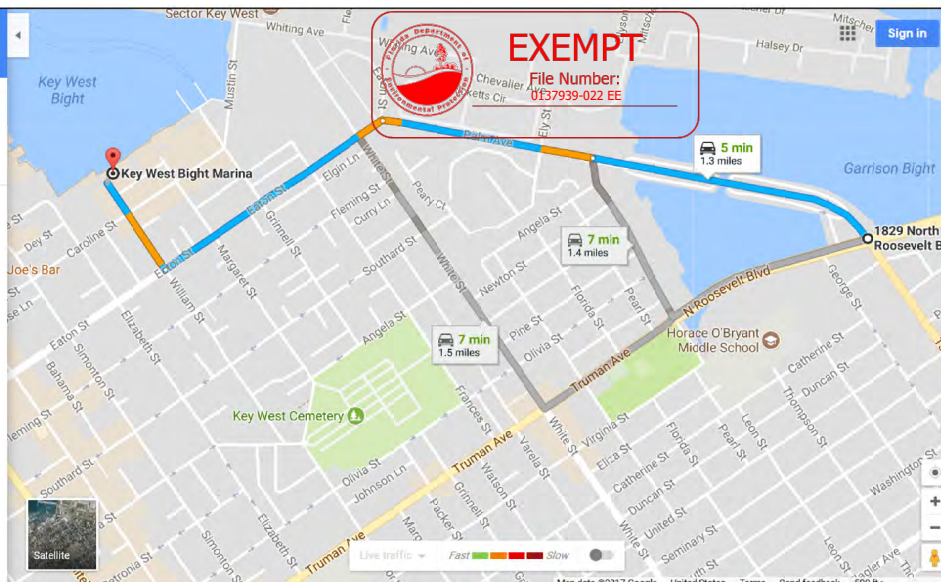
From 1829 N Roosevelt Blvd, Key West, FL 33040
To Key West Bight Marina, 201 William St, Key West, FL 33040

5 min (1.3 miles)
via Palm Avenue Causeway and Eaton St
Fastest route, the usual traffic

1829 N Roosevelt Blvd
Key West, FL 33040

- ↑ Head northwest on 1st St
10 ft
- ↑ Continue onto Palm Avenue Causeway
0.4 mi
- ↑ Continue onto Palm Ave
0.3 mi
- ↑ Continue onto Eaton St
0.4 mi
- ➡ Turn right onto William St
0.2 mi

Key West Bight Marina
201 William St, Key West, FL 33040



Received Electronically
Jan 26, 2018
South District

**FOR PERMITTING
NOT FOR CONSTRUCTION**



**CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR**

VICINITY MAP AND DIRECTIONS TO SITE

KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH, INC.
759 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed by:
F. MARTINEZ
Reviewed By:
D. FRODSHAM
Date:
1/25/18
Design file no:
KW_SC_PERMIT_COVER_V1.DWG
Scale:
AS SHOWN

Sheet Reference:
G-003
Sheet 3 of 12

Custom Soil Resource Report
Soil Map



Monroe County, Keys Area, Florida (FL687)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5	Islamorada muck, tidal	9.5	0.2%
7	Udorthents-Urban land complex	272.0	6.3%
11	Urban land	1,529.2	35.2%
13	Keyvaca very gravelly loam, extremely stony	21.5	0.5%
18	Beaches	10.5	0.2%
99	Water	18.2	0.4%
100	Waters of the Atlantic Ocean	2,181.5	50.2%
Subtotals for Soil Survey Area		4,042.3	93.0%
Totals for Area of Interest		4,345.4	100.0%

PROJECT LOCATION -
RELEVANT SOIL
CLASSIFICATIONS:
#11 & #100



EXEMPT

File Number:
0137939-022 EE

11—Urban land

Map Unit Setting

National map unit symbol: vnh
Elevation: 0 to 10 feet
Mean annual precipitation: 30 to 51 inches
Mean annual air temperature: 72 to 82 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Islands
Landform position (three-dimensional): Interflure, tall
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Properties and qualities

Slope: 0 to 1 percent
Frequency of flooding: Rare

Interpretive groups

Land capability classification (irrigated): None specified
Other vegetative classification: Forage suitability group not assigned
(G156AC99FL)

Minor Components

Udorthents

Percent of map unit: 3 percent
Landform: Islands
Landform position (three-dimensional): Interflure
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned
(G156AC99FL)

Beaches, tidal

Percent of map unit: 2 percent
Landform: Beaches on islands
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned
(G156AC99FL)

100—Waters of the Atlantic Ocean

Map Unit Composition

Waters of the atlantic ocean: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Waters Of The Atlantic Ocean

Interpretive groups

Land capability classification (irrigated): None specified
Other vegetative classification: Forage suitability group not assigned
(G156AC99FL)

Received
Electronically

Jan 26, 2018

South District



FOR PERMITTING
NOT FOR CONSTRUCTION



CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR

USDA/NRCS SOIL MAP

KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH, INC.
759 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed by:

Drawn By:

Reviewed By:

Date:

Design file no:

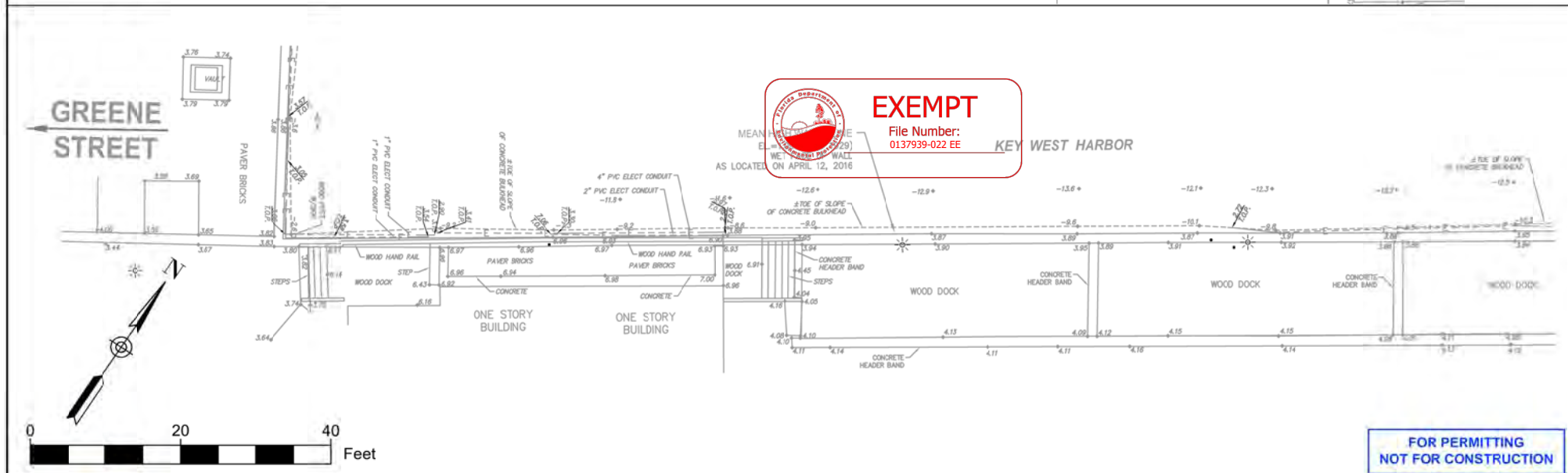
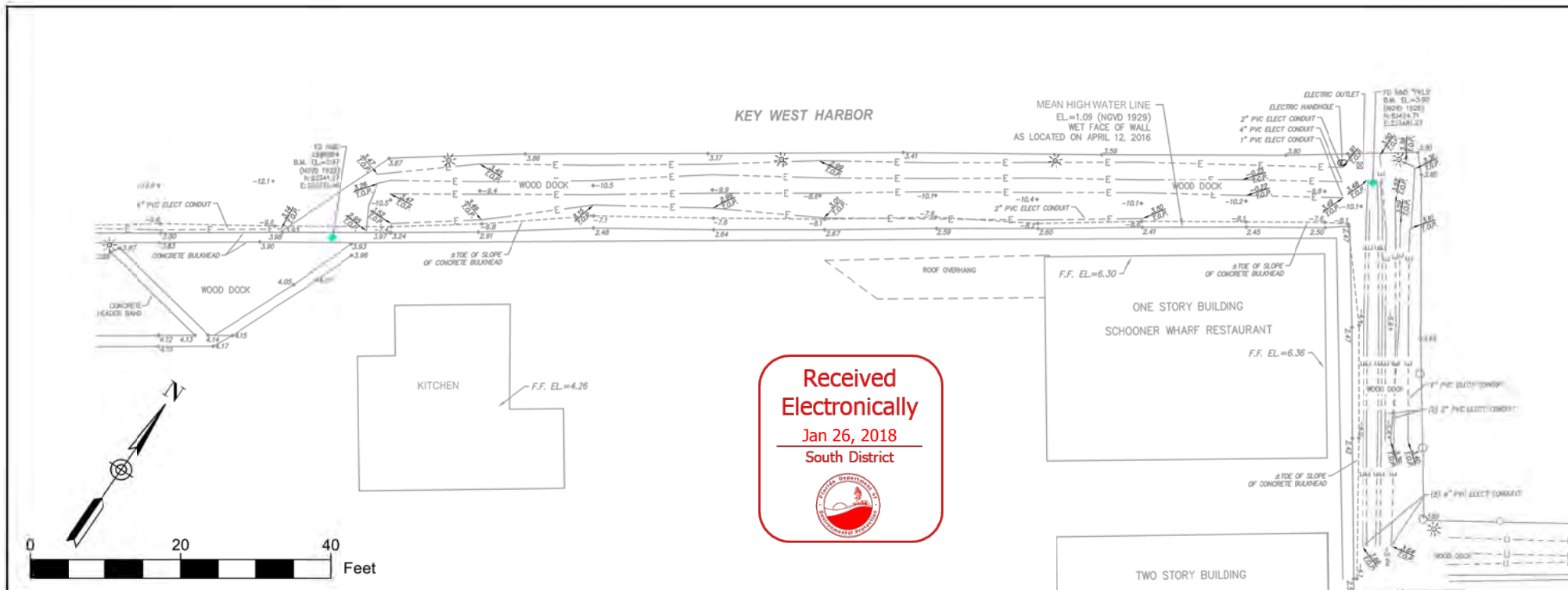
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G-004

Sheet 4 of 12



CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR

 SEAWALL PLAN VIEW

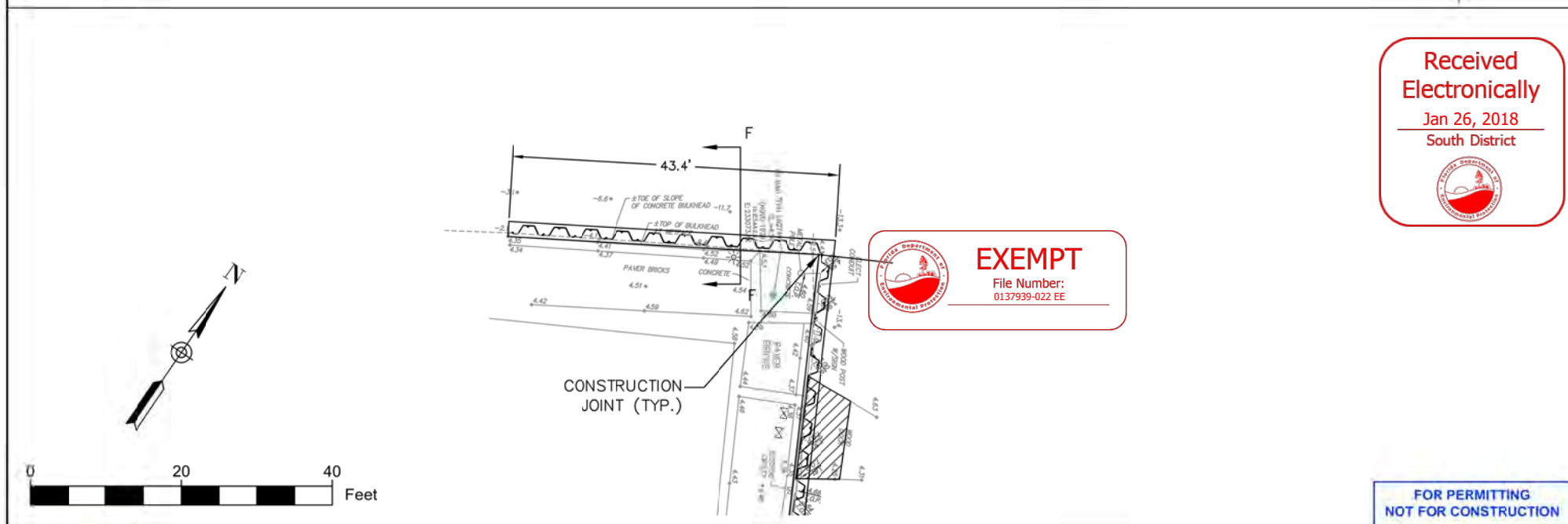
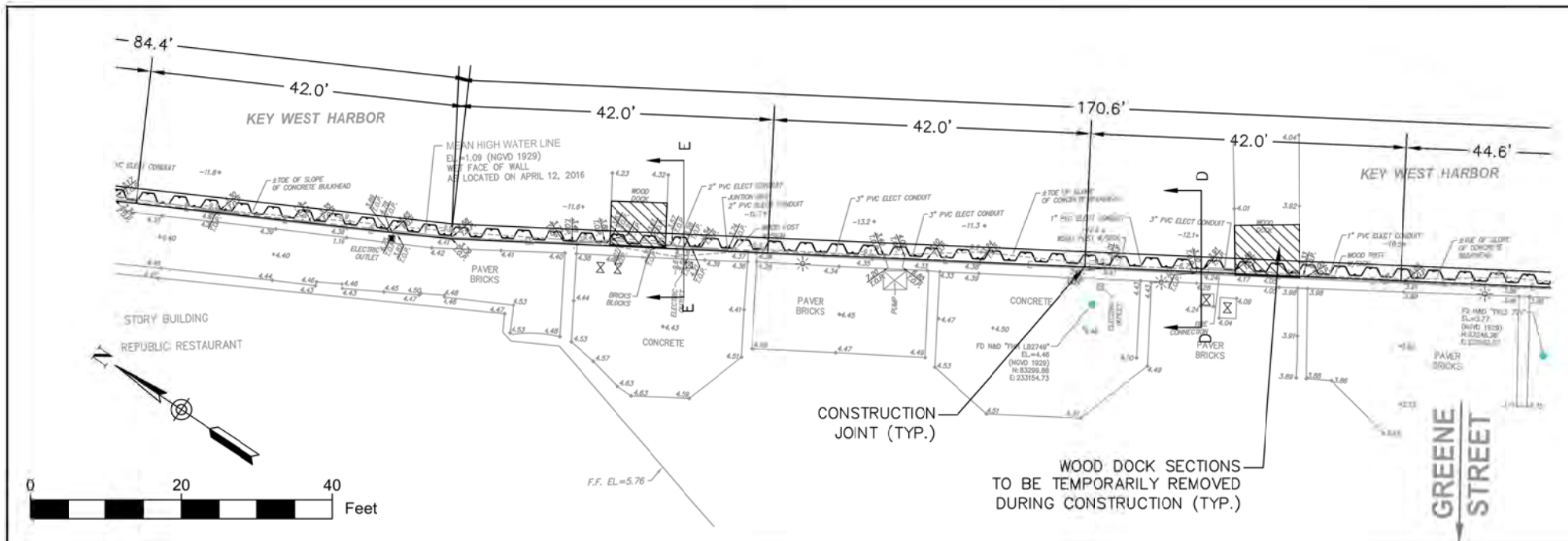
 KEY WEST, MONROE COUNTY, FLORIDA



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 NO. 2429

Designed by:
 Drawn By:
 F. MARTINEZ
 Reviewed By:
 D. FRODSHAM
 Date:
 1/25/18
 Design file no:
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C-101
 Sheet 5 of 12



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CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR

SEAWALL REPAIR DESIGN PLAN VIEW

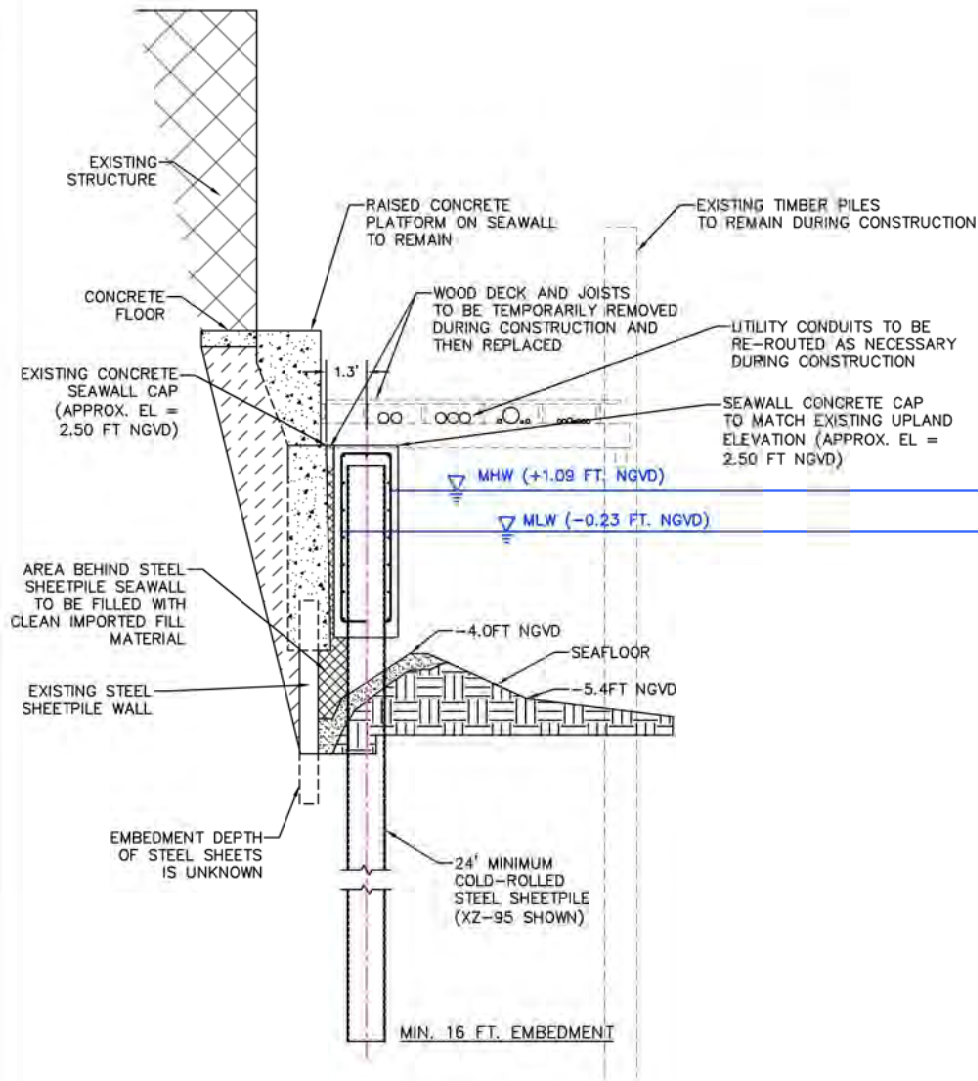
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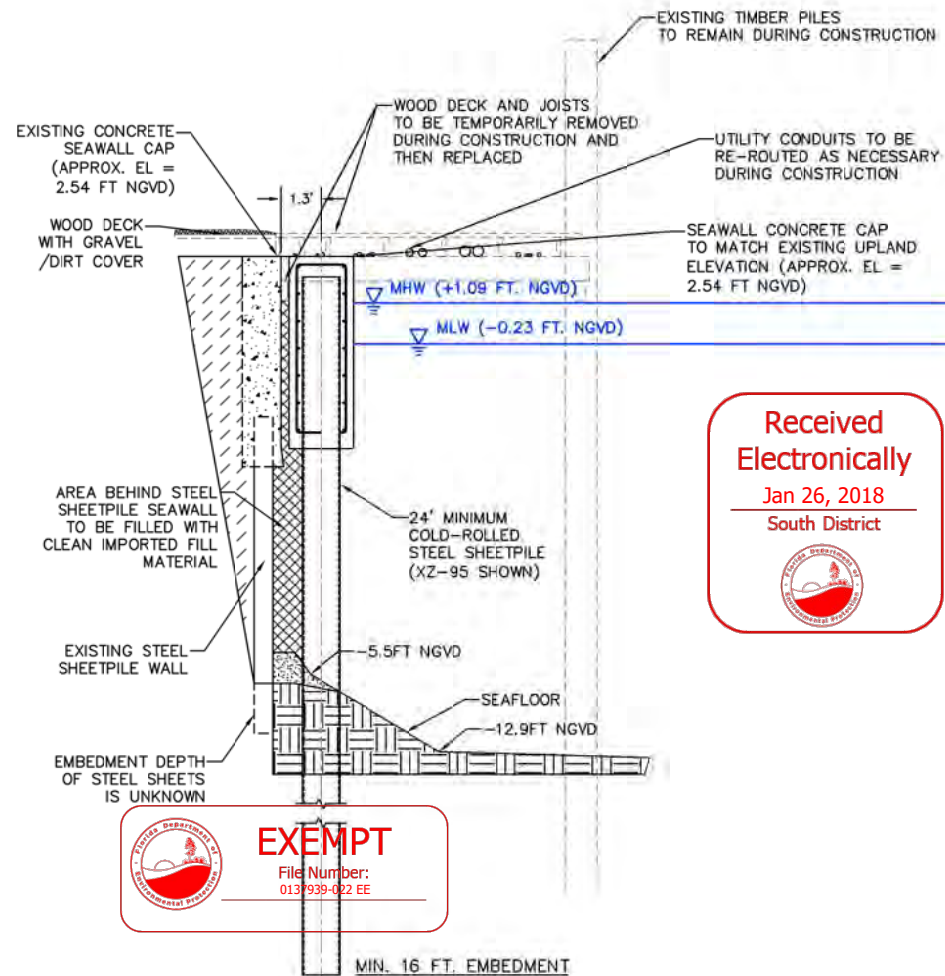
TETRA TECH, INC.
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C-104
Sheet 8 of 12



CROSS-SECTION A-A



CROSS-SECTION B-B

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EXEMPT

File Number:
013/939-022 EE

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CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR

SEAWALL REPAIR CROSS-SECTIONS

KEY WEST, MONROE COUNTY, FLORIDA



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Reviewed By:
D. FRODSHAM

Date:
1/25/18

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KY_SC_PERMIT_DESIGN_V1.DWG

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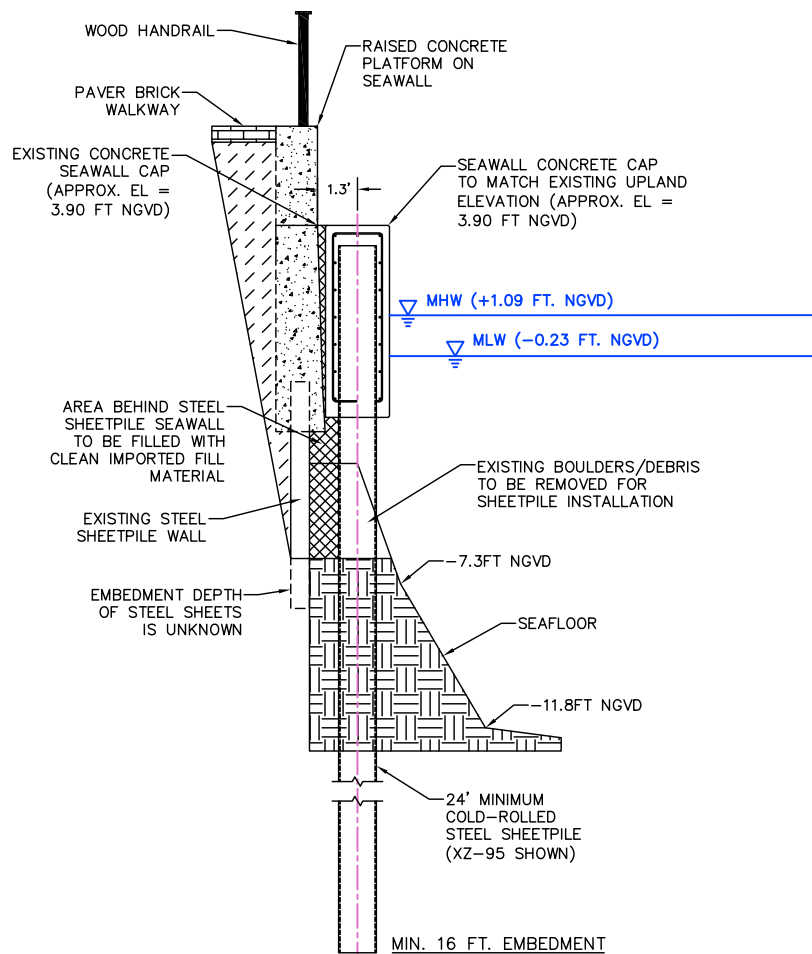
C-105

Sheet 9 of 12

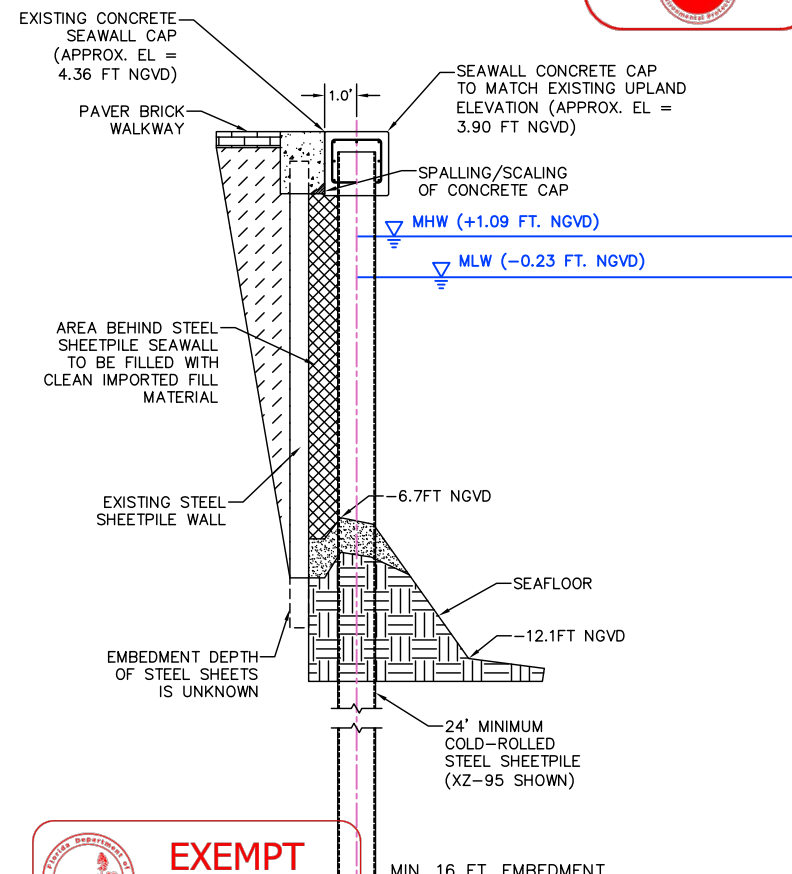
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South District



CROSS-SECTION C-C



CROSS-SECTION D-D



EXEMPT

File Number:
0137939-022 EE

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**CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR**

SEAWALL REPAIR CROSS-SECTIONS

KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH, INC.
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CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed by:

Drawn By:

Reviewed By:

Date:

1/25/18

Design file no:

KW_SC_PERMIT_DESIGN_V1.DWG

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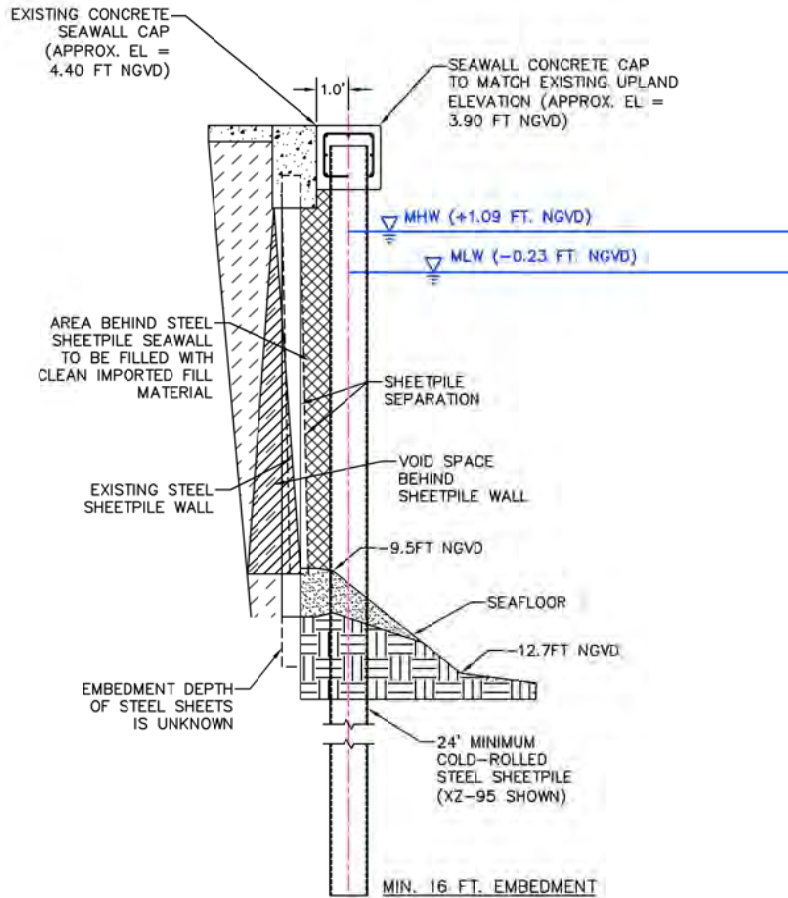
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C-106

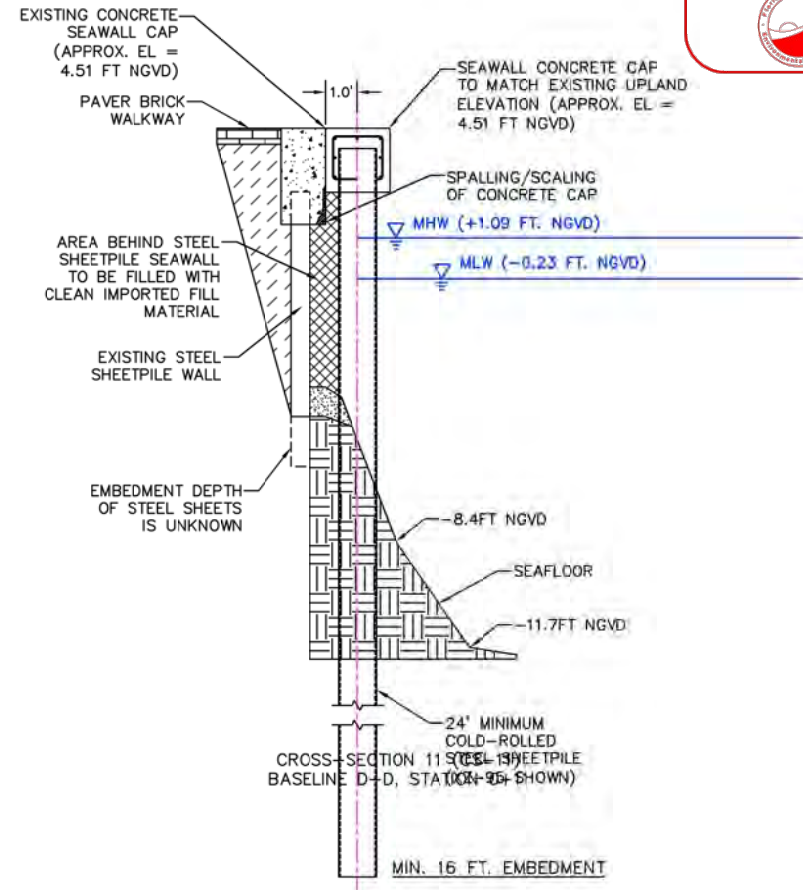
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South District



CROSS-SECTION E-E



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File Number:
0137939-022 EE

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CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR

SEAWALL REPAIR CROSS-SECTIONS

KEY WEST, MONROE COUNTY, FLORIDA



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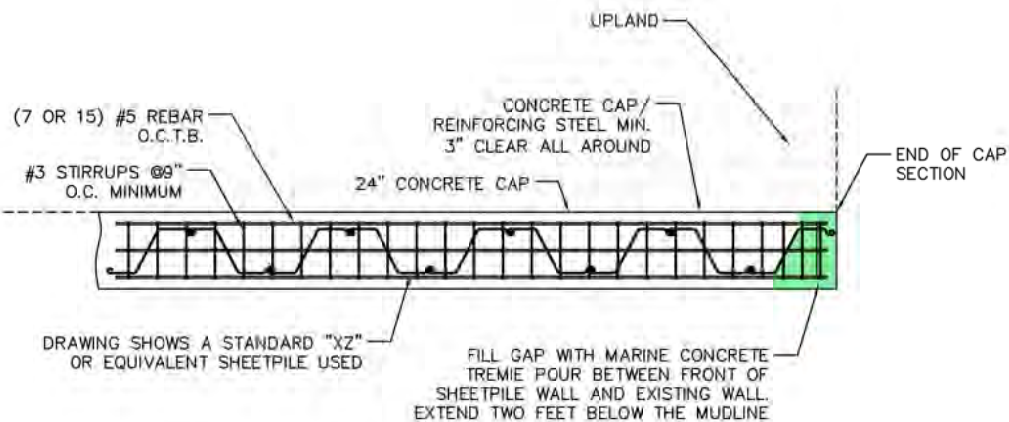
Designed by:
Drawn By:
F. MARTINEZ
Reviewed By:
D. FRODSHAM
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C-107
Sheet 11 of 12

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TYPICAL END REINFORCEMENT DETAIL

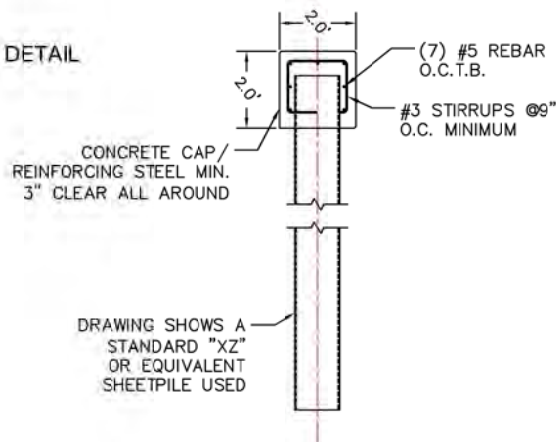
TYPICAL STEEL SHEETPILE SEAWALL:

CONCRETE CAP

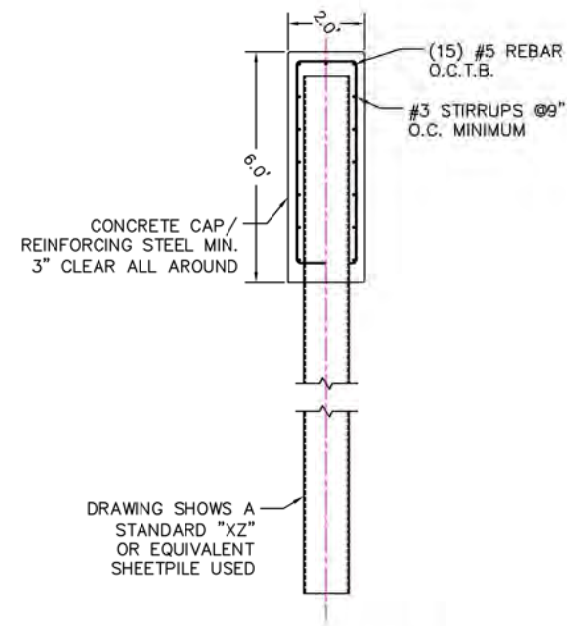
- CONCRETE $f'_c = 6,000$ PSI IN 28-DAYS
- 1" CHAMFER ALL EXPOSED EDGES

XZ-95 STEEL SHEET PILE SPECIFICATIONS

- WIDTH 25.00 IN.
- HEIGHT 14.12 IN.
- THICKNESS 0.375 IN.
- SECTIONAL AREA 15.20 SQ. IN. PER LIN. FT.
- WEIGHT OF PILE 51.70 LB. PER LIN. FT.
- WEIGHT OF WALL 24.80 LB. PER SQ. FT.
- SECTION MODULUS 33.50 IN.⁴ PER LIN. FT.
- MOMENT OF INERTIA 237.0 IN.⁴ PER LIN. FT.
- COATING AREA BOTH SIDES 6.03 SQ. FT. PER LIN. FT.



SHORT CAP SHEETPILE LAYOUT



LONG CAP SHEETPILE LAYOUT



EXEMPT

File Number:
0137939-022 EE

FOR PERMITTING
NOT FOR CONSTRUCTION



CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR

DETAILS

KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH, INC.
759 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed by:

Drawn By:

F. MARTINEZ

Reviewed By:

D. FRODSHAM

Date:

1/25/18

Design file no:

KW_SC_PERMIT_DESIGN_V1.DWG

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Sheet Reference:

C-108

Sheet 12 of 12

62-330.051 Exempt Activities.

The activities meeting the limitations and restrictions below are exempt from permitting. However, if located in, on, or over state-owned submerged lands, they are subject to a separate authorization under Chapters 253 and 258, F.S., and Chapters 18-18, 18-20, and 18-21, F.A.C., as applicable.

(12) Construction, Replacement, Restoration, Enhancement, and Repair of Seawall, Riprap, and Other Shoreline Stabilization –

(b) The restoration of a seawall or riprap under Section 403.813(1)(e), F.S., where:

1. The seawall or riprap has been damaged or destroyed within the last year by a discrete event, such as a storm, flood, accident, or fire or where the seawall or rip rap restoration or repair involves only minimal backfilling to level the land directly associated with the restoration or repair and does not involve land reclamation as the primary project purpose, as further explained in section 3.2.4 of Volume I;

2. Restoration shall be no more than 18 inches waterward of its previous location, as measured from the waterward face of the existing seawall to the face of the restored seawall, or from the waterward slope of the existing riprap to the waterward slope of the restored riprap;

3. Applicable permits under Chapter 161, F.S., are obtained.

Chapter 403.813 Permits issued at district centers; exceptions.

(1) A permit is not required under this chapter, chapter 373, chapter 61-691, Laws of Florida, or chapter 25214 or chapter 25270, 1949, Laws of Florida, for activities associated with the following types of projects; however, except as otherwise provided in this subsection, this subsection does not relieve an applicant from any requirement to obtain permission to use or occupy lands owned by the Board of Trustees of the Internal Improvement Trust Fund or a water management district in its governmental or proprietary capacity or from complying with applicable local pollution control programs authorized under this chapter or other requirements of county and municipal governments:

(e) The restoration of seawalls at their previous locations or upland of, or within 18 inches waterward of, their previous locations. However, this shall not affect the permitting requirements of chapter 161, and department rules shall clearly indicate that this exception does not constitute an exception from the permitting requirements of chapter 161.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

Florida Keys National Marine Sanctuary

33 East Quay Road
Key West, FL 33040

August 13, 2018

Ms. Gletys Guardia-Montoya
Department of the Army Jacksonville District Corps of Engineers
Miami Regulatory Office
9900 Southwest 107th Avenue, Suite 203
Miami, FL 33176

Dear Ms. Guardia-Montoya:

NOAA Florida Keys National Marine Sanctuary (FKNMS or sanctuary) has reviewed revised plans (dated June 12, 2018) for Department of the Army Corps of Engineers (DA Corps) application no. 2017-01874 (NW-GGM). The applicant, City of Key West, is requesting a permit to conduct repairs by installing a concrete footer along approximately 430 linear feet of seawall at Turtle Kraals, 231 Margaret Street, Key West, Monroe County, FL. A benthic survey provided by the applicant's agent documented small stony corals in the construction area. The proposed activity is prohibited by FKNMS regulations at 15 CFR § 922.163(a)(2).

NOAA appreciates the applicant's willingness to mitigate for unavoidable impacts to corals and to remove debris at the project site. These actions will preserve the functional value of the resources that may be impacted by the project. Therefore, pursuant to 15 CFR § 922.49, NOAA does not object to the issuance of a DA Corps permit for the project as proposed, and a separate FKNMS permit will not be required, **if the attached measures are enacted by the applicant (City of Key West) or their agent/contractor**. These terms and conditions have been deemed reasonable to protect sanctuary resources and qualities per NOAA authority at 15 CFR § 922.49.

This determination is only applicable to DA Corps application no. 2017-01874 (NW-GGM). If any changes are made to the project description in the application, DA Corps shall notify NOAA and this letter of authorization will be rescinded. Upon such notification, NOAA shall re-review the project and special conditions and provide a supplementary determination. Further information on sanctuary permit review and authorization is set forth at 15 CFR § 922.49.

This project has been assigned authorization #FKNMS-2017-097-A1. Please contact FKNMS Permit Coordinator Joanne Delaney at Joanne.Delaney@noaa.gov if you have questions about the sanctuary's determination on this project. Thank you for your continued cooperation with the Florida Keys National Marine Sanctuary.

Sincerely,

Sarah Fangman
Superintendent

cc: Dave Frodsham, Francisco Martinez, Tetra Tech



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

Florida Keys National Marine Sanctuary

33 East Quay Road
Key West, FL 33040

NOAA Florida Keys National Marine Sanctuary
Required Conditions for City of Key West seawall repairs
Authorization #FKNMS-2017-097-A1

1. All debris along the seawall repair area, and any other observable debris in the vicinity of the project, must be removed from waters of FKNMS and disposed of at an authorized upland waste disposal facility.
2. No construction debris may be deposited in waters of FKNMS at or near the project site at any time. A post-construction benthic survey to inspect compliance with this condition may be required. Should construction debris be evident in adjacent waters, the applicant or his agent will be required to clean up all items immediately and mitigate for any resource injury.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

Florida Keys National Marine Sanctuary

33 East Quay Road
Key West, FL 33040

August 13, 2018

Ms. Gletys Guardia-Montoya
Department of the Army Jacksonville District Corps of Engineers
Miami Regulatory Office
9900 Southwest 107th Avenue, Suite 203
Miami, FL 33176

Dear Ms. Guardia-Montoya:

NOAA Florida Keys National Marine Sanctuary (FKNMS or sanctuary) has reviewed Department of the Army Corps of Engineers (DA Corps) application no. 2018-00288 (NW-GGM). The applicant, City of Key West, is requesting a permit to conduct seawall repairs in the Key West Bight Marina (approximately 700 linear feet between the Schooner Wharf and the Conch Republic buildings), located at 120 Margaret Street, Key West, Monroe County, FL. A benthic survey provided by the applicant's agent documented small stony corals in the construction area. The proposed activity is prohibited by FKNMS regulations at 15 CFR § 922.163(a)(2).

NOAA appreciates the applicant's willingness to mitigate for unavoidable impacts to corals and to remove debris at the project site. These actions will preserve the functional value of the resources that may be impacted by the project. Therefore, pursuant to 15 CFR § 922.49, NOAA does not object to the issuance of a DA Corps permit for the project as proposed, and a separate FKNMS permit will not be required, **if the attached measures are enacted by the applicant (City of Key West) or their agent/contractor**. These terms and conditions have been deemed reasonable to protect sanctuary resources and qualities per NOAA authority at 15 CFR § 922.49.

This determination is only applicable to DA Corps application no. 2018-00288 (NW-GGM). If any changes are made to the project description in the application, DA Corps shall notify NOAA and this letter of authorization will be rescinded. Upon such notification, NOAA shall re-review the project and special conditions and provide a supplementary determination. Further information on Sanctuary permit review and authorization is set forth at 15 CFR § 922.49.

This project has been assigned authorization #FKNMS-2018-107. Please contact FKNMS Permit Coordinator Joanne Delaney at Joanne.Delaney@noaa.gov if you have questions about the sanctuary's determination on this project. Thank you for your continued cooperation with the Florida Keys National Marine Sanctuary.

Sincerely,

Sarah Fangman
Superintendent

cc: Dave Frodsham, Tetra Tech



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

Florida Keys National Marine Sanctuary
33 East Quay Road
Key West, FL 33040

NOAA Florida Keys National Marine Sanctuary
Required Conditions for City of Key West seawall repairs
Authorization #FKNMS-2018-107

1. All debris along the seawall repair area, and any other observable debris in the vicinity of the project, must be removed from waters of FKNMS and disposed of at an authorized upland waste disposal facility.
2. No construction debris may be deposited in waters of FKNMS at or near the project site at any time. A post-construction benthic survey to inspect compliance with this condition may be required. Should construction debris be evident in adjacent waters, the applicant or his agent will be required to clean up all items immediately and mitigate for any resource injury.



DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
MIAMI REGULATORY OFFICE
9900 SOUTHWEST 107th Ave, SUITE 203
MIAMI, FLORIDA 33176

REPLY TO
ATTENTION OF

September 13, 2018

Regulatory Division
South Permits Branch
Miami Section
SAJ-2018-00288-(NW-GGM)

City of Key West
Doug Bradshaw, Director, Port of Marine Services
201 William Street
Key West, FL 33040

Dear Mr. Bradshaw:

Your application for a Department of the Army permit received on February 1, 2018, has been assigned number SAJ-2018-00288. A review of the information and drawings provided to the Corps shows the work is to repair 700 linear feet of an existing concrete seawall. The work consist on the installation of a new 1,364-square feet sheet-pile seawall with the placement of a maximum of 338 cubic yard of clean fill material and the temporary removal of wood deck sections. The new seawall shall have a maximum extension of 18" inches into the waterway from the wet face of the existing seawall, as depicted on the approved, attached, drawings (12 pages) date stamped September 13, 2018, by the Corps. Temporarily turbidity curtains will be deployed and will remain in place for the duration of all in-water activities, in/over waters of the United States. No dredging activity shall take place under this authorization. Any debris removal shall occur by hand only. Work is in/over U.S. navigable waters in accordance with the enclosed site drawings (12 pages).

The project would affect waters of the United States associated with Key West Bight. The project site is located at 120 Margaret Street 101, from the Schooner Wharf Bar to the Conch Republic Seafood Company, along the shoreline, in the Historic Waterfront of the Old Town District of Key West; legally described as, Submerged lands (aka Leased Bay Bottom/Docks within Key West Bight; in Section 31, Township 67 South, Range 25 East, Key West, Monroe County, Florida 33040. (RE#s 00072082-004700). (MM± 1).

Central Geographic Position: Latitude: 24.5600874° North
Longitude: 81.802153° West

Your project, as depicted on the enclosed drawings, is authorized by Nationwide Permit (NWP) Number 3. In addition, project specific conditions have been enclosed. This verification is valid until **March 18, 2022**. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide

permit is modified or revoked, you will have 12 months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this nationwide permit. Please access the U.S. Army Corps of Engineers' (Corps) Jacksonville District's Regulatory Internet page to access Internet links to view the Final Nationwide Permits, Federal Register Vol. 82, dated January 6, 2017, specifically pages 1983 to 2008, and the table of Regional Conditions. The Internet page address is:

<http://www.saj.usace.army.mil/Missions/Regulatory.aspx>

Please be aware this Internet address is case sensitive and should be entered as it appears above. Once there you will need to click on "Source Book"; and, then click on "Nationwide Permits." These files contain the description of the Nationwide Permit authorization, the Nationwide Permit general conditions, and the regional conditions, which apply specifically to this verification for NWP 3. Enclosed is a list of the six General Conditions, which apply to all Department of the Army authorizations. You must comply with all of the special and general conditions and any project specific condition of this authorization or you may be subject to enforcement action. In the event you have not completed construction of your project within the specified time limit, a separate application or re-verification may be required.

The following project-specific conditions are included with this authorization:

1. REPORTING ADDRESS: The Permittee shall submit all reports, notifications, documentation and correspondence required by the general and special conditions of this permit to the following address:

- a. For standard mail: U.S. Army Corps of Engineers, Regulatory Division, Special Projects and Enforcement Branch, 9900 Southwest 107th Avenue, Suite 203, Miami, Florida 33176.
- b. For electronic mail CESAJ-ComplyDocs@usace.army.mil (not to exceed 10 MB).

The Permittee shall reference this permit number, SAJ-2018-00288-(NW-3-GGM), on all submittals.

2. SELF-CERTIFICATION: Within 60 days of completion of the work authorized by this permit, the Permittee shall complete the attached "Self-Certification Statement of Compliance" form (Attached) and submit it to the Corps. In the event that the completed work deviates in any manner from the authorized work, the Permittee shall describe the deviations between the work authorized by this permit and the work as

constructed on the "Self-Certification Statement of Compliance" form. The description of any deviations on the "Self-Certification Statement of Compliance" form does not constitute approval of any deviations by the Corps.

3. ASSURANCE OF NAVIGATION AND MAINTENANCE: The Permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structures or work herein authorized, or if in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the Permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

4. SEA TURTLE AND SMALLTOOTH SAWFISH CONDITIONS: The Permittee shall comply with National Marine Fisheries Service's "Sea Turtle and Smalltooth Sawfish Construction Conditions," dated March 23, 2006, attached to this permit.

5. MANATEE CONDITIONS: The Permittee shall comply with the "Standard Manatee Conditions for In-Water Work – 2011" (Attached).

6. POSTING OF PERMIT: The Permittee shall ensure that all contractors, sub-contractors, and entities associated with the implementation of the project review, understand, and comply with the approved plans and special conditions made part of this permit. The Permittee shall inform all parties associated with the activity of the construction area boundaries and the location of adjacent resources (SARs) (i.e. corals, seagrass) to be avoided and/or relocated. Complete copies of the permit and approved plans shall be available at the construction site at all times. Failure to comply with the approved plans and permit special conditions may subject the Permittee to enforcement action.

7. AGENCY CHANGES/APPROVALS: Should any other agency require and/or approve changes to the work authorized or obligated by this permit, the Permittee is advised a re-verification to this permit instrument is required prior to initiation of those changes. It is the Permittee's responsibility to request a re-verification of this permit from the **Miami** Permits Section. The Corps reserves the right to fully evaluate, amend, and approve or deny the request for modification of this permit.

8. HISTORIC PROPERTIES:

a. No structure or work shall adversely affect impact or disturb properties listed in the National Register of Historic Places (NRHP) or those eligible for inclusion in the NRHP.

b. If during the ground disturbing activities and construction work within the permit area, there are archaeological/cultural materials encountered which were not the subject of a previous cultural resources assessment survey (and which shall include, but not be limited to: pottery, modified shell, flora, fauna, human remains, ceramics, stone tools or metal implements, dugout canoes, evidence of structures or any other physical remains that could be associated with Native American cultures or early colonial or American settlement), the Permittee shall immediately stop all work and ground-disturbing activities within a 100-meter diameter of the discovery and notify the Corps within the same business day (8 hours). The Corps shall then notify the Florida State Historic Preservation Officer (SHPO) and the appropriate Tribal Historic Preservation Officer(s) (THPO(s)) to assess the significance of the discovery and devise appropriate actions.

c. Additional cultural resources assessments may be required of the permit area in the case of unanticipated discoveries as referenced in accordance with the above Special Condition ; and if deemed necessary by the SHPO, THPO(s), or Corps, in accordance with 36 CFR 800 or 33 CFR 325, Appendix C (5). Based, on the circumstances of the discovery, equity to all parties, and considerations of the public interest, the Corps may modify, suspend or revoke the permit in accordance with 33 CFR Part 325.7. Such activity shall not resume on non-federal lands without written authorization from the SHPO for finds under his or her jurisdiction, and from the Corps.

d. In the unlikely event that unmarked human remains are identified on non-federal lands, they will be treated in accordance with Section 872.05 Florida Statutes. All work and ground disturbing activities within a 100-meter diameter of the unmarked human remains shall immediately cease and the Permittee shall immediately notify the medical examiner, Corps, and State Archeologist within the same business day (8-hours). The Corps shall then notify the appropriate SHPO and THPO(s). Based, on the circumstances of the discovery, equity to all parties, and considerations of the public interest, the Corps may modify, suspend or revoke the permit in accordance with 33 CFR Part 325.7. Such activity shall not resume without written authorization from the State Archeologist and from the Corps.

9. BEST MANAGEMENT PRACTICE (BMP): Environmental controls and BMP must be implemented to properly contain construction materials and prevent fugitive particulates from entering surrounding waters during construction.

10. FILL MATERIAL: The Permittee shall use only clean fill material for this project. The fill material shall be free from items such as trash, debris, automotive parts, asphalt, construction materials, concrete block with exposed reinforcement bars, and soils contaminated with any toxic substance, in toxic amounts in accordance with Section 307 of the Clean Water Act.

11. Project Design Criteria (PDCs) For In-Water Activities: The Permittee shall comply with National Marine Fisheries Service's "PDCs for In-Water Activities" dated November 20, 2017 (Attached).

12. TURBIDITY CONTROLS:

- a. Shall be used throughout construction to control erosion and siltation and ensure that turbidity levels within the project area do not exceed background conditions.
- b. Shall be made of material in which listed species cannot become entangled (i.e., reinforced impermeable polycarbonate vinyl fabric [PVC]), and shall be monitored to ensure listed species are not entangled or trapped in the project area.
- c. Shall be removed promptly when the work is complete and the water quality in the project area has returned to background conditions.
- d. Shall not block entry to or exit from designated critical habitat.

13. EDUCATIONAL SIGNS: Signs must be posted in a visible location(s), alerting users of listed species in the area susceptible to vessel strikes and hook-and-line captures. The most current version of the signs that must be downloaded and sign installation guidance are available at:

(http://sero.nmfs.noaa.gov/protected_resources/section_7/protected_species_education_al_signs/index.html). The signs required to be posted by area are stated below:

- All projects in Florida shall use the Save Sea Turtle, Sawfish, and Dolphin sign. These signs shall include contact information to the sea turtle and marine mammal stranding networks and smalltooth sawfish encounter database.

14. Monofilament Recycling Bins: Monofilament recycling bins must be provided at the docking facility to reduce the risk of turtle or sawfish entanglement in, or ingestion of, marine debris. Monofilament recycling bins must:

- Be constructed and labeled according to the instructions provided at <http://mrrp.myfwc.com>.
- Be maintained in working order and emptied frequently (according to <http://mrrp.myfwc.com> standards) so that they do not overflow.

15. DAYLIGHT HOURS: All activities must be completed during daylight hours.

16. CONSTRUCTION LOCATION: Project construction shall take place from uplands or from floating equipment (e.g., barge); prop or wheel-washing is prohibited.

17. NOISE EFFECTS BMPS: All projects shall comply with the requirements of the attached "Noise Best Management Practices (BMPs) for Piling Installation" (Attached).

18. LIGHTING: If lighting is necessary, then turtle-friendly lighting shall be installed. Turtle-friendly lighting is explained and examples are provided on the Florida Fish and Wildlife Conservation Commission website:

<http://myfwc.com/wildlifehabitats/managed/sea-turtles/lighting/>

19. FLORIDA KEYS NATIONAL MARINE SANCTUARY: This Corps permit does not authorize you to damage, diminish, degrade, impair, destroy, or otherwise harm any Florida Keys National Marine Sanctuary (FKNMS) trust resource. In order to legally conduct your work, you are provided with a copy of the FKNMS permit #2018-107, dated August 13, 2018. You must understand and agree to comply with the provisions of this document. The FKNMS letter contains mandatory terms and conditions. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with the FKNMS requirements, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions would constitute noncompliance with your Corps permit. The FKNMS is the appropriate authority to determine compliance with the terms and conditions of its requirements and with the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1432).

20. POST-CONSTRUCTION BENTHIC SURVEY: The Permittee shall provide a post construction benthic survey within 60 days from the completion of the authorized work.

21. PROJECT DRAWINGS: The project must be completed in accordance with the enclosed construction drawings (12 pages), date-stamped by the U.S. Army Corps of Engineers (Corps) on September 13, 2018 and the general and special conditions which are incorporated in, and made a part of, the permit.

This authorization does not include conditions that would prevent the 'take' of a state-listed fish or wildlife species. These species are protected under sec. 379.411, Florida Statutes, and listed under Rule 68A-27, Florida Administrative Code. With regard to fish and wildlife species designated as species of special concern or threatened by the State of Florida, you are responsible for coordinating directly with the Florida Fish and Wildlife Conservation Commission (FWC). Permittees can visit the FWC license and permitting webpage (<http://www.myfwc.com/license/wildlife/>) for more information, including a list of those fish and wildlife species designated as species of special

concern or threatened. The Florida Natural Areas Inventory (<http://www.fnai.org/>) also maintains updates lists, by country, of documented occurrences of those species.

This letter of authorization does not give absolute Federal authority to perform the work as specified on your application. The proposed work may be subject to local building restrictions mandated by the National Flood Insurance Program. You should contact your local office that issues building permits to determine if your site is located in a flood-prone area, and if you must comply with the local building requirements mandated by the National Flood Insurance Program.

If you are unable to access the internet or require a hardcopy of any of the conditions, limitations, or expiration date for the above referenced GP, please contact Gletys Guardia-Montoya by telephone at 305-526-2515 or by email at Gletys.Guardia-Montoya@usace.army.mil.

Thank you for your cooperation with our permit program. The Corps Jacksonville District Regulatory Division is committed to improving service to our customers. We strive to perform our duty in a friendly and timely manner while working to preserve our environment. We invite you to take a few minutes to visit

<http://per2.nwp.usace.army.mil/survey.html> and complete our automated Customer Service Survey. Your input is appreciated – favorable or otherwise. Again, please be aware this web address is case sensitive and should be entered as it appears above.

Sincerely,

Gletys Guardia-Montoya
Project Manager

Enclosures:

General Conditions

Self-Certification Statement of Compliance

Permit Transfer Request

Approved Drawings (12 pages) dated by the Corps September 13, 2018

FWS Standard Manatee Conditions for In-Water Work (2011)

NMFS Sea Turtle and Smalltooth Sawfish Construction Conditions (2006)

NMFS' "PDCs for In-Water Activities" dated November 20, 2017.

FKNMS Letter of Authorization #2018-107, dated August 13, 2018.

Copies Furnished via e-mail:

Applicant: City of Key West
Doug Bradshaw
dbradshaw@cityofkeywest-fl.gov

Agent: Tetra Tech, Inc.
Frodsham, Dave
Dave.Frodsham@tetrattech.com

CESAJ-RD-PE

GENERAL CONDITIONS

33 CFR PART 320-330

PUBLISHED FEDERAL REGISTER DATED 13 NOVEMBER 1986

1. The time limit for completing the work authorized ends on **date identified in the letter**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow a representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

SELF-CERTIFICATION STATEMENT OF COMPLIANCE

Permit Number: NW-GGM

Application Number: SAJ-2018-00288

Permittee's Name & Address (please print or type): _____

Telephone Number: _____

Location of the Work: _____

Date Work Started: _____ Date Work Completed: _____

PROPERTY IS INACCESSIBLE WITHOUT PRIOR NOTIFICATION: YES ___ NO ___

PLEASE CONTACT _____ AT _____

TO SCHEDULE AN INSPECTION

Description of the Work (e.g. bank stabilization, residential or commercial filling, docks, dredging, etc.):

Acreage or Square Feet of Impacts to Waters of the United States: _____

Describe Mitigation completed (if applicable): _____

Describe any Deviations from Permit (attach drawing(s) depicting the deviations):

I certify that all work, and mitigation (if applicable) was done in accordance with the limitations and conditions as described in the permit. Any deviations as described above are depicted on the attached drawing(s).

Signature of Permittee

Date

DEPARTMENT OF THE ARMY PERMIT TRANSFER REQUEST

PERMIT NUMBER: SAJ-2018-00288-(NW-GGM)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. Although the construction period for works authorized by Department of the Army permits is finite, the permit itself, with its limitations, does not expire.

To validate the transfer of this permit and the associated responsibilities associated with compliance with its terms and conditions, have the transferee sign and date below and mail to the U.S. Army Corps of Engineers, Enforcement Branch, Post Office Box 4970, Jacksonville, FL 32232-0019.

(TRANSFEREE-SIGNATURE)

(SUBDIVISION)

(DATE)

(LOT)

(BLOCK)

(NAME-PRINTED)

(STREET ADDRESS)

(MAILING ADDRESS)

(CITY, STATE, ZIP CODE)

**U.S. Army Corps of Engineers Jacksonville District's Programmatic Biological
Opinion (JaxBO) Project Design Criteria (PDCs) for In-Water Activities**

November 20, 2017

- 1) **(AP.7.) Education and Observation:** The permittee must ensure that all personnel associated with the project are instructed about the potential presence of species protected under the ESA and the Marine Mammal Protection Act (MMPA). All on-site project personnel are responsible for observing water-related activities for the presence of protected species. All personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing ESA-listed species or marine mammals. To determine which species may be found in the project area, please review the relevant Protected Species List at:
http://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/index.html
- 2) **(AP.8.) Reporting** of interactions with protected species:
 - a) Any collision(s) with and/or injury to any sea turtle, sawfish, whale, or sturgeon occurring during the construction of a project, shall be reported immediately to NMFS's Protected Resources Division (PRD) at (1-727-824-5312) or by email to takereport.nmfs@noaa.gov and SAJ-RD-Enforcement@usace.army.mil.
 - b) Smalltooth sawfish: Report sightings to 1-844-SAWFISH or email Sawfish@MyFWC.com
 - c) Sturgeon: Report dead sturgeon to 1-844-STURG 911 (1-844-788-7491) or email nmfs.ser.sturgeonnetwork@noaa.gov
 - d) Sea turtles and marine mammals: Report stranded, injured, or dead animals to 1-877-WHALE HELP (1-877-942-5343).
 - e) North Atlantic right whale: Report injured, dead, or entangled right whales to the USCG via VHF Channel 16.
- 3) **(AP.9.) Vessel Traffic and Construction Equipment:** All vessel operators must watch for and avoid collision with species protected under the ESA and MMPA. Vessel operators must avoid potential interactions with protected species and operate in accordance with the following protective measures:
 - a) *Construction Equipment:*
 - i) All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while operating in water depths where the draft of the vessel provides less than a 4-foot (ft) clearance from the bottom, and in all depths after a protected species has been observed in and has departed the area.
 - ii) All vessels will follow marked channels and/or routes using the maximum water depth whenever possible.
 - iii) Operation of any mechanical construction equipment, including vessels, shall cease immediately if a listed species is observed within a 50-ft radius of

construction equipment and shall not resume until the species has departed the area of its own volition.

- iv) If the detection of species is not possible during certain weather conditions (e.g., fog, rain, wind), then in-water operations will cease until weather conditions improve and detection is again feasible.

b) *All Vessels:*

- i) Sea turtles: Maintain a minimum distance of 150 ft.
- ii) North Atlantic right whale: Maintain a minimum 1,500-ft distance (500 yards).
- iii) Vessels 65 ft in length or longer must comply with the Right Whale Ship Strike Reduction Rule (50 CFR 224.105) which includes reducing speeds to 10 knots or less in Seasonal Management Areas (<http://www.fisheries.noaa.gov/pr/shipstrike/>).
- iv) Mariners shall check various communication media for general information regarding avoiding ship strikes and specific information regarding right whale sightings in the area. These include NOAA weather radio, USCG NAVTEX broadcasts, and Notices to Mariners.
- v) Marine mammals (i.e., dolphins, whales [other than North Atlantic right whales], and porpoises): Maintain a minimum distance of 300 ft.
- vi) When these animals are sighted while the vessel is underway (e.g., bow-riding), attempt to remain parallel to the animal's course. Avoid excessive speed or abrupt changes in direction until they have left the area.
- vii) Reduce speed to 10 knots or less when mother/calf pairs or groups of marine mammals are observed, when safety permits.

- 4) **(AP.10.) Turbidity Control Measures during Construction:** Turbidity must be monitored and controlled. Prior to initiating any of the work covered under this Opinion, the Permittee shall install turbidity curtains as described below. In some instances, the use of turbidity curtains may be waived by the USACE project manager if the project is deemed too minimal to generate turbidity (e.g., certain ATON installation, scientific survey device placement, marine debris removal) or if the current is too strong for the curtains to stay in place. Turbidity curtains specifications:

- a) Install floating turbidity barriers with weighted skirts that extend to within 1 ft of the bottom around all work areas that are in, or adjacent to, surface waters.
- b) Use these turbidity barriers throughout construction to control erosion and siltation and ensure that turbidity levels within the project area do not exceed background conditions.
- c) Position turbidity barriers in a way that does not block species' entry to or exit from designated critical habitat.
- d) Monitor and maintain turbidity barriers in place until the authorized work has been completed and the water quality in the project area has returned to background conditions.
- e) In the range of ESA-listed corals (St. Lucie Inlet, Martin County south to the Dry Tortugas and the U.S. Caribbean) and Johnson's seagrass (Turkey Creek/Palm

Bay south to central Biscayne Bay in the lagoon systems on the east coast of Florida):

- i) Projects that include upland earth moving (e.g., grading to install a building or parking lot associated with a dock and seawall project), must install sediment control barriers to prevent any upland sediments from reaching estuarine or marine waters.
 - ii) The turbidity curtain requirement cannot be waived for any project that moves or removes sediment (e.g., dredging, auger to create a pile, trenching to install a cableline). If turbidity curtains are not feasible in an area based on site conditions such as water current, high wave action, or stormy conditions, the project must undergo individual Section 7 consultation and is not covered under this Programmatic Opinion.
- 5) **(AP.11.) Entanglement:** All turbidity curtains and other in-water equipment must be properly secured with materials that reduce the risk of entanglement of marine species (described below). Turbidity curtains likewise must be made of materials that reduce the risk of entanglement of marine species.
- a) In-water lines (rope, chain, and cable, including the lines to secure turbidity curtains) must be stiff, taut, and non-looping. Examples of such lines are heavy metal chains or heavy cables that do not readily loop and tangle. Flexible in-water lines, such as nylon rope or any lines that could loop or tangle, must be enclosed in a plastic or rubber sleeve/tube to add rigidity and prevent the line from looping and tangling. In all instances, no excess line is allowed in the water.
 - b) Turbidity curtains and other in-water equipment must be placed in a manner that does not entrap species within the construction area or block access for them to navigate around the construction area.

Noise Best Management Practices (BMPs) for Piling Installation

The following best management practices are designed to reduce the exposure to sea turtles, smalltooth sawfish, and sturgeon to potential harmful daily noise exposure levels associated with pile driving during dock and seawall construction activities.

Noise BMP Plan A (For all projects): Sea Turtle, Smalltooth Sawfish, and Sturgeon Construction Conditions

The permittee shall comply with the following protected species construction conditions:

- a. All construction personnel are responsible for observing water-related activities to detect the presence of these species.
- b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973.
- c. Siltation barriers shall be made of material in which protected species cannot become entangled, be properly secured, and be regularly monitored to avoid protected species' entrapment. Barriers may not block protected species entry to or exit from designated critical habitat without prior agreement from the National Marine Fisheries Service's Protected Resources Division, St. Petersburg, Florida.
- d. If a protected species is seen within 100 yd of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 ft of a protected species. Operation of any mechanical construction equipment shall cease immediately if a protected species is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition.
- e. Any injury to a protected species shall be reported immediately to the National Marine Fisheries Service's Protected Resources Division (727-824-5312) and the local authorized sea turtle stranding/rescue organization.
- f. All work must occur during daylight hours.

Noise BMP Plan B (for Impact Pile-Driving Installation of 6 or More Concrete Piles per Day)

The permittee shall follow all conditions defined in the Noise BMP Plan A above plus the conditions provided below:

1. It must be determined if the project occurs in open water or a confined space. This differentiation is important because if a project occurs in a confined space, an animal may not move through or past a noise source to escape it. A *confined space* is defined as any area that has a solid object (e.g., shoreline, seawall, jetty) or structure within 150 feet (ft) of the pile installation site that would effectively serve as a barrier or otherwise prevent animals from moving past it to exit the area. This does not include objects such as docks or other pile-supported structures that would not stop animal movement or significantly reflect noise.
2. If the project is located in open water, up to 10 concrete piles measuring up to 24-in diameter may be installed per day.
3. If the project is located in a confined space, up to 5 concrete piles measuring up to 24-in diameter may be installed per day.
4. If more than 5 piles will be installed per day in a confined space, noise abatement measures (below) are required for all of the concrete piles installed that day with a maximum of 10 piles installed per day.

Noise Abatement Measures: Approved noise abatement measures include noise attenuation piles (TNAP) and/or bubble curtains.

TNAP design must be constructed of a double-walled tubular casing (a casing within a larger casing), with at least a 5-in-wide hollow space completely filled with closed-cell foam or other noise dampening material between the walls. The TNAP must be long enough to be seated firmly on the sea bottom, fit over the pile being driven, and extend at least 3 ft above the surface of the water.

Bubble curtain design must adhere to the guidelines for unconfined and confined bubble curtains defined below, and be followed as detailed in the USACE permit application. The use of *any* other alternative noise control method must receive prior approval by NMFS and the USACE.

If the required noise abatement measure discussed above cannot be used, then the pile must be installed by a different method using the appropriate noise BMPs defined in this document. (e.g., concrete piles may be installed by vibratory hammer instead, following BMP Plan A).

Bubble Curtain Specifications for Pile Driving

When using an impact hammer to drive or proof concrete piles, use one of the following sound attenuation methods:

1. If water velocity is equal to or less than 1.6 ft per second (1.1 miles per hour) for the entire installation period, surround the pile being driven by a confined or

unconfined bubble curtain that will distribute small air bubbles around 100% of the pile perimeter for the full depth of the water column.

- a. General - An unconfined bubble curtain is composed of an air compressor(s), supply lines to deliver the air, distribution manifolds or headers, perforated aeration pipe, and a frame. The frame facilitates transport and placement of the system, keeps the aeration pipes stable, and provides ballast to counteract the buoyancy of the aeration pipes in operation.
- b. The aeration pipe system shall consist of multiple layers of perforated pipe rings, stacked vertically in accordance with the following:

Water Depth (m)	No. of Layers
0 to less than 5	2
5 to less than 10	4
10 to less than 15	7
15 to less than 20	10
20 to less than 25	13

- c. The pipes in all layers shall be arranged in a geometric pattern which shall allow for the pile being driven to be completely enclosed by bubbles for the full depth of the water column and with a radial dimension such that the rings are no more than 0.5 m from the outside surface of the pile.
 - i. The lowest layer of perforated aeration pipe shall be designed to ensure contact with the substrate without burial and shall accommodate sloped conditions.
 - ii. Air holes shall be 1.6 millimeter (mm) (1/16-in) in diameter and shall be spaced approximately 20 mm (3/4 in) apart. Air holes with this size and spacing shall be placed in 4 adjacent rows along the pipe to provide uniform bubble flux.
 - iii. The system shall provide a bubble flux 3.0 m³ per minute per linear meter of pipe in each layer (32.91 ft³ per minute per lin ft of pipe in each layer). The total volume of air per layer is the product of the bubble flux and the circumference of the ring:
$$V_t = 3.0 \text{ m}^3/\text{min}/\text{m} * \text{Circumference of the aeration ring in m}$$

or

$$V_t = 32.91 \text{ ft}^3/\text{min}/\text{ft} * \text{Circumference of the aeration ring in ft}$$
 - iv. Meters shall be provided as follows:

- Pressure meters shall be installed at all inlets to aeration pipelines and at points of lowest pressure in each branch of the aeration pipeline.

- Flow meters shall be installed in the main line at each compressor and at each branch of the aeration pipelines at each inlet. In applications where the feed line from the compressor is continuous from the compressor to the aeration pipe inlet, the flow meter at the compressor can be eliminated.

Flow meters shall be installed according to the manufacturer's recommendation based on either laminar flow or non-laminar flow.

2. If water velocity is greater than 1.6 ft per second (1.1 miles per hour) at any point during installation or if constructing a seawall, surround the pile or area being driven by a confined bubble curtain (e.g., a bubble ring surrounded by a fabric or non-metallic sleeve). The confined bubble curtain will distribute air bubbles around 100% of the pile perimeter for the full depth of the water column, according to specifications below.

- a. General - A confined bubble curtain is composed of an air compressor(s), supply lines to deliver the air, distribution manifolds or headers, perforated aeration pipe(s), and a means of confining the bubbles.
- b. The confinement shall extend from the substrate to a sufficient elevation above the maximum water level expected during pile installation such that when the air delivery system is adjusted properly, the bubble curtain does not act as a water pump (i.e., little or no water should be pumped out of the top of the confinement system).
- c. The confinement shall contain resilient pile guides that prevent the pile and the confinement from coming into contact with each other and do not transmit vibrations to the confinement sleeve and into the water column (e.g., rubber spacers, air-filled cushions).
- d. In-water less than 15 m deep, the system shall have a single aeration ring at the substrate level. In-waters greater than 15 m deep, the system shall have at least 2 rings: 1 at the substrate level and the other at mid-depth.
- e. The lowest layer of perforated aeration pipe shall be designed to ensure contact with the substrate without sinking into the substrate and shall accommodate for sloped conditions.

- f. Air holes shall be 1.6 mm (1/16-in) in diameter and shall be spaced approximately 20 mm (3/4 in) apart. Air holes with this size and spacing shall be placed in 4 adjacent rows along the pipe to provide uniform bubble flux.
- g. The system shall provide a bubble flux of 2.0 m³ per minute per linear meter of pipe in each layer (21.53 ft³ per minute per lin ft of pipe in each layer). The total volume of air per layer is the product of the bubble flux and the circumference of the ring:

$$V_t = 2.0 \text{ m}^3/\text{min}/\text{m} * \text{Circumference of the aeration ring in m}$$

or

$$V_t = 21.53 \text{ ft}^3/\text{min}/\text{ft} * \text{Circumference of the aeration ring in ft}$$

- h. Flow meters shall be provided as follows:
Pressure meters shall be installed at all inlets to aeration pipelines and at points of lowest pressure in each branch of the aeration pipeline.
 - ii. Flow meters shall be installed in the main line at each compressor and at each branch of the aeration pipelines at each inlet. In applications where the feed line from the compressor is continuous from the compressor to the aeration pipe inlet, the flow meter at the compressor can be eliminated.
 - iii. Flow meters shall be installed according to the manufacturer's recommendation based on either laminar flow or non-laminar flow.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, FL 33701

SEA TURTLE AND SMALLTOOTH SAWFISH CONSTRUCTION CONDITIONS

The permittee shall comply with the following protected species construction conditions:

- a. The permittee shall instruct all personnel associated with the project of the potential presence of these species and the need to avoid collisions with sea turtles and smalltooth sawfish. All construction personnel are responsible for observing water-related activities for the presence of these species.
- b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing sea turtles or smalltooth sawfish, which are protected under the Endangered Species Act of 1973.
- c. Siltation barriers shall be made of material in which a sea turtle or smalltooth sawfish cannot become entangled, be properly secured, and be regularly monitored to avoid protected species entrapment. Barriers may not block sea turtle or smalltooth sawfish entry to or exit from designated critical habitat without prior agreement from the National Marine Fisheries Service's Protected Resources Division, St. Petersburg, Florida.
- d. All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will preferentially follow deep-water routes (e.g., marked channels) whenever possible.
- e. If a sea turtle or smalltooth sawfish is seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a sea turtle or smalltooth sawfish. Operation of any mechanical construction equipment shall cease immediately if a sea turtle or smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition.
- f. Any collision with and/or injury to a sea turtle or smalltooth sawfish shall be reported immediately to the National Marine Fisheries Service's Protected Resources Division (727-824-5312) and the local authorized sea turtle stranding/rescue organization.
- g. Any special construction conditions, required of your specific project, outside these general conditions, if applicable, will be addressed in the primary consultation.

Revised: March 23, 2006

O:\forms\Sea Turtle and Smalltooth Sawfish Construction Conditions.doc



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 Florida Fish and Wildlife Conservation Commission (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 FWC must be used. One sign which reads *Caution: Boaters* must be posted. A second sign measuring at least 8 ½" by 11" explaining the requirements for "Idle Speed/No Wake" and the shut down of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities. These signs can be viewed at MyFWC.com/manatee. Questions concerning these signs can be sent to the email address listed above.

CAUTION: MANATEE HABITAT

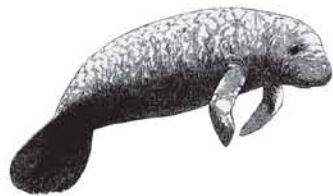
All project vessels

IDLE SPEED / NO WAKE

When a manatee is within 50 feet of work
all in-water activities must

SHUT DOWN

Report any collision with or injury to a manatee:



Wildlife Alert:

1-888-404-FWCC(3922)

cell *FWC or #FWC



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

Florida Keys National Marine Sanctuary

33 East Quay Road
Key West, FL 33040

August 13, 2018

Ms. Gletys Guardia-Montoya
Department of the Army Jacksonville District Corps of Engineers
Miami Regulatory Office
9900 Southwest 107th Avenue, Suite 203
Miami, FL 33176

Dear Ms. Guardia-Montoya:

NOAA Florida Keys National Marine Sanctuary (FKNMS or sanctuary) has reviewed Department of the Army Corps of Engineers (DA Corps) application no. 2018-00288 (NW-GGM). The applicant, City of Key West, is requesting a permit to conduct seawall repairs in the Key West Bight Marina (approximately 700 linear feet between the Schooner Wharf and the Conch Republic buildings), located at 120 Margaret Street, Key West, Monroe County, FL. A benthic survey provided by the applicant's agent documented small stony corals in the construction area. The proposed activity is prohibited by FKNMS regulations at 15 CFR § 922.163(a)(2).

NOAA appreciates the applicant's willingness to mitigate for unavoidable impacts to corals and to remove debris at the project site. These actions will preserve the functional value of the resources that may be impacted by the project. Therefore, pursuant to 15 CFR § 922.49, NOAA does not object to the issuance of a DA Corps permit for the project as proposed, and a separate FKNMS permit will not be required, **if the attached measures are enacted by the applicant (City of Key West) or their agent/contractor**. These terms and conditions have been deemed reasonable to protect sanctuary resources and qualities per NOAA authority at 15 CFR § 922.49.

This determination is only applicable to DA Corps application no. 2018-00288 (NW-GGM). If any changes are made to the project description in the application, DA Corps shall notify NOAA and this letter of authorization will be rescinded. Upon such notification, NOAA shall re-review the project and special conditions and provide a supplementary determination. Further information on Sanctuary permit review and authorization is set forth at 15 CFR § 922.49.

This project has been assigned authorization #FKNMS-2018-107. Please contact FKNMS Permit Coordinator Joanne Delaney at Joanne.Delaney@noaa.gov if you have questions about the sanctuary's determination on this project. Thank you for your continued cooperation with the Florida Keys National Marine Sanctuary.

Sincerely,

Sarah Fangman
Superintendent

cc: Dave Frodsham, Tetra Tech



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

Florida Keys National Marine Sanctuary

33 East Quay Road
Key West, FL 33040

NOAA Florida Keys National Marine Sanctuary
Required Conditions for City of Key West seawall repairs
Authorization #FKNMS-2018-107

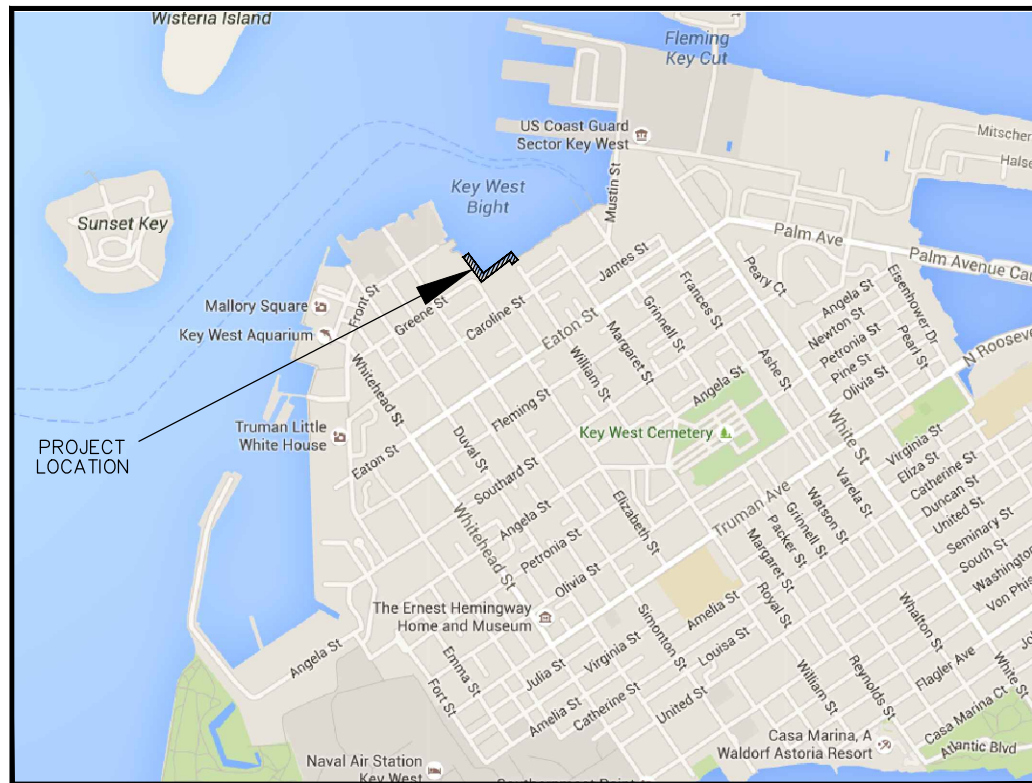
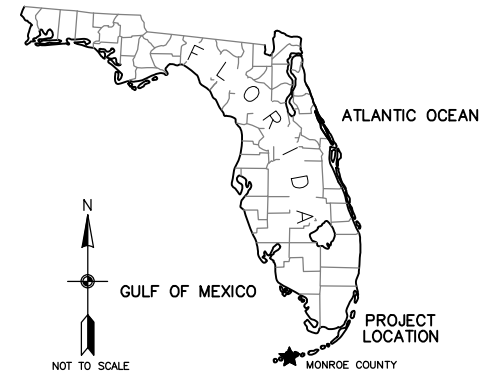
1. All debris along the seawall repair area, and any other observable debris in the vicinity of the project, must be removed from waters of FKNMS and disposed of at an authorized upland waste disposal facility.
2. No construction debris may be deposited in waters of FKNMS at or near the project site at any time. A post-construction benthic survey to inspect compliance with this condition may be required. Should construction debris be evident in adjacent waters, the applicant or his agent will be required to clean up all items immediately and mitigate for any resource injury.



CITY OF KEY WEST

SCHOONER WHARF TO CONCH REPUBLIC SEAWALL REPAIR

SEAWALL REPAIR PERMITTING



VICINITY MAP

KEY WEST BIGHT, KEY WEST, FLORIDA

INDEX OF SHEETS

SHEET #	TITLE	LATEST UPDATE	REV.
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G-002	KEY WEST BIGHT LOCATION AND ACCESS	9/7/2018	1
G-003	VICINITY MAP AND DIRECTIONS TO SITE	9/7/2018	1
G-004	USDA/NRCS SOIL MAP	9/7/2018	1
C-101	SEAWALL PLAN VIEW	9/7/2018	1
C-102	SEAWALL PLAN VIEW	9/7/2018	1
C-103	SEAWALL REPAIR DESIGN PLAN VIEW	9/7/2018	1
C-104	SEAWALL REPAIR DESIGN PLAN VIEW	9/7/2018	1
C-105	SEAWALL REPAIR CROSS-SECTIONS	9/7/2018	1
C-106	SEAWALL REPAIR CROSS-SECTIONS	9/7/2018	1
C-107	SEAWALL REPAIR CROSS-SECTIONS	9/7/2018	1
C-108	DETAILS	9/7/2018	1

FOR PERMITTING
NOT FOR CONSTRUCTION



CITY OF KEY WEST
SCHOONER WHARF TO CONCH
REPUBLIC SEAWALL REPAIR

COVER SHEET AND VICINITY MAP

KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH, INC.
759 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411

CERTIFICATE OF AUTHORIZATION

USACE SAJ-2018-00288 (NW-3-GGM) Page 1 of 12.
September 03, 2018.

Designed by:

Drawn By:

F. MARTINEZ

Reviewed By:

D. FRODSHAM

Date:

9/7/18

Design file no:

KW_SC_PERMIT_COVER_V2.DWG

Scale:

AS SHOWN

Sheet Reference:

G-001

Sheet 1 of 12



**CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR**

KEY WEST BIGHT LOCATION AND ACCESS

KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH, INC.
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CERTIFICATE OF AUTHORIZATION

USACE SAJ-2018-00288 (NW-3-GGM) Page 2 of 12.

September 03, 2018.

Designed by: --

Drawn By: F. MARTINEZ

Reviewed By: D. FRODSHAM

Date: 9/7/18

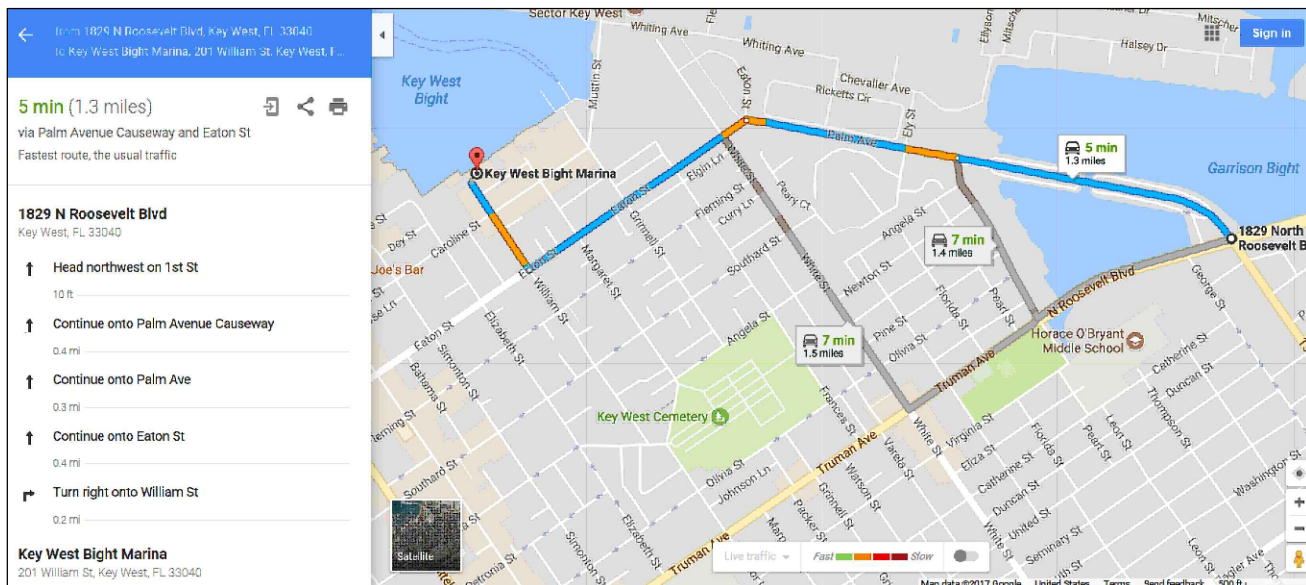
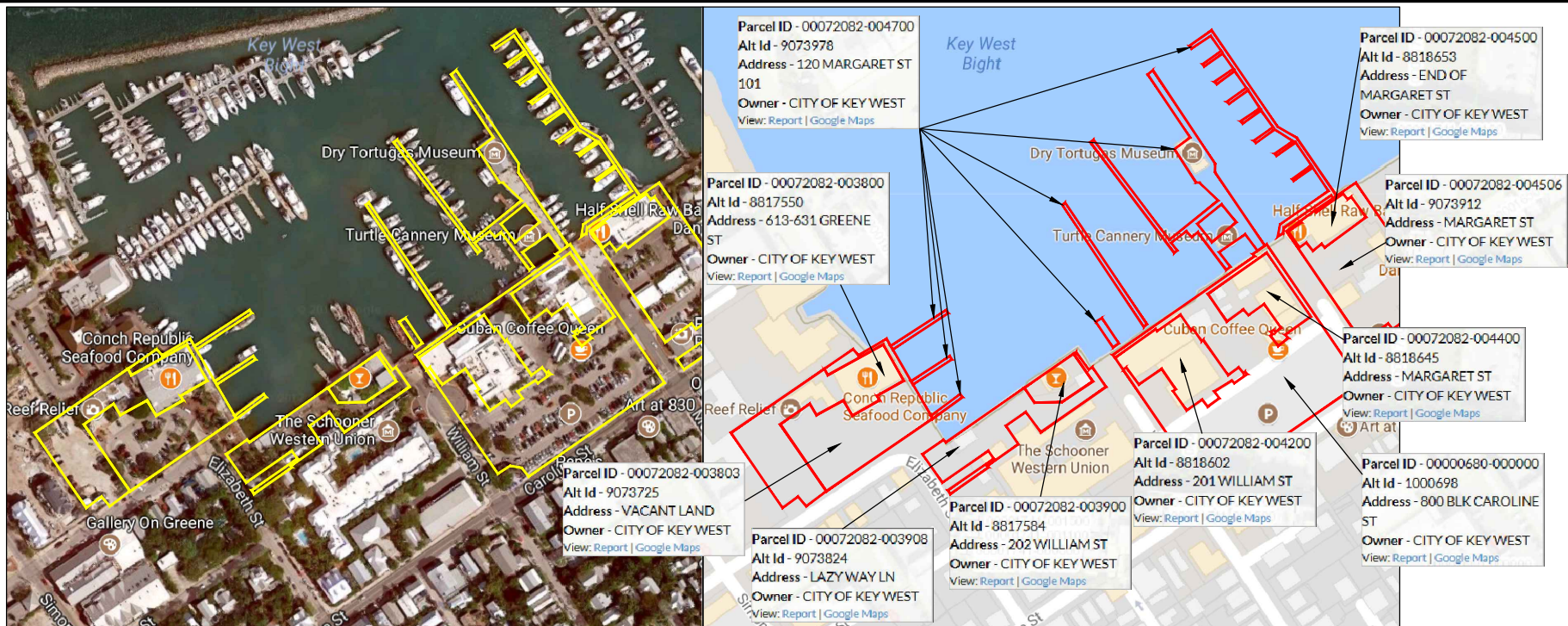
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Sheet Reference:

G-002

Sheet 2 of 12



**FOR PERMITTING
NOT FOR CONSTRUCTION**



**CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR**

VICINITY MAP AND DIRECTIONS TO SITE

KEY WEST, MONROE COUNTY, FLORIDA



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CERTIFICATE OF AUTHORIZATION

USACE SAJ-2018-00288 (NW-3-GGM) Page 3 of 12.
September 03, 2018.

Designed by:

Drawn By:

Reviewed By:

Date:

Design file no:

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Scale:

AS SHOWN

Sheet Reference:

G-003

Sheet 3 of 12

Custom Soil Resource Report
Soil Map



Monroe County, Key Area, Florida (FL887)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5	Islamorada muck, tidal	9.5	0.2%
7	Udorthents-Urban land complex	272.0	6.3%
11	Urban land	1,529.2	35.2%
13	Keyvaca very gravelly loam, extremely stony	21.5	0.5%
18	Beaches	10.5	0.2%
99	Water	18.2	0.4%
100	Waters of the Atlantic Ocean	2,181.5	50.2%
Subtotals for Soil Survey Area		4,042.3	93.0%
Totals for Area of Interest		4,346.4	100.0%

PROJECT LOCATION -
RELEVANT SOIL
CLASSIFICATIONS:
#11 & #100

11—Urban land

Map Unit Setting

National map unit symbol: vryh
Elevation: 0 to 10 feet
Mean annual precipitation: 30 to 51 inches
Mean annual air temperature: 72 to 82 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Islands
Landform position (three-dimensional): Interfluvial, half
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Properties and qualities

Slope: 0 to 1 percent
Frequency of flooding: Rare

Interpretive groups

Land capability classification (irrigated): None specified
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)

Minor Components

Udorthents

Percent of map unit: 3 percent
Landform: Islands
Landform position (three-dimensional): Interfluvial
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G166AC900FL)

Beaches, tidal

Percent of map unit: 2 percent
Landform: Beaches on islands
Landform position (three-dimensional): Rise

Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)

100—Waters of the Atlantic Ocean

Map Unit Composition

Waters of the Atlantic ocean: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Waters Of The Atlantic Ocean

Interpretive groups

Land capability classification (irrigated): None specified
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)

FOR PERMITTING
NOT FOR CONSTRUCTION



CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR

USDA/NRCS SOIL MAP

KEY WEST, MONROE COUNTY, FLORIDA



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CERTIFICATE OF AUTHORIZATION

USACE SAJ-2018-00288 (NW-3-GGM) Page 4 of 12.

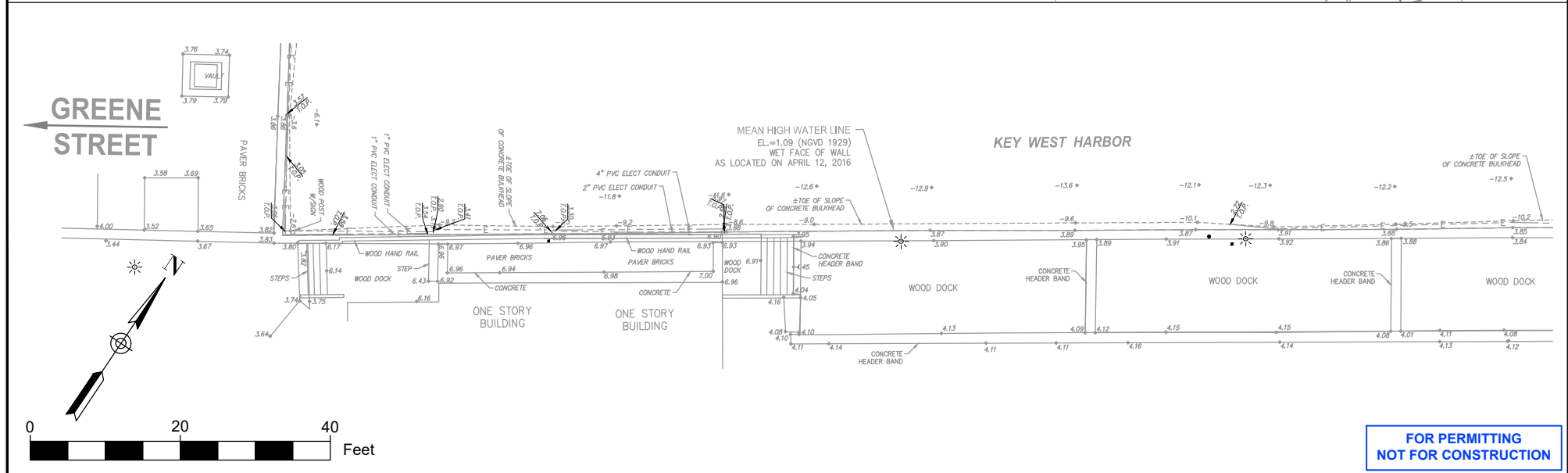
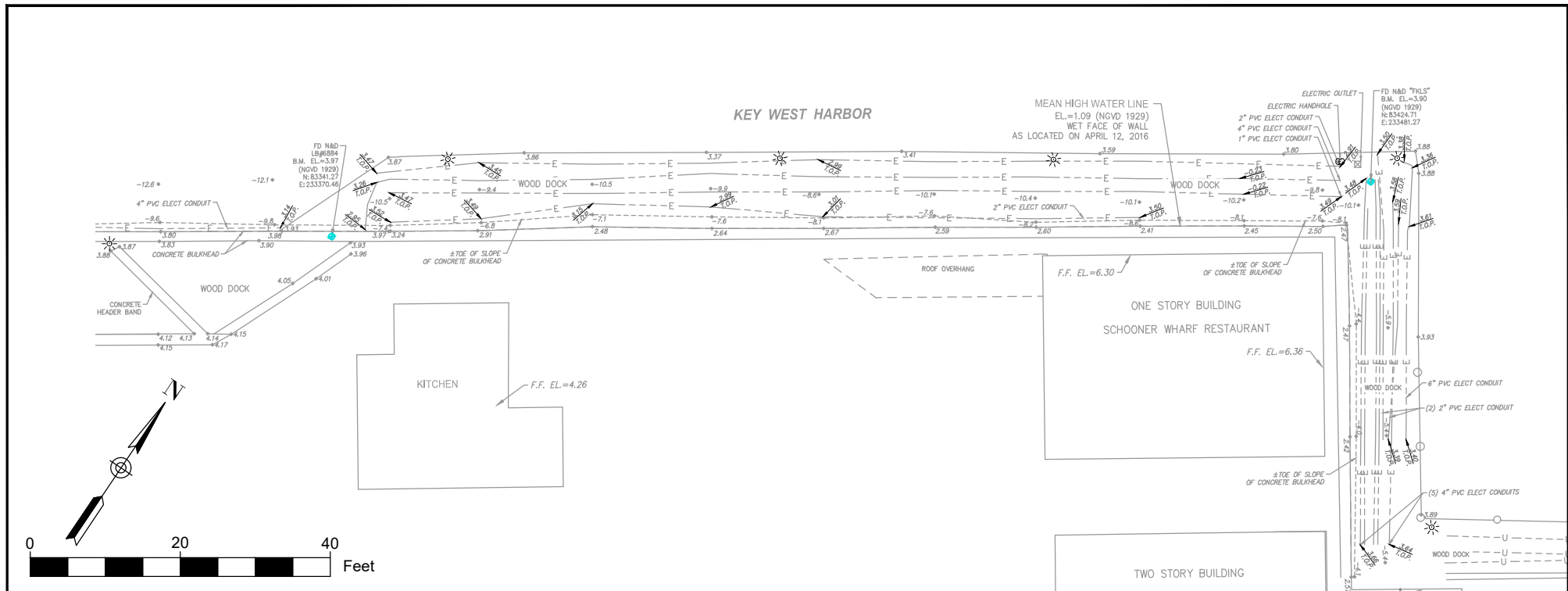
September 03, 2018.

Designed by:
—
Drawn By:
F. MARTINEZ
Reviewed By:
D. FRODSHAM
Date:
9/7/18
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KW_SC_PERMIT_COVER_V2.DWG
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Sheet Reference:

G-004

Sheet 4 of 12



CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR

SEAWALL PLAN VIEW

KEY WEST, MONROE COUNTY, FLORIDA



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CERTIFICATE OF AUTHORIZATION

USACE SAJ-2018-00288-(NW-3-GGM) Page 5 of 12.

September 03, 2018.

Designed by:

Drawn By:

F. MARTINEZ

Reviewed By:

D. FRODSHAM

Date:

9/7/18

Design file no:

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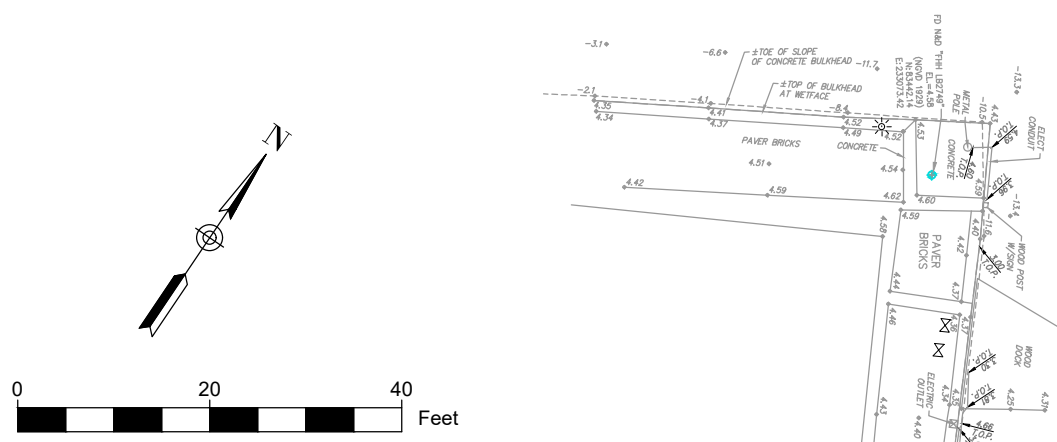
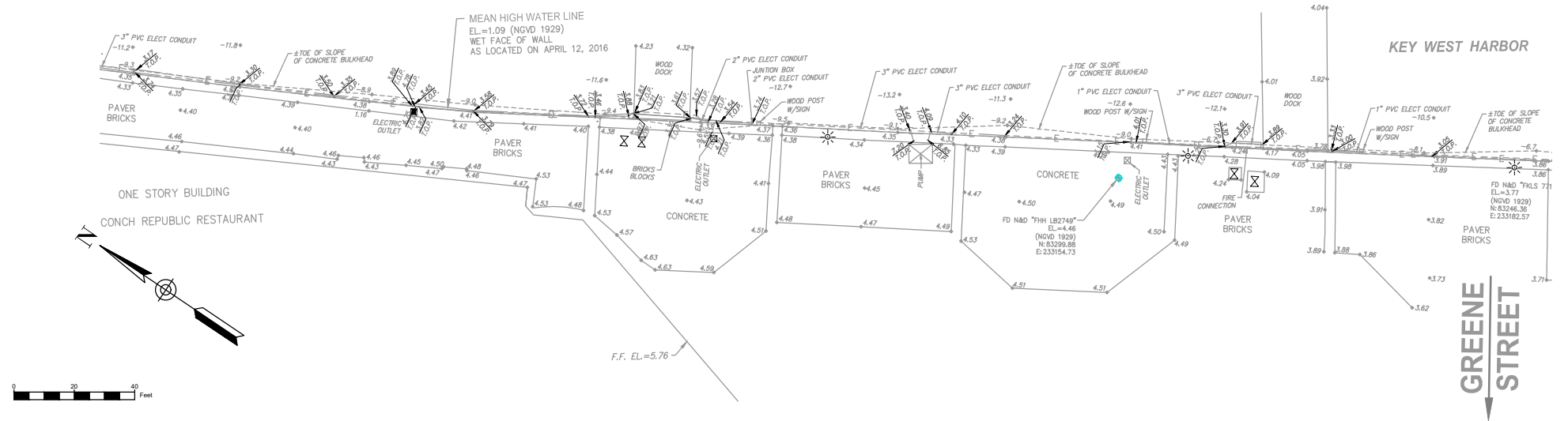
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Sheet Reference:

C-101

Sheet 5 of 12

KEY WEST HARBOR



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NOT FOR CONSTRUCTION



CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR

SEAWALL PLAN VIEW

KEY WEST, MONROE COUNTY, FLORIDA

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FAX: (772) 781-3411

CERTIFICATE OF AUTHORIZATION

Designed by:
F. MARTINEZ

Drawn By:
D. FRODSHAM

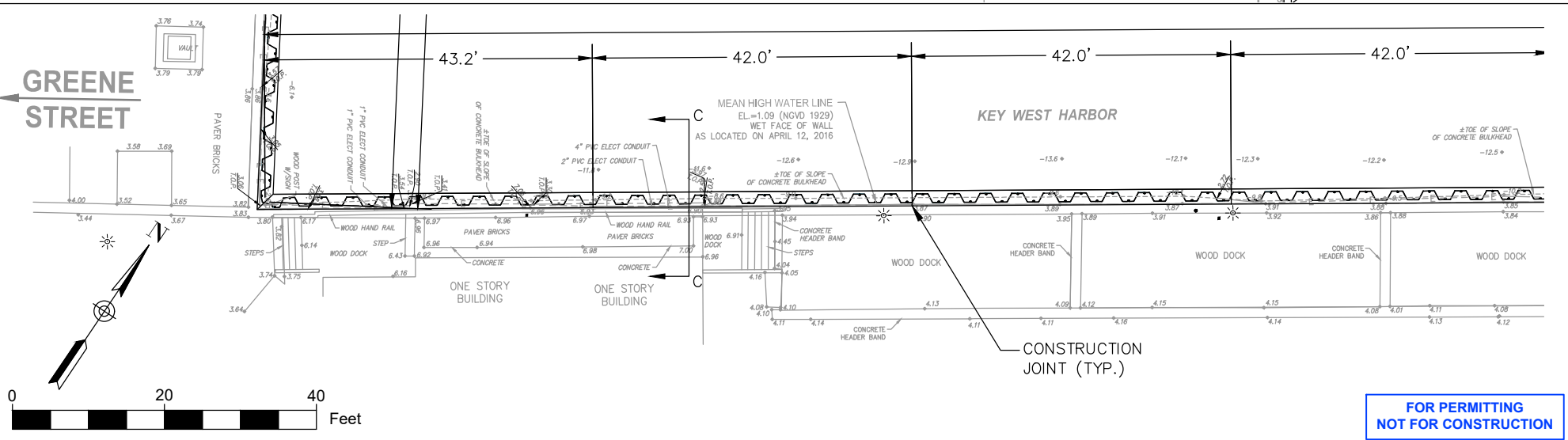
Reviewed By:
D. FRODSHAM

Date:
9/7/18

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Sheet Reference:
C-102
Sheet 6 of 12



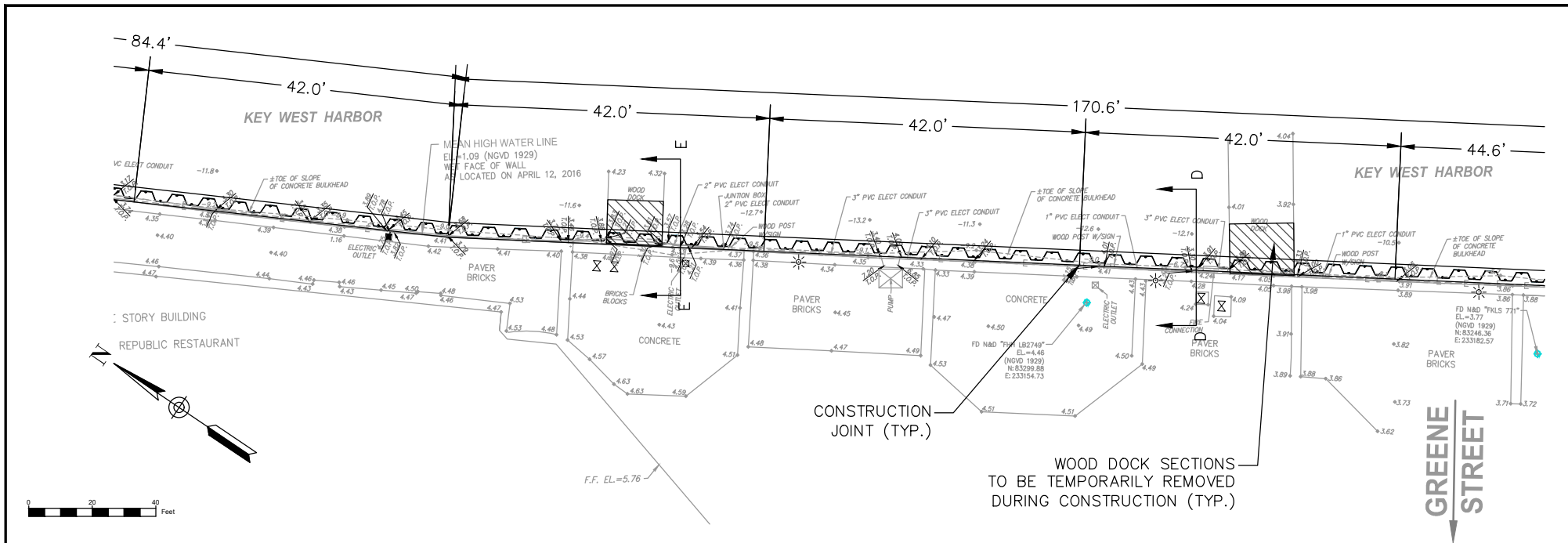
KEY WEST, MONROE COUNTY, FLORIDA



CERTIFICATE OF AUTHORIZATION

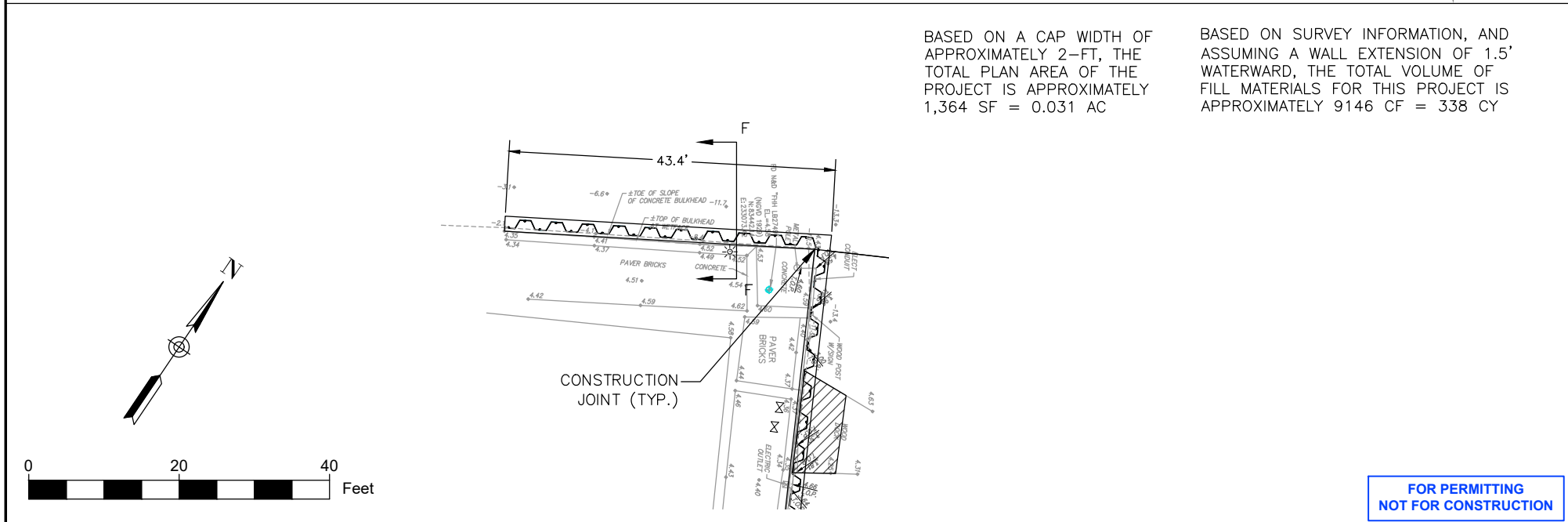
September 03, 2018.

Sheet 7 of 12



BASED ON A CAP WIDTH OF APPROXIMATELY 2-FT, THE TOTAL PLAN AREA OF THE PROJECT IS APPROXIMATELY 1,364 SF = 0.031 AC

BASED ON SURVEY INFORMATION, AND ASSUMING A WALL EXTENSION OF 1.5' WATERWARD, THE TOTAL VOLUME OF FILL MATERIALS FOR THIS PROJECT IS APPROXIMATELY 9146 CF = 338 CY



FOR PERMITTING
NOT FOR CONSTRUCTION



CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR

SEAWALL REPAIR DESIGN PLAN VIEW

KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH, INC.
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CERTIFICATE OF AUTHORIZATION

USACE SAJ-2018-00288-(NW-3-GGM) Page 8 of 12.

September 03, 2018.

Designed by:

Drawn By:
F. MARTINEZ

Reviewed By:
D. FRODSHAM

Date:
9/7/18

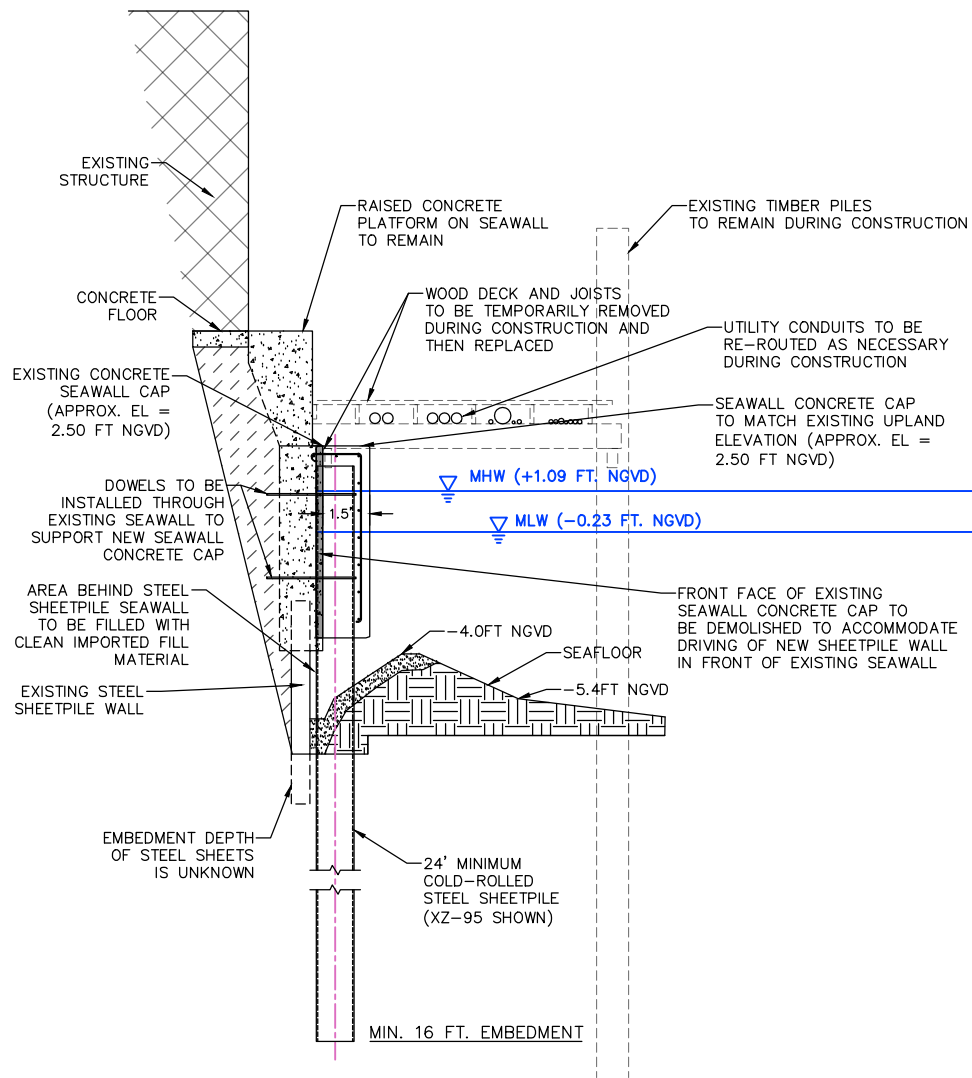
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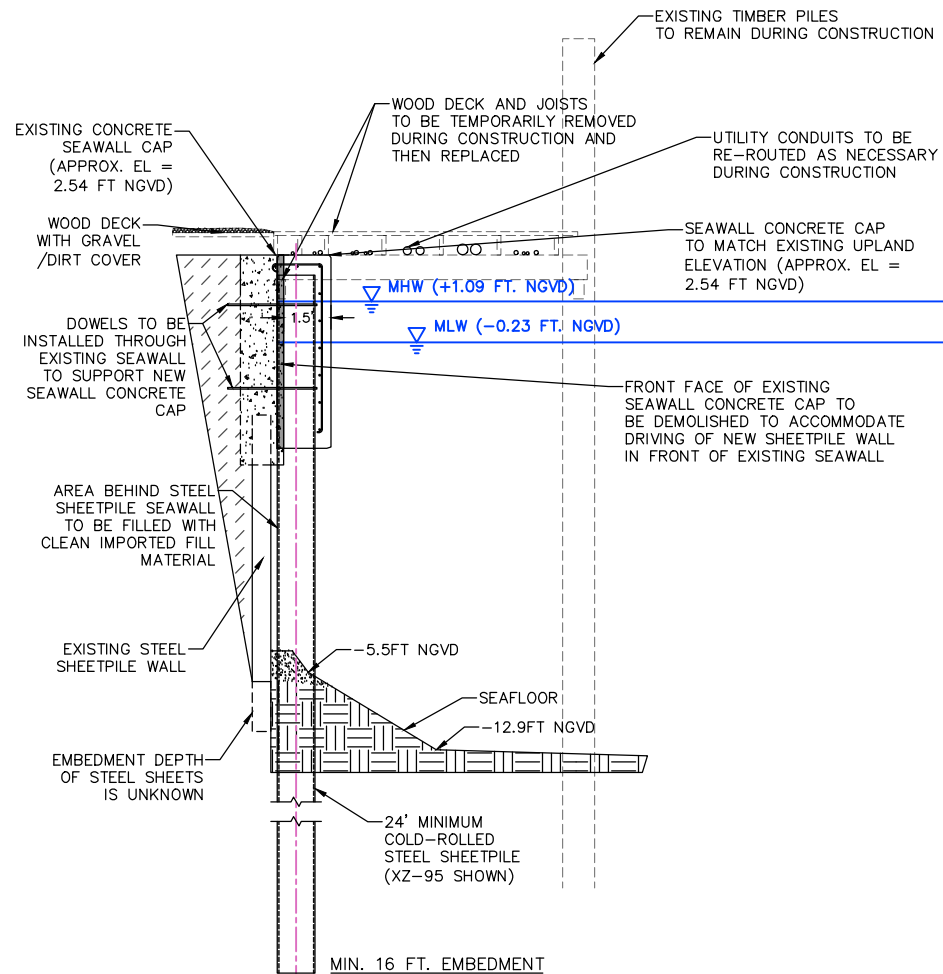
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C-104

Sheet 8 of 12



CROSS-SECTION A-A



CROSS-SECTION B-B

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NOT FOR CONSTRUCTION



**CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR**

SEAWALL REPAIR CROSS-SECTIONS

KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH, INC.
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FAX: (772) 781-3411

CERTIFICATE OF AUTHORIZATION

USAGE SAJ-2018-00288-(NW-3-GGM) Page 9 of 12.

September 03, 2018.

Designed by:

Drawn By:
F. MARTINEZ

Reviewed By:
D. FRODSHAM

Date:
9/7/18

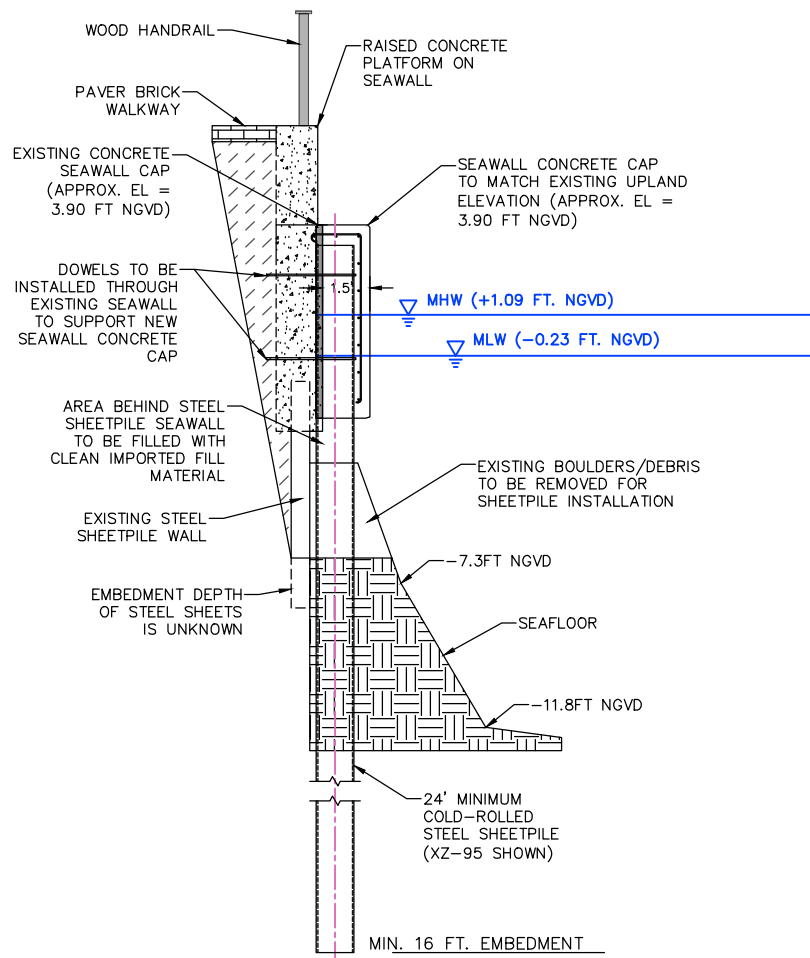
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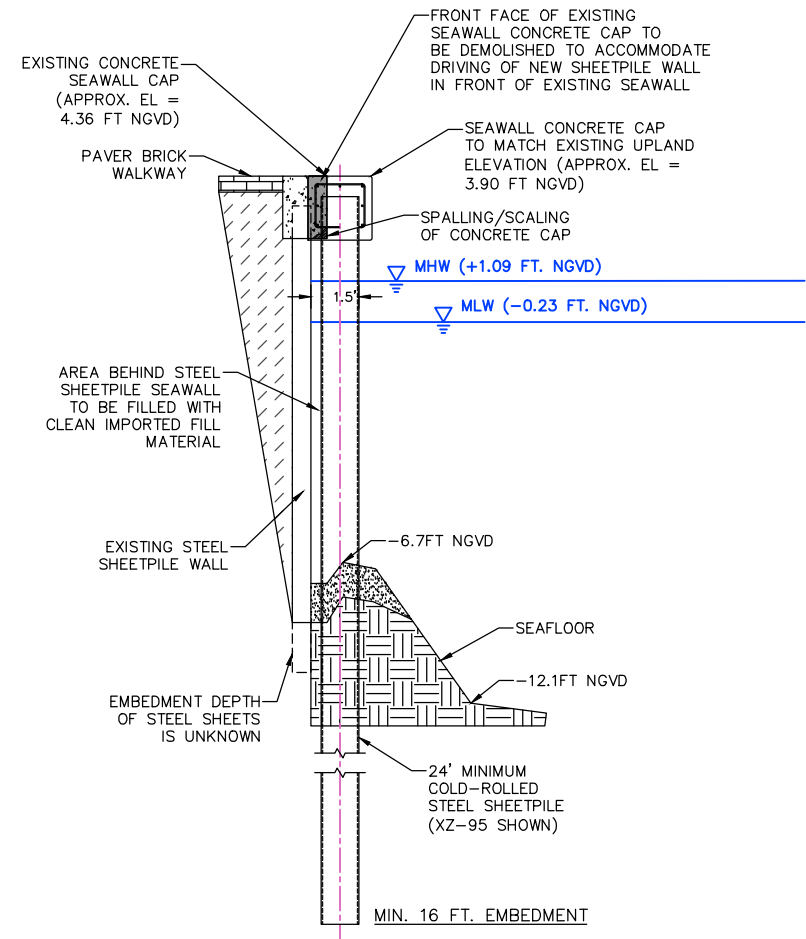
Sheet Reference:

C-105

Sheet 9 of 12



CROSS-SECTION C-C



CROSS-SECTION D-D

FOR PERMITTING
NOT FOR CONSTRUCTION



**CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR**

SEAWALL REPAIR CROSS-SECTIONS
KEY WEST, MONROE COUNTY, FLORIDA

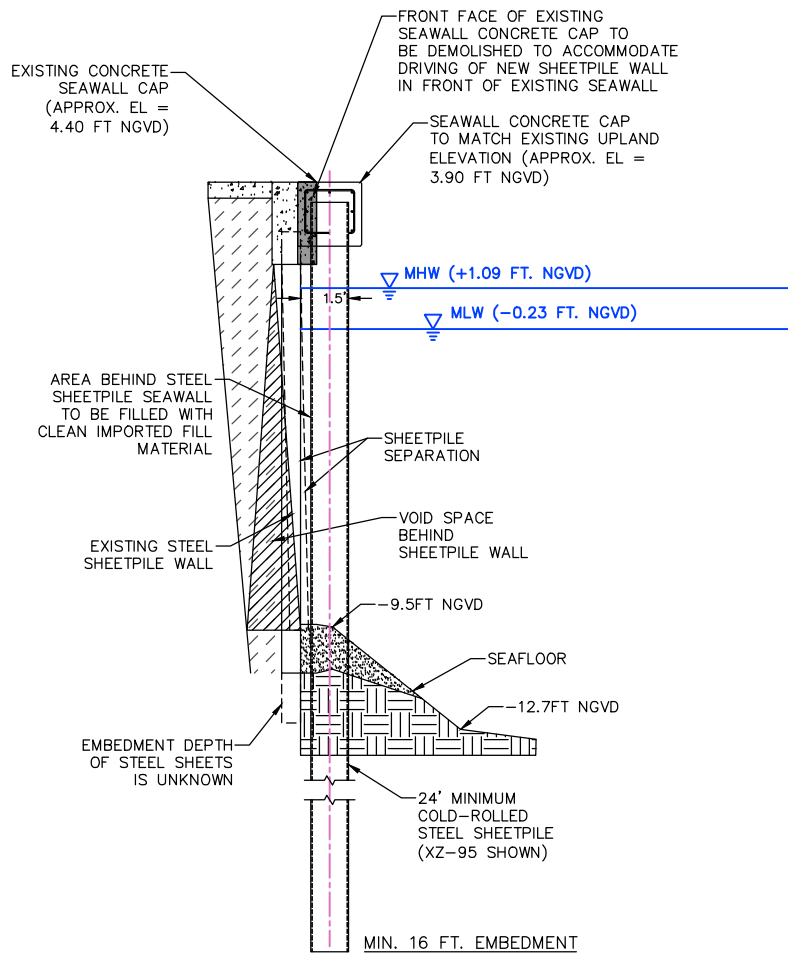


TETRA TECH, INC.
759 SOUTH FEDERAL HWY
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TEL: (772) 781-3400
FAX: (772) 781-3411

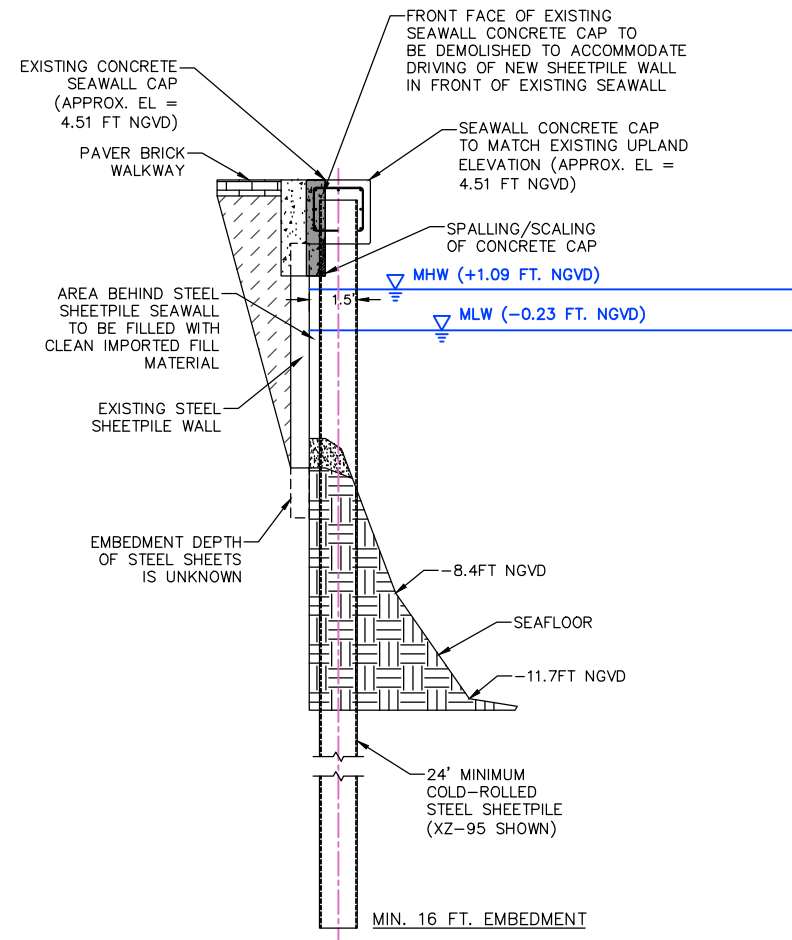
CERTIFICATE OF AUTHORIZATION
NO. 2422

Designed by:
--
Drawn By:
F. MARTINEZ
Reviewed By:
D. FRODSHAM
Date:
9/7/18
Design file no:
KW_SC_PERMIT_DESIGN_V3.DWG
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Sheet Reference:
C-106
Sheet 10 of 12



CROSS-SECTION E-E



CROSS-SECTION 11 (CS-11)
BASELINE D-D, STATION 0+11

FOR PERMITTING
NOT FOR CONSTRUCTION



CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR

SEAWALL REPAIR CROSS-SECTIONS

KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH, INC.
759 SOUTH FEDERAL HWY
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TEL: (772) 781-3400
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CERTIFICATE OF AUTHORIZATION
NO. 2422

USACE SAJ-2018-00288-(NW-3-GGM) Page 11 of 12.

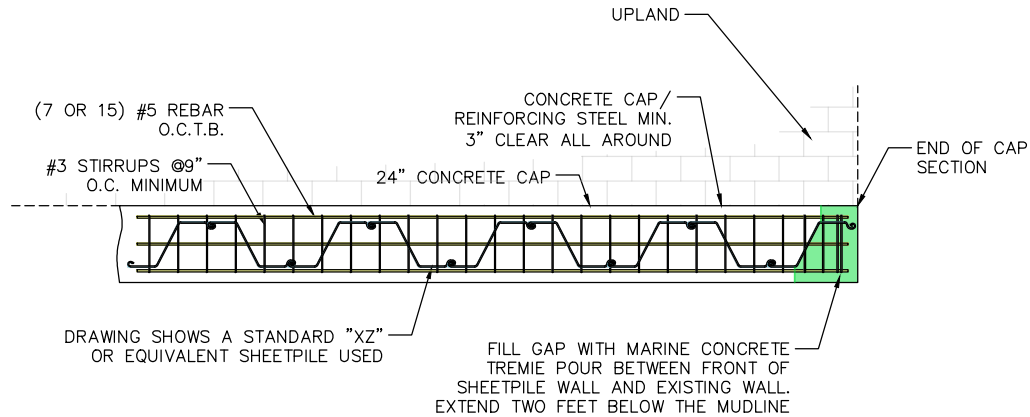
September 03, 2018.

Designed by:
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Drawn By:
F. MARTINEZ
Reviewed By:
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Date:
9/7/18
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KW_SC_PERMIT_DESIGN_V3.DWG
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Sheet Reference:

C-107

Sheet 11 of 12



TYPICAL END REINFORCEMENT DETAIL

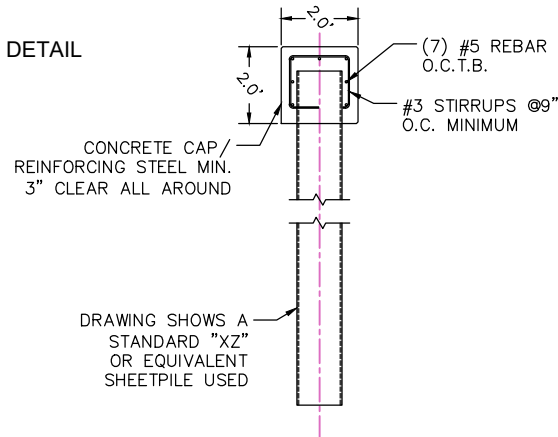
TYPICAL STEEL SHEETPILE SEAWALL:

CONCRETE CAP

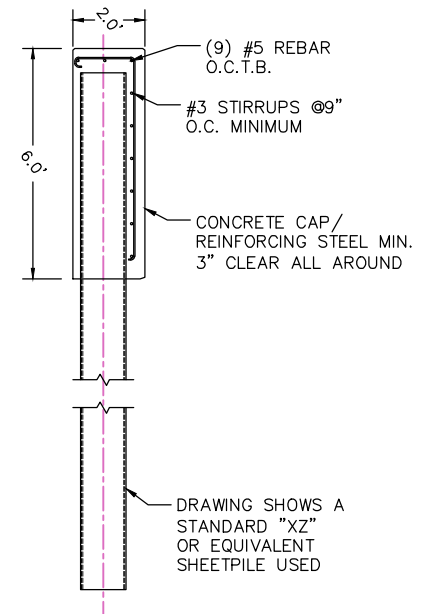
- CONCRETE f'_c = 6,000 PSI IN 28-DAYS
- 1" CHAMFER ALL EXPOSED EDGES

XZ-95 STEEL SHEET PILE SPECIFICATIONS

- WIDTH 25.00 IN.
- HEIGHT 14.12 IN.
- THICKNESS 0.375 IN.
- SECTIONAL AREA 15.20 SQ. IN. PER LIN. FT.
- WEIGHT OF PILE 51.70 LB. PER LIN. FT.
- WEIGHT OF WALL 24.80 LB. PER SQ. FT.
- SECTION MODULUS 33.50 IN.³ PER LIN. FT.
- MOMENT OF INERTIA 237.0 IN.⁴ PER LIN. FT.
- COATING AREA BOTH SIDES 6.03 SQ. FT. PER LIN. FT.



SHORT CAP SHEETPILE LAYOUT



LONG CAP SHEETPILE LAYOUT

FOR PERMITTING
NOT FOR CONSTRUCTION



CITY OF KEY WEST
SCHOONER WHARF TO CONCH REPUBLIC
SEAWALL REPAIR

DETAILS

KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH, INC.
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CERTIFICATE OF AUTHORIZATION

USAGE SAJ-2018-00288-(NW-3-GGM) Page 12 of 12.
September 03, 2018.

Designed by:
--
Drawn By:
F. MARTINEZ
Reviewed By:
D. FRODSHAM
Date:
9/7/18
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KW_SC_PERMIT_DESIGN_V3.DWG
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C-108
Sheet 12 of 12



DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
MIAMI REGULATORY OFFICE
9900 SOUTHWEST 107th Ave, SUITE 203
MIAMI, FLORIDA 33176

October 11, 2018

Regulatory Division
South Permits Branch
Miami Section
SAJ-2017-01874 (NW-GGM)

City of Key West
c/o Doug Bradshaw, Director, Port of Marine Services
201 William Street
Key West, FL 33040

Dear Mr. Bradshaw:

Your application for a Department of the Army permit received on June 12, 2018, has been assigned number SAJ-2017-01874. A review of the information and drawings (13 pages) provided to the Corps shows the work is to repair 430 linear feet of an existing 440 linear feet seawall. The work consist of the repair of 541-square feet of the existing seawall with 89.8 cubic yards of clean fill material on the form concrete footers along the base of the existing seawall, as depicted on the attached plans. Additionally, the work will consist of the temporary removal and replacement, in the same footprint, of the existing marginal wood docks to accomplish the seawall repair. The concrete footers shall extend a maximum of 18-inches into the waterway from the face of the existing seawall. The authorized work shall be conducted as illustrated on the approved, attached, drawings (13 pages), date stamped October 11, 2018 by the Corps. Any deviation from the authorized work shall be notified to the Corps prior to occur. Turbidity curtains shall be deployed in/over waters of the United States and will remain in place until the work is completed and erodible materials have stabilized. The project would affect waters of the United States associated with Key West Bight (aka Key West Harbor). The project site is located within a commercial marina basin, between the William Street terminus and the Margaret Street terminus, adjacent to 120 Margaret Street 101 within the Historic Waterfront of the Old Town District of Key West; in Section 31, Township 67 South, Range 25 East, Key West, Monroe County, Florida 33040. (RE#s 00072082-004200 & 00000680-000000) (MM± 1).

Central Geographic Position: Latitude: 24.561427° North
Longitude: 81.800913° West

Your project, as depicted on the enclosed drawings (13 pages) date stamped October 11, 2018, is authorized by Nationwide Permit (NWP) Number 3. In addition, project specific conditions have been enclosed. This verification is valid until **March 18, 2022**. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have

12 months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this nationwide permit. Please access the U.S. Army Corps of Engineers' (Corps) Jacksonville District's Regulatory Internet page to access Internet links to view the Final Nationwide Permits, Federal Register Vol. 82, dated January 6, 2017, specifically pages 1983 to 2008, and the table of Regional Conditions. The Internet page address is:

<http://www.saj.usace.army.mil/Missions/Regulatory.aspx>

Please be aware this Internet address is case sensitive and should be entered as it appears above. Once there you will need to click on "Source Book"; and, then click on "Nationwide Permits." These files contain the description of the Nationwide Permit authorization, the Nationwide Permit general conditions, and the regional conditions, which apply specifically to this verification for NWP 3. Enclosed is a list of the six General Conditions, which apply to all Department of the Army authorizations. You must comply with all of the special and general conditions and any project specific condition of this authorization or you may be subject to enforcement action. In the event you have not completed construction of your project within the specified time limit, a separate application or re-verification may be required.

The following project-specific conditions are included with this authorization:

1. REPORTING ADDRESS: The Permittee shall submit all reports, notifications, documentation and correspondence required by the general and special conditions of this permit to the following address:

a. For standard mail: U.S. Army Corps of Engineers, Regulatory Division, Special Projects and Enforcement Branch, 9900 Southwest 107th Avenue, Suite 203, Miami, Florida 33176.

b. For electronic mail CESAJ-ComplyDocs@usace.army.mil (not to exceed 10 MB).

The Permittee shall reference this permit number, SAJ-2017-01874 (NW-3-GGM), on all submittals.

2. SELF-CERTIFICATION: Within 60 days of completion of the work authorized by this permit, the Permittee shall complete the attached "Self-Certification Statement of Compliance" form (Attached) and submit it to the Corps. In the event that the completed work deviates in any manner from the authorized work, the Permittee shall describe the deviations between the work authorized by this permit and the work as constructed on the "Self-Certification Statement of Compliance" form. The description of any deviations

on the "Self-Certification Statement of Compliance" form does not constitute approval of any deviations by the Corps.

3. Assurance of Navigation and Maintenance: The Permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structures or work herein authorized, or if in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the Permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

4. MANATEE CONDITIONS: The Permittee shall comply with the "Standard Manatee Conditions for In-Water Work – 2011" (Attached).

5. Sea Turtle and Smalltooth Sawfish Conditions: The Permittee shall comply with National Marine Fisheries Service's "Sea Turtle and Smalltooth Sawfish Construction Conditions" dated March 23, 2006 (Attached).

6. POSTING OF PERMIT: The Permittee shall ensure that all contractors, sub-contractors, and entities associated with the implementation of the project review, understand, and comply with the approved plans and special conditions made part of this permit. The Permittee shall inform all parties associated with the activity of the construction area boundaries, and the location of adjacent submerged aquatic resources (i.e. corals, seagrass) to be avoided. Complete copies of the permit and approved plans shall be available at the construction site at all times. Failure to comply with the approved plans and permit special conditions may subject the Permittee to enforcement action.

7. AGENCY CHANGES/APPROVALS: Should any other agency require and/or approve changes to the work authorized or obligated by this permit, the Permittee is advised a re-verification to this permit instrument is required prior to initiation of those changes. It is the Permittee's responsibility to request a re-verification of this permit from the **Miami** Permits Section. The Corps reserves the right to fully evaluate, amend, and approve or deny the request for re-verification of this permit.

8. HISTORIC PROPERTIES:

a. No structure or work shall adversely affect impact or disturb properties listed in the National Register of Historic Places (NRHP) or those eligible for inclusion in the NRHP.

b. If during the ground disturbing activities and construction work within the permit area, there are archaeological/cultural materials encountered which were not the subject of a previous cultural resources assessment survey (and which shall include, but not be limited to: pottery, modified shell, flora, fauna, human remains, ceramics, stone tools or metal implements, dugout canoes, evidence of structures or any other physical remains that could be associated with Native American cultures or early colonial or American settlement), the Permittee shall immediately stop all work and ground-disturbing activities within a 100-meter diameter of the discovery and notify the Corps within the same business day (8 hours). The Corps shall then notify the Florida State Historic Preservation Officer (SHPO) and the appropriate Tribal Historic Preservation Officer(s) (THPO(s)) to assess the significance of the discovery and devise appropriate actions.

c. Additional cultural resources assessments may be required of the permit area in the case of unanticipated discoveries as referenced in accordance with the above Special Condition ; and if deemed necessary by the SHPO, THPO(s), or Corps, in accordance with 36 CFR 800 or 33 CFR 325, Appendix C (5). Based, on the circumstances of the discovery, equity to all parties, and considerations of the public interest, the Corps may modify, suspend or revoke the permit in accordance with 33 CFR Part 325.7. Such activity shall not resume on non-federal lands without written authorization from the SHPO for finds under his or her jurisdiction, and from the Corps.

d. In the unlikely event that unmarked human remains are identified on non-federal lands, they will be treated in accordance with Section 872.05 Florida Statutes. All work and ground disturbing activities within a 100-meter diameter of the unmarked human remains shall immediately cease and the Permittee shall immediately notify the medical examiner, Corps, and State Archeologist within the same business day (8-hours). The Corps shall then notify the appropriate SHPO and THPO(s). Based, on the circumstances of the discovery, equity to all parties, and considerations of the public interest, the Corps may modify, suspend or revoke the permit in accordance with 33 CFR Part 325.7. Such activity shall not resume without written authorization from the State Archeologist and from the Corps.

9. Florida Keys National Marine Sanctuary: This Corps permit does not authorize you to damage, diminish, degrade, impair, destroy, or otherwise harm any Florida Keys National Marine Sanctuary (FKNMS) trust resource. In order to legally conduct your work, you are provided with a copy of the FKNMS letter of Authorization, #FKNMS-2017-097-A1) dated August 13, 2018. You must understand and agree to comply with the provisions of this document. The FKNMS letter contains mandatory terms and conditions. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with the FKNMS requirements, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions would constitute noncompliance with your Corps permit. The FKNMS is the appropriate authority to determine compliance with the terms and conditions of its requirements and with the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1432).

10. BEST MANAGEMENT PRACTICE (BMP): Environmental controls and BMP must be implemented to properly contain construction materials and prevent fugitive particulates from entering surrounding waters during construction.

11. EROSION CONTROL: Prior to the initiation of any work authorized by this permit, the Permittee shall install erosion control measures along the perimeter of all work areas to prevent the displacement of fill material outside the work area into waters of the United States. The erosion control measures shall remain in place and be maintained until all authorized work is completed and the work areas are stabilized.

12. FILL MATERIAL: The Permittee shall use only clean fill material for this project. The fill material shall be free from items such as trash, debris, automotive parts, asphalt, construction materials, concrete block with exposed reinforcement bars, and soils contaminated with any toxic substance, in toxic amounts in accordance with Section 307 of the Clean Water Act.

13. Project Design Criteria (PDCs) For In-Water Activities: The Permittee shall comply with National Marine Fisheries Service's "PDCs for In-Water Activities" dated November 20, 2017 (Attached).

14. TURBIDITY CONTROLS:

- a. Shall be used throughout construction to control erosion and siltation and ensure that turbidity levels within the project area do not exceed background conditions.
- b. Shall be made of material in which listed species cannot become entangled (i.e., reinforced impermeable polycarbonate vinyl fabric [PVC]), and shall be monitored to ensure listed species are not entangled or trapped in the project area.
- c. Shall be removed promptly when the work is complete and the water quality in the project area has returned to background conditions.
- d. Shall not block entry to or exit from designated critical habitat.

15. DAYLIGHT HOURS: All activities must be completed during daylight hours.

16. CONSTRUCTION LOCATION: Project construction shall take place from uplands or from floating equipment (e.g., barge); prop or wheel-washing is prohibited.

17. SPECIES REPORTING: Any collision(s) with and/or injuries to any sea turtle, sawfish, whale, or sturgeon occurring during the construction of a project, shall be reported immediately to NMFS's Protected Resources Division (PRD) at (727-824-5312) or by email to takereport.nmfs@noaa.gov and CESAJ-ComplyDocs@usace.army.mil. Sea turtle and marine mammal stranding/rescue organizations' contact information is available by region at <http://www.nmfs.noaa.gov/pr/health/networks.htm>. Smalltooth sawfish encounters shall be reported to <http://www.flmnh.ufl.edu/fish/sharks/sawfish/sawfishencounters.html>. *Failure to report take of a federally listed threatened or endangered species may lead to suspension, revocation, or modification of this authorization. (From Section 3(18) of the Federal Endangered Species Act: The term 'take' means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.)

18. PROJECT DRAWINGS: The project must be completed in accordance with the enclosed construction drawings (13 pages), date-stamped by the U.S. Army Corps of Engineers (Corps) on October 11, 2018 and the general and special conditions which are incorporated in, and made a part of, the permit.

This authorization does not include conditions that would prevent the 'take' of a state-listed fish or wildlife species. These species are protected under sec. 379.411, Florida Statutes, and listed under Rule 68A-27, Florida Administrative Code. With regard to fish and wildlife species designated as species of special concern or threatened by the State of Florida, you are responsible for coordinating directly with the Florida Fish and Wildlife Conservation Commission (FWC). Permittees can visit the FWC license and permitting webpage (<http://www.myfwc.com/license/wildlife/>) for more information, including a list of those fish and wildlife species designated as species of special concern or threatened. The Florida Natural Areas Inventory (<http://www.fnai.org/>) also maintains updates lists, by county, of documented occurrences of those species.

This letter of authorization does not give absolute Federal authority to perform the work as specified on your application. The proposed work may be subject to local building restrictions mandated by the National Flood Insurance Program. You should contact your local office that issues building permits to determine if your site is located in a flood-prone area, and if you must comply with the local building requirements mandated by the National Flood Insurance Program.

If you are unable to access the internet or require a hardcopy of any of the conditions, limitations, or expiration date for the above referenced GP, please contact Gletys Guardia-Montoya by telephone at 305-526-2515 or by email at Gletys.Guardia-Montoya@usace.army.mil.

Thank you for your cooperation with our permit program. The Corps Jacksonville District Regulatory Division is committed to improving service to our customers. We strive to perform our duty in a friendly and timely manner while working to preserve our environment. We invite you to take a few minutes to visit <http://per2.nwp.usace.army.mil/survey.html> and complete our automated Customer Service Survey. Your input is appreciated – favorable or otherwise. Again, please be aware this web address is case sensitive and should be entered as it appears above.

Sincerely,

Gletys Guardia-Montoya
Project Manager

Enclosures:

General Conditions
Self-Certification Statement of Compliance
Permit Transfer Request
Site plans (13 pages) dated by the Corps October 11, 2018
FKNMS Letter of Authorization (2 pages) dated August 13, 2018
FWS Standard Manatee Conditions for In-Water Work (2011)
NMFS Sea Turtle and Smalltooth Sawfish Construction Conditions (2006)
NMFS' "PDCs for In-Water Activities" dated November 20, 2017.

Copies Furnished: via e-mail

Applicant:
City of Key West
Doug Bradshaw
dbradshaw@cityofkeywest-fl.gov

Agents:
Tetra Tech, Inc.
McGahee, Stuart
Stuart.McGahee@tetrattech.com

MartinezRivera, Francisco
Francisco.MartinezRivera@tetrattech.com

Frodsham, Dave
Dave.Frodsham@tetrattech.com

CESAJ-RD-PE

GENERAL CONDITIONS

33 CFR PART 320-330

PUBLISHED FEDERAL REGISTER DATED 13 NOVEMBER 1986

1. The time limit for completing the work authorized ends on **date identified in the letter**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow a representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

SELF-CERTIFICATION STATEMENT OF COMPLIANCE

Permit Number: NW-GGM

Application Number: SAJ-2017-01874

Permittee's Name & Address (please print or type): _____

Telephone Number: _____

Location of the Work: _____

Date Work Started: _____ Date Work Completed: _____

PROPERTY IS INACCESSIBLE WITHOUT PRIOR NOTIFICATION: YES ____ NO ____

PLEASE CONTACT _____ AT _____

TO SCHEDULE AN INSPECTION

Description of the Work (e.g. bank stabilization, residential or commercial filling, docks, dredging, etc.):

Acreage or Square Feet of Impacts to Waters of the United States: _____

Describe Mitigation completed (if applicable): _____

Describe any Deviations from Permit (attach drawing(s) depicting the deviations):

I certify that all work, and mitigation (if applicable) was done in accordance with the limitations and conditions as described in the permit. Any deviations as described above are depicted on the attached drawing(s).

Signature of Permittee

Date

DEPARTMENT OF THE ARMY PERMIT TRANSFER REQUEST

PERMIT NUMBER: SAJ-2017-01874-(NW-GGM)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. Although the construction period for works authorized by Department of the Army permits is finite, the permit itself, with its limitations, does not expire.

To validate the transfer of this permit and the associated responsibilities associated with compliance with its terms and conditions, have the transferee sign and date below and mail to the U.S. Army Corps of Engineers, Enforcement Branch, Post Office Box 4970, Jacksonville, FL 32232-0019.

(TRANSFEREE-SIGNATURE)

(SUBDIVISION)

(DATE)

(LOT)

(BLOCK)

(NAME-PRINTED)

(STREET ADDRESS)

(MAILING ADDRESS)

(CITY, STATE, ZIP CODE)



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

Florida Keys National Marine Sanctuary
33 East Quay Road
Key West, FL 33040

August 13, 2018

Ms. Gletys Guardia-Montoya
Department of the Army Jacksonville District Corps of Engineers
Miami Regulatory Office
9900 Southwest 107th Avenue, Suite 203
Miami, FL 33176

Dear Ms. Guardia-Montoya:

NOAA Florida Keys National Marine Sanctuary (FKNMS or sanctuary) has reviewed revised plans (dated June 12, 2018) for Department of the Army Corps of Engineers (DA Corps) application no. 2017-01874 (NW-GGM). The applicant, City of Key West, is requesting a permit to conduct repairs by installing a concrete footer along approximately 430 linear feet of seawall at Turtle Kraals, 231 Margaret Street, Key West, Monroe County, FL. A benthic survey provided by the applicant's agent documented small stony corals in the construction area. The proposed activity is prohibited by FKNMS regulations at 15 CFR § 922.163(a)(2).

NOAA appreciates the applicant's willingness to mitigate for unavoidable impacts to corals and to remove debris at the project site. These actions will preserve the functional value of the resources that may be impacted by the project. Therefore, pursuant to 15 CFR § 922.49, NOAA does not object to the issuance of a DA Corps permit for the project as proposed, and a separate FKNMS permit will not be required, **if the attached measures are enacted by the applicant (City of Key West) or their agent/contractor**. These terms and conditions have been deemed reasonable to protect sanctuary resources and qualities per NOAA authority at 15 CFR § 922.49.

This determination is only applicable to DA Corps application no. 2017-01874 (NW-GGM). If any changes are made to the project description in the application, DA Corps shall notify NOAA and this letter of authorization will be rescinded. Upon such notification, NOAA shall re-review the project and special conditions and provide a supplementary determination. Further information on sanctuary permit review and authorization is set forth at 15 CFR § 922.49.

This project has been assigned authorization #FKNMS-2017-097-A1. Please contact FKNMS Permit Coordinator Joanne Delaney at Joanne.Delaney@noaa.gov if you have questions about the sanctuary's determination on this project. Thank you for your continued cooperation with the Florida Keys National Marine Sanctuary.

Sincerely,

Sarah Fangman
Superintendent

cc: Dave Frodsham, Francisco Martinez, Tetra Tech



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

Florida Keys National Marine Sanctuary
33 East Quay Road
Key West, FL 33040

NOAA Florida Keys National Marine Sanctuary
Required Conditions for City of Key West seawall repairs
Authorization #FKNMS-2017-097-A1

1. All debris along the seawall repair area, and any other observable debris in the vicinity of the project, must be removed from waters of FKNMS and disposed of at an authorized upland waste disposal facility.
2. No construction debris may be deposited in waters of FKNMS at or near the project site at any time. A post-construction benthic survey to inspect compliance with this condition may be required. Should construction debris be evident in adjacent waters, the applicant or his agent will be required to clean up all items immediately and mitigate for any resource injury.



TETRA TECH INC.
759 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429



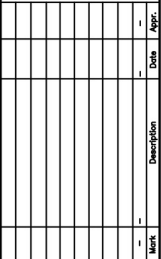
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Sheet 2 of 13



**USACE SAJ-2017-01874-(NW-GGM).
Page 2 of 13. October 11, 2018.**

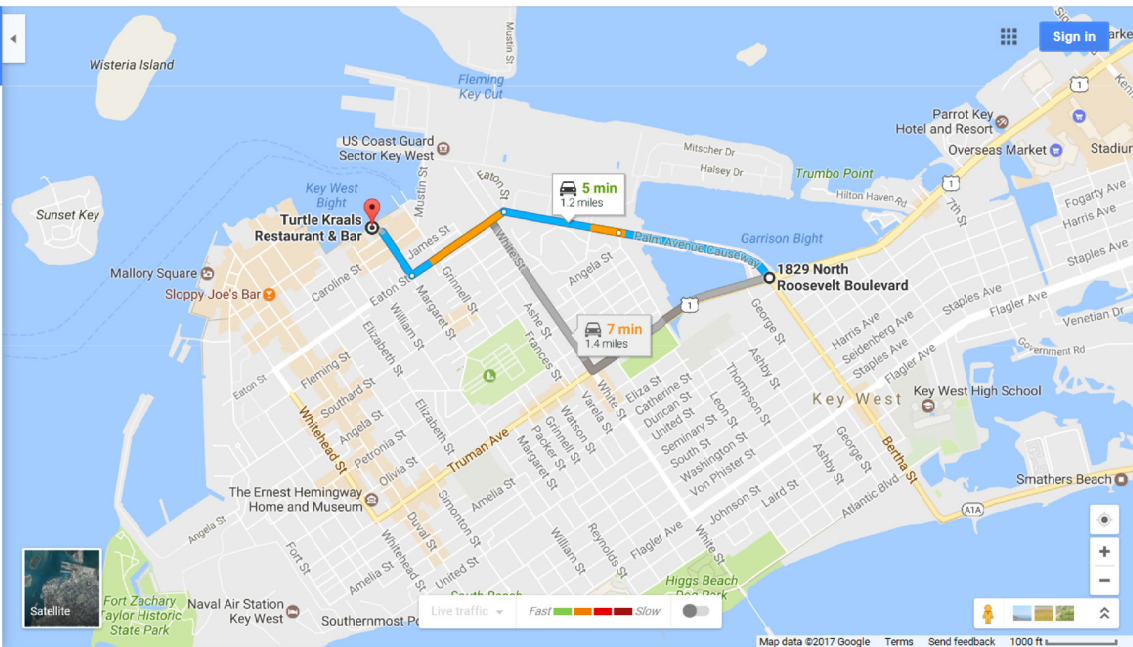


PARCEL ID: 00680.0000
OWNER: CITY OF KEY WEST
LOCATION: 800 BLK CAROLINE ST.,
KEY WEST, FL
LEGAL DESCRIPTION:
KW LOT 1 & 2 SQR 10 (A/K/A PUBLIC
PARKING LOT WITHIN KEY WEST BIGHT)

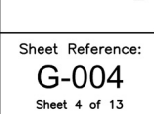


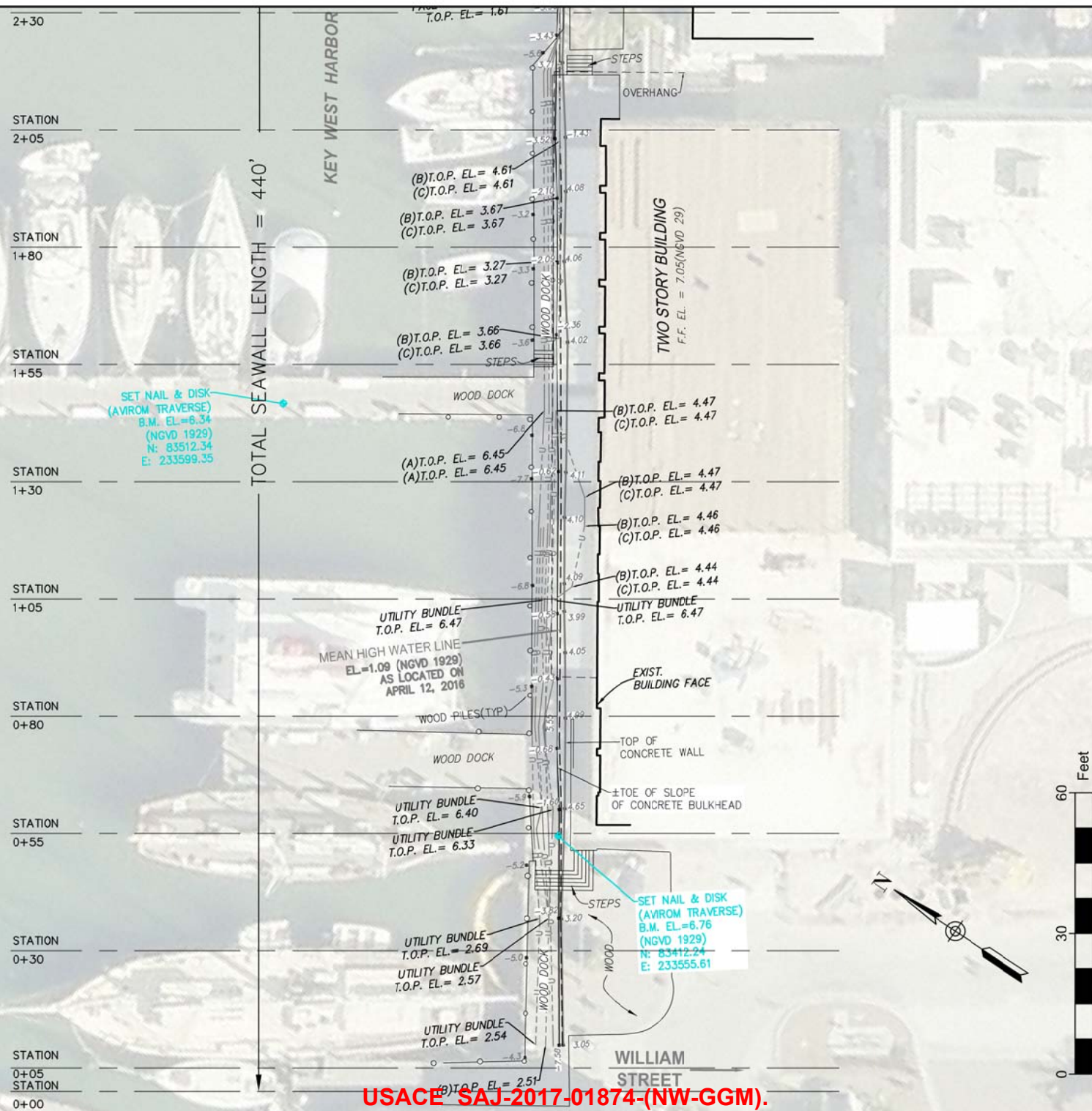
CITY OF KEY WEST
TURTLE KRAALS SEAWALL REPAIR
VICINITY MAP AND DIRECTIONS TO SITE
KEY WEST, MONROE COUNTY, FLORIDA

Sheet Reference:
G-003
Sheet 3 of 13



FOR PERMITTING
NOT FOR CONSTRUCTION





Sheet Reference:
C-101
Sheet 5 of 13

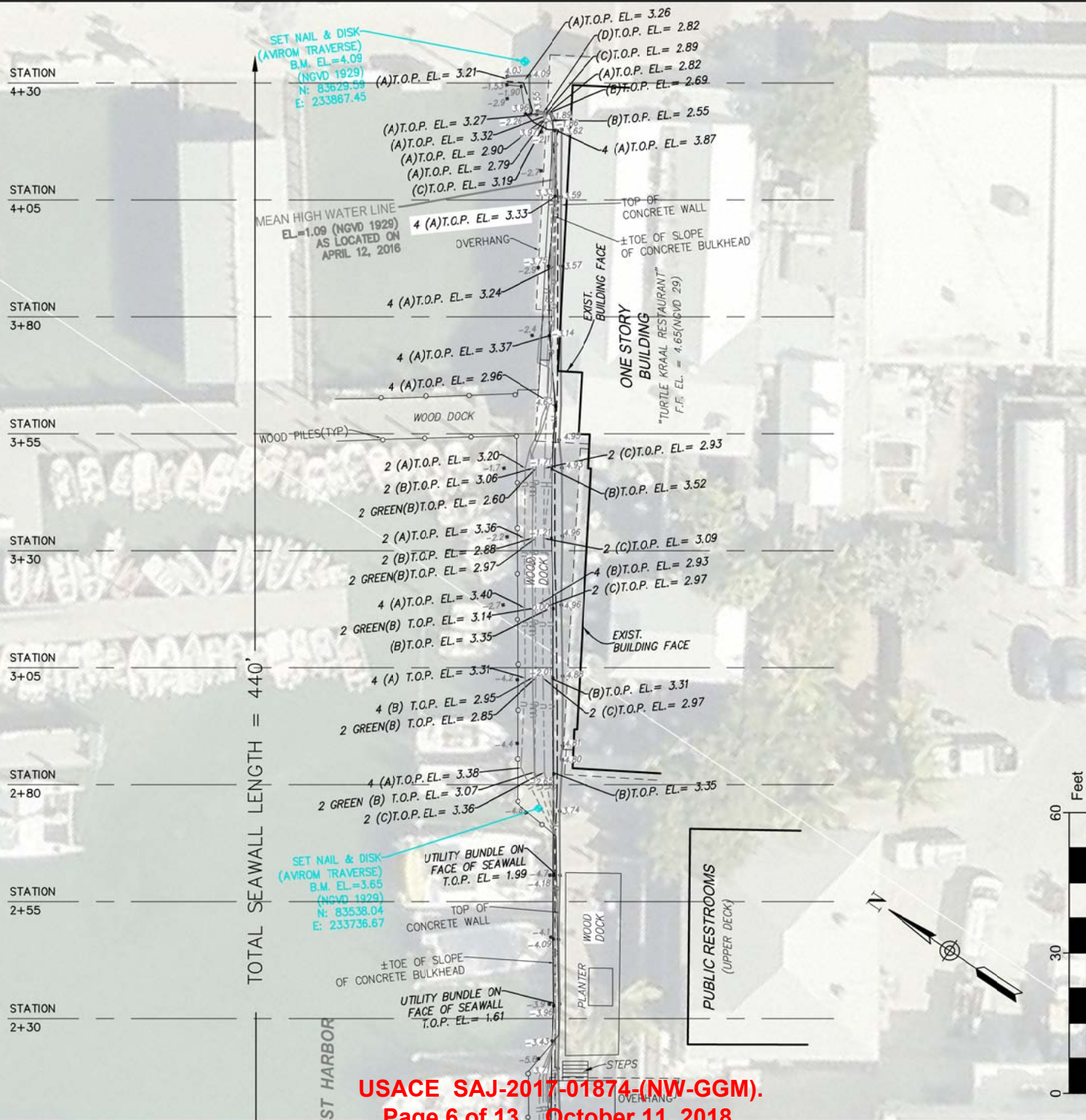
Designed by: S. MCGAHEE	TETRA TECH INC. 759 SOUTH FEDERAL HWY SUITE 314 STUART, FL 34994-2936 TEL: (772) 781-3400 FAX: (772) 781-3411
Drawn By: F. MARTINEZ	
Reviewed By: ---	
Date: 1/26/18	
Design file no: TR_SURVEY_V01.DWG	
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TETRA TECH INC.
759 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411

CERTIFICATE OF AUTHORIZATION
NO. 2429

CITY OF KEY WEST
TURTLE KRAALS SEAWALL REPAIR
SEAWALL SURVEY PLAN VIEW WITH AERIAL
KEY WEST, MONROE COUNTY, FLORIDA





FOR PERMITTING
NOT FOR CONSTRUCTION

NOTE: SURVEY PERFORMED BY AVIROM & ASSOCIATES, INC. 1/20/17.



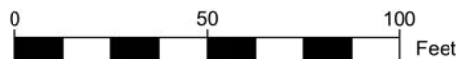
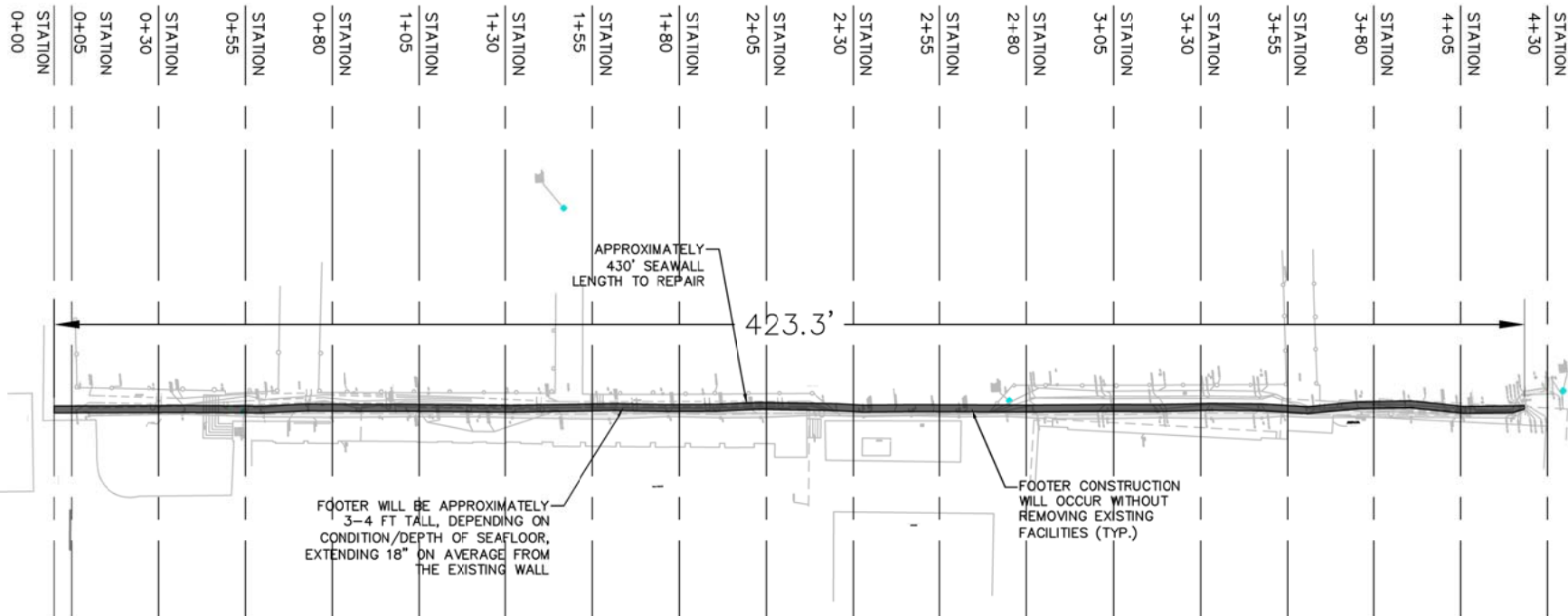
CITY OF KEY WEST
TURTLE KRAALS SEAWALL REPAIR
SEAWALL SURVEY PLAN VIEW WITH AERIAL
KEY WEST, MONROE COUNTY, FLORIDA



TETRA TECH INC.
759 SOUTH FEDERAL HWY
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION
NO. 2429

Designed By: S. MCGAHEE
Drawn By: F. MARTINEZ
Reviewed By:
Date: 1/26/18
Design file no: TC_SWWP_V006
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Sheet Reference:
C-102
Sheet 6 of 13



FOR PERMITTING
NOT FOR CONSTRUCTION



CITY OF KEY WEST
TURTLE KRAALS SEAWALL REPAIR

SEAWALL FOOTER PLAN VIEW
KEY WEST, MONROE COUNTY, FLORIDA

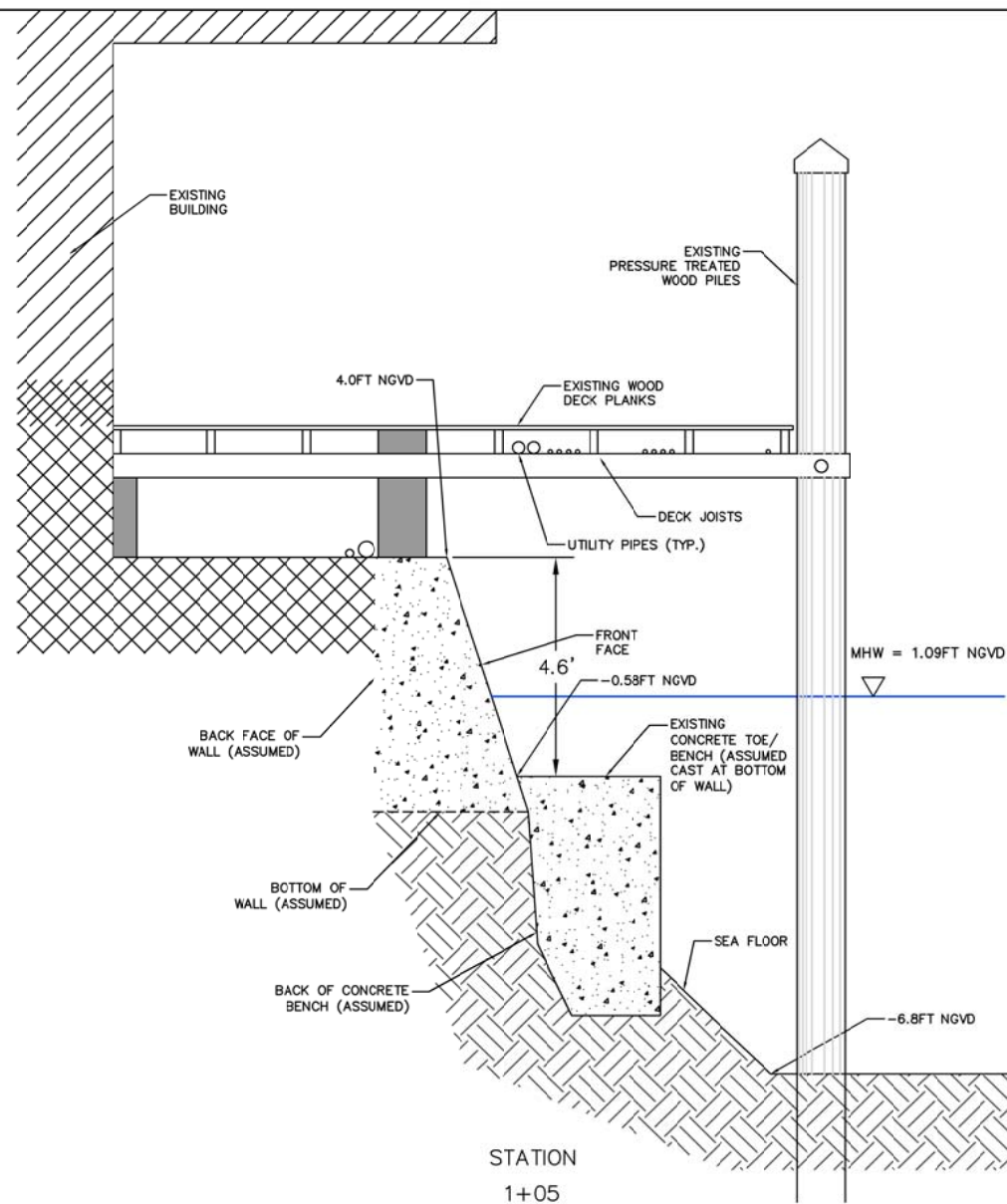
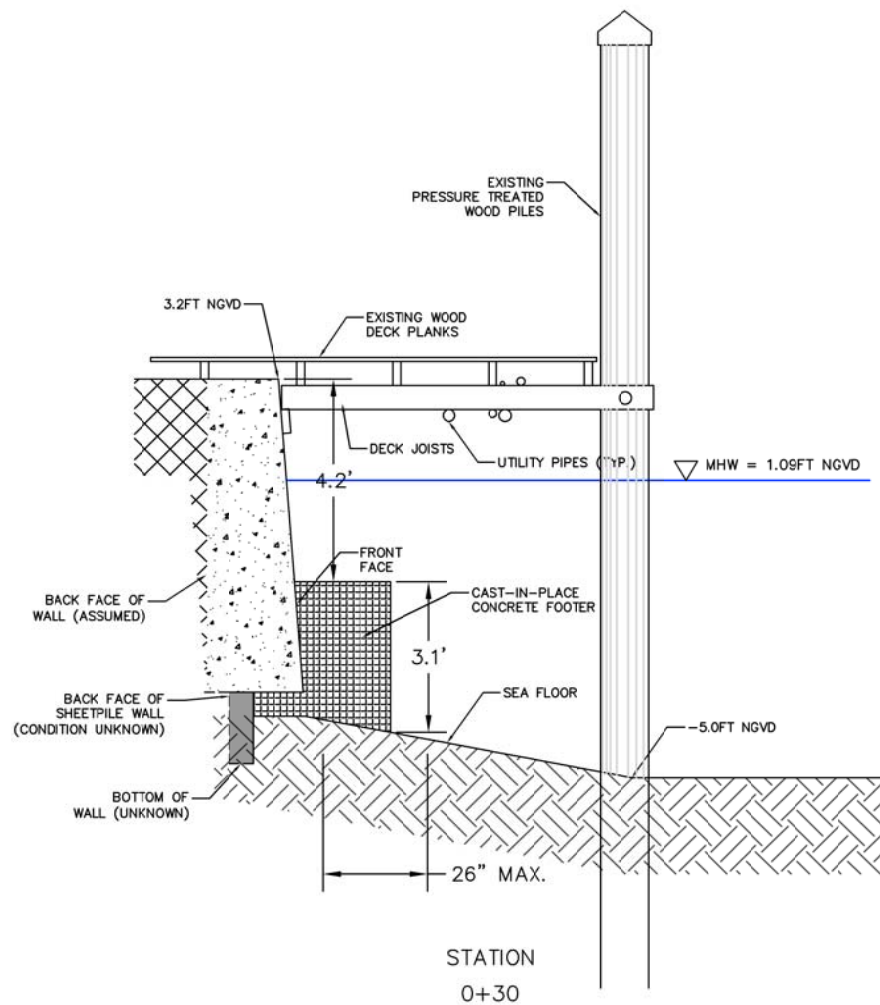


TETRA TECH, INC.
759 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
PROJECT NO. 2429

USACE SAJ-2017-01874 (NW-GGM).
Page 7 of 13. October 11, 2018.

Designed by:
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Drawn By:
F. MARTINEZ
Reviewed By:
D. FRODSHAM
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1/26/18
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Sheet Reference:
C-103
Sheet 7 of 13



FOR PERMITTING
NOT FOR CONSTRUCTION



CITY OF KEY WEST
TURTLE KRAALS SEAWALL REPAIR

SEAWALL FOOTER REPAIR CROSS-SECTIONS

KEY WEST, MONROE COUNTY, FLORIDA

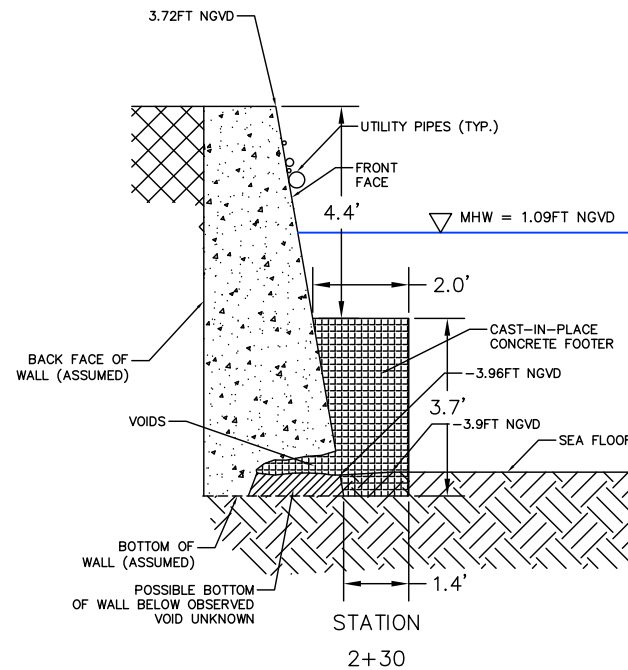
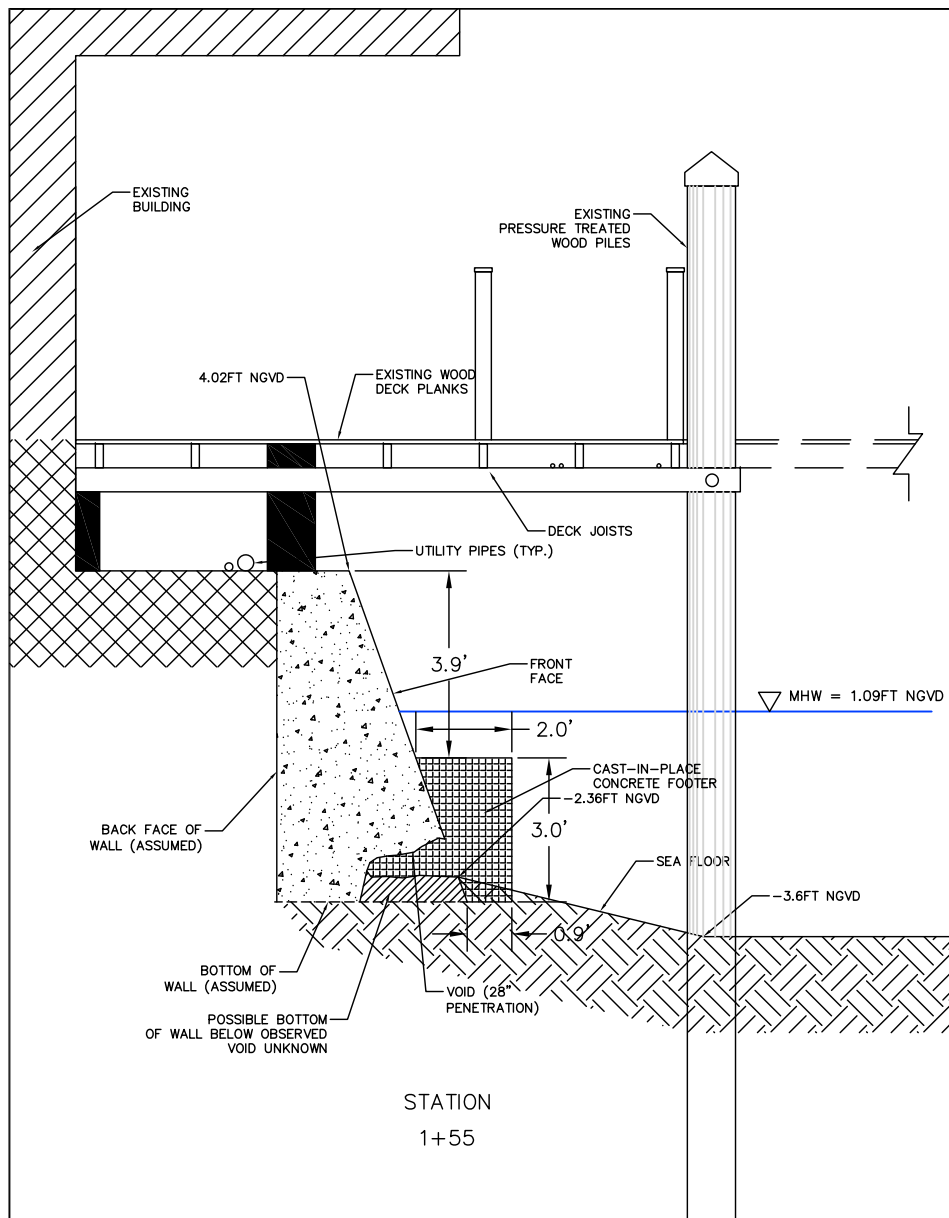


TETRA TECH, INC.
759 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
TETRA TECH, INC. IS AN EQUAL OPPORTUNITY
EMPLOYER. M/F/V/D

USACE SAJ-2017-01874 (NW-GGM).
Page 8 of 13. October 11, 2018.

Designed by:
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Drawn By:
F. MARTINEZ
Reviewed By:
D. FRODSHAM
Date:
1/26/18
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C-104
Sheet 8 of 13



FOR PERMITTING
NOT FOR CONSTRUCTION



CITY OF KEY WEST
TURTLE KRAALS SEAWALL REPAIR

SEAWALL FOOTER REPAIR CROSS-SECTIONS

KEY WEST, MONROE COUNTY, FLORIDA

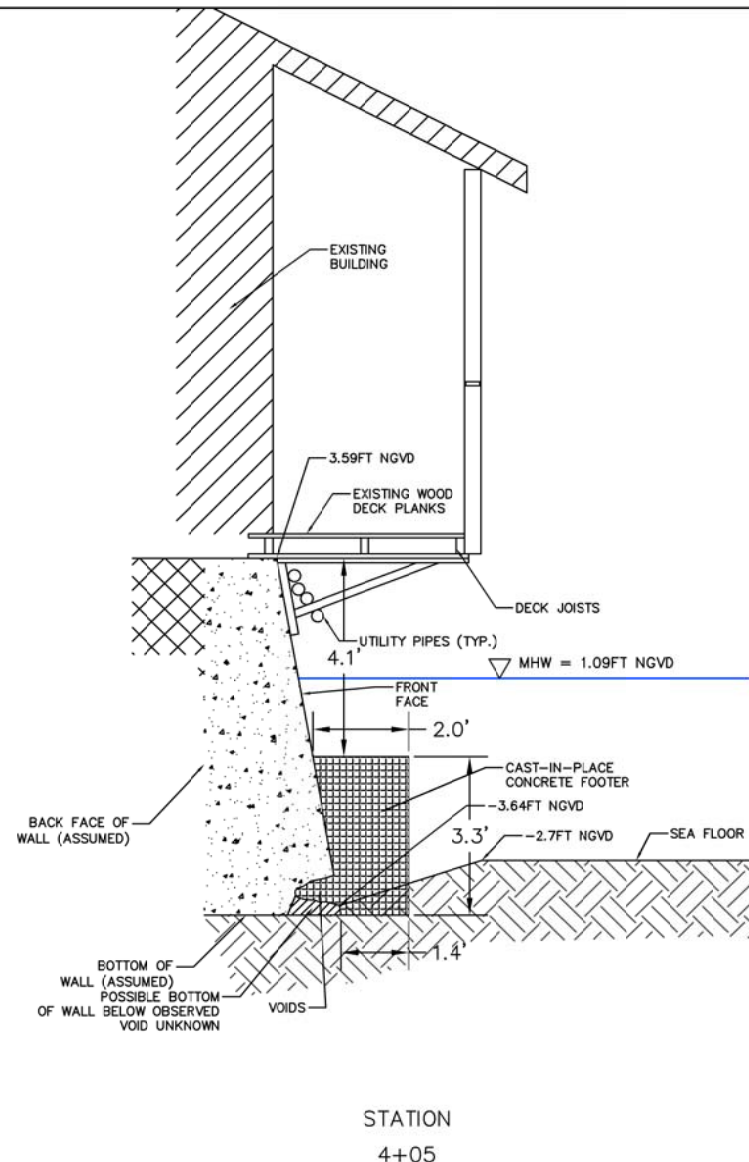
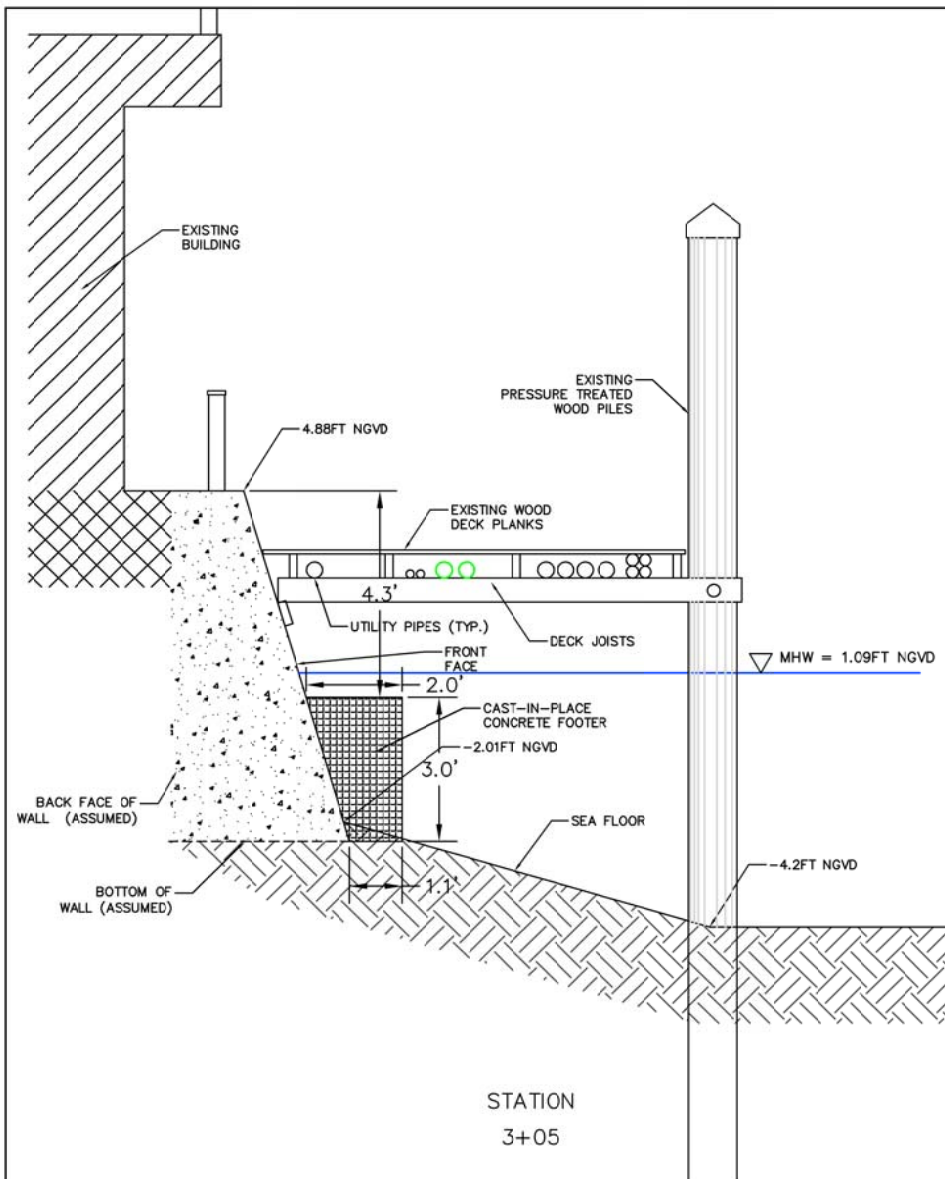


TETRA TECH, INC.
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STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
TETRA TECH IS AN EQUAL OPPORTUNITY
EMPLOYER. NO. 2429

USACE SAJ-2017-01874 (NW-GGM).
Page 9 of 13. October 11, 2018.

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F. MARTINEZ
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D. FRODSHAM
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C-105
Sheet 9 of 13



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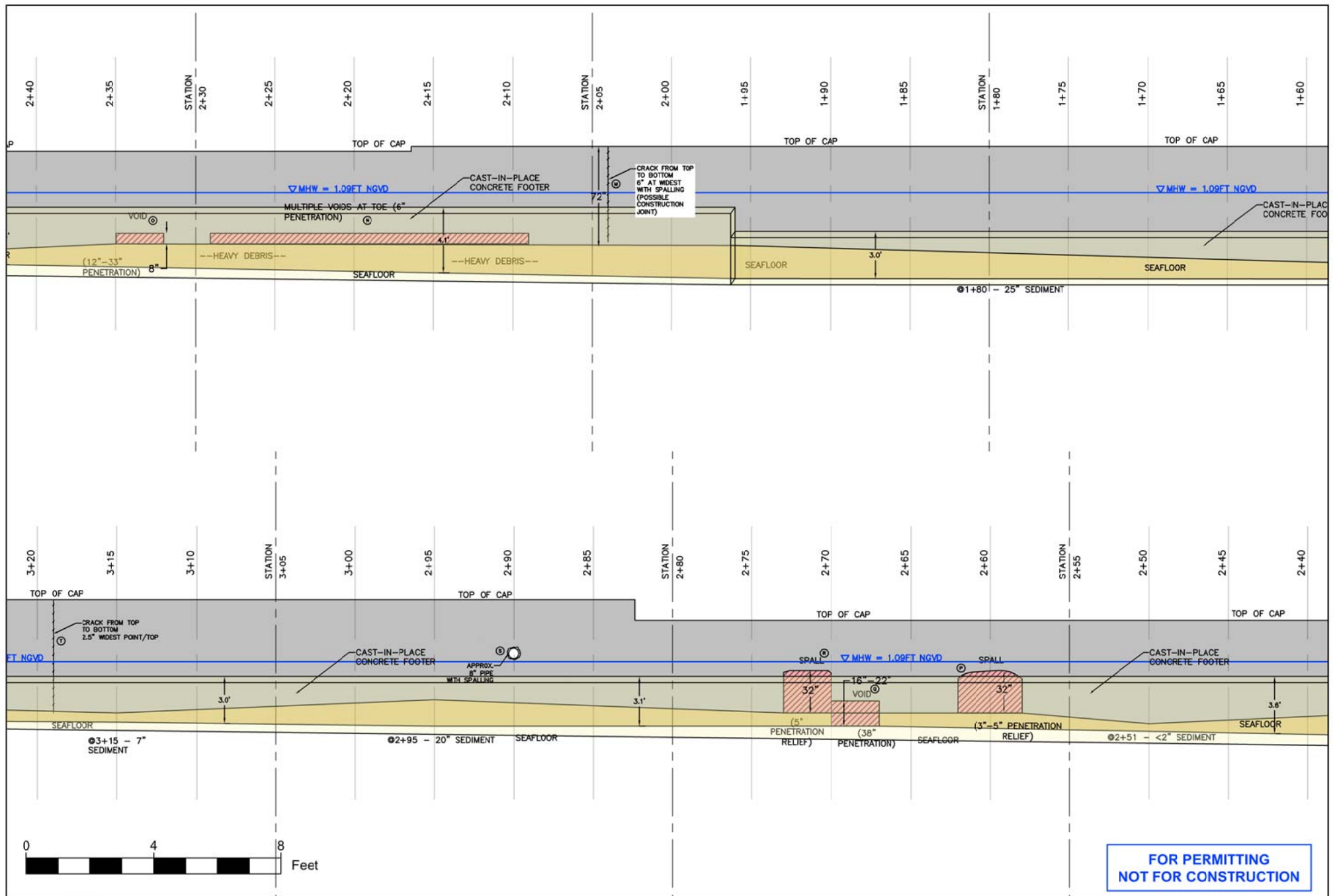
CITY OF KEY WEST
TURTLE KRAALS SEAWALL REPAIR
SEAWALL FOOTER REPAIR CROSS-SECTIONS
KEY WEST, MONROE COUNTY, FLORIDA

Tt TETRA TECH, INC.
759 SOUTH FEDERAL HWY
SUITE 314
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
E-MAIL: info@tetra-tech.com
NO. 2429

USACE SAJ-2017-01874 (NW-GGM).
Page 10 of 13. October 11, 2018.

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Drawn By:
F. MARTINEZ
Reviewed By:
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Sheet Reference:
C-106
Sheet 10 of 13



FOR PERMITTING
NOT FOR CONSTRUCTION



CITY OF KEY WEST
TURTLE KRAALS SEAWALL REPAIR

SEAWALL FOOTER REPAIR FACE VIEW
KEY WEST, MONROE COUNTY, FLORIDA

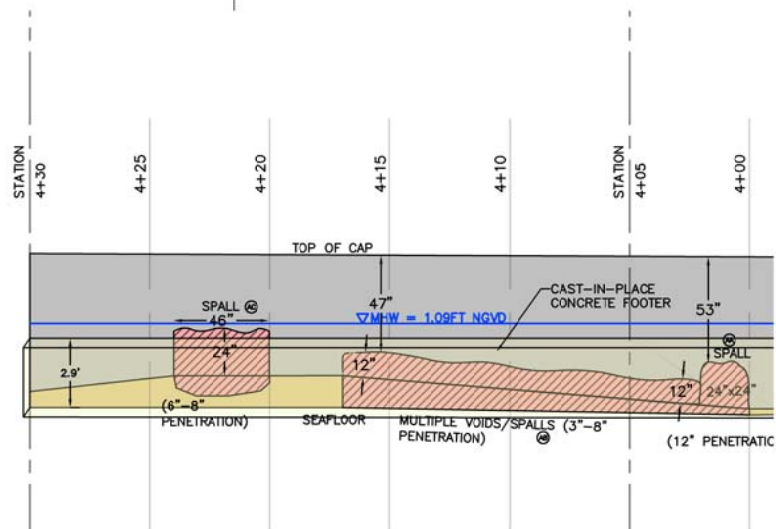
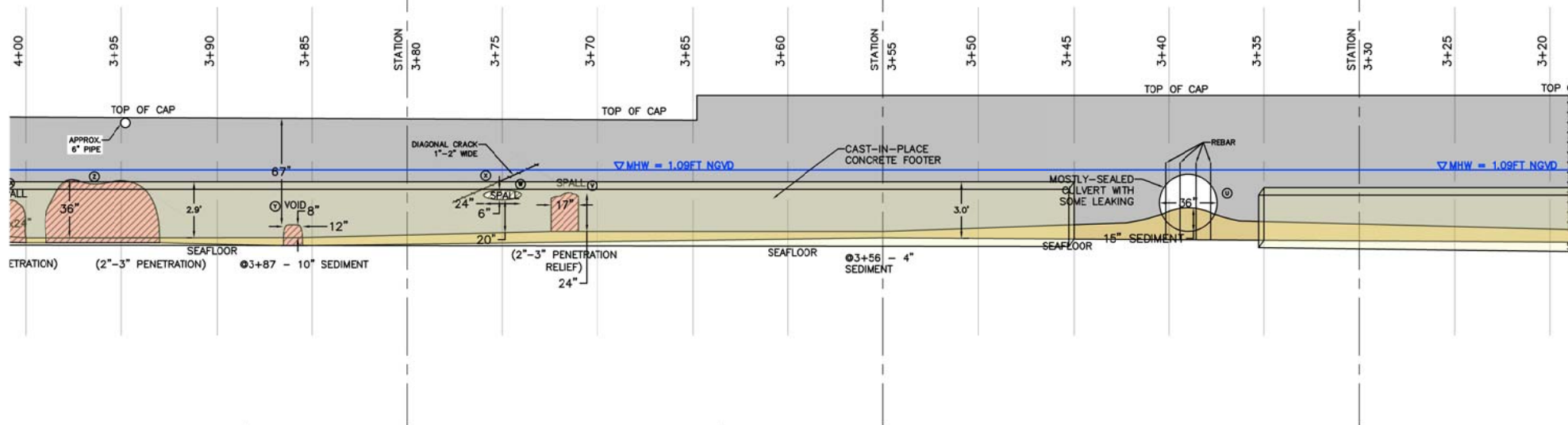


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USACE SAJ-2017-01874 (NW-GGM).
Page 12 of 13. October 11, 2018.

Designed by:
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Drawn By:
F. MARTINEZ
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1/26/18
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Sheet Reference:
C-108
Sheet 12 of 13



FOR PERMITTING
NOT FOR CONSTRUCTION



CITY OF KEY WEST
TURTLE KRAALS SEAWALL REPAIR

SEAWALL FOOTER REPAIR FACE VIEW
KEY WEST, MONROE COUNTY, FLORIDA



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EMPLOYER. NO. 2429

USACE SAJ-2017-01874 (NW-GGM).
Page 13 of 13. October 11, 2018.

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F. MARTINEZ
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1/26/18
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TK_DESIGN_V3_FULL FOOTER.DWG
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Sheet Reference:
C-109
Sheet 13 of 13



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, FL 33701

SEA TURTLE AND SMALLTOOTH SAWFISH CONSTRUCTION CONDITIONS

The permittee shall comply with the following protected species construction conditions:

- a. The permittee shall instruct all personnel associated with the project of the potential presence of these species and the need to avoid collisions with sea turtles and smalltooth sawfish. All construction personnel are responsible for observing water-related activities for the presence of these species.
- b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing sea turtles or smalltooth sawfish, which are protected under the Endangered Species Act of 1973.
- c. Siltation barriers shall be made of material in which a sea turtle or smalltooth sawfish cannot become entangled, be properly secured, and be regularly monitored to avoid protected species entrapment. Barriers may not block sea turtle or smalltooth sawfish entry to or exit from designated critical habitat without prior agreement from the National Marine Fisheries Service's Protected Resources Division, St. Petersburg, Florida.
- d. All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will preferentially follow deep-water routes (e.g., marked channels) whenever possible.
- e. If a sea turtle or smalltooth sawfish is seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a sea turtle or smalltooth sawfish. Operation of any mechanical construction equipment shall cease immediately if a sea turtle or smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition.
- f. Any collision with and/or injury to a sea turtle or smalltooth sawfish shall be reported immediately to the National Marine Fisheries Service's Protected Resources Division (727-824-5312) and the local authorized sea turtle stranding/rescue organization.
- g. Any special construction conditions, required of your specific project, outside these general conditions, if applicable, will be addressed in the primary consultation.

Revised: March 23, 2006

O:\forms\Sea Turtle and Smalltooth Sawfish Construction Conditions.doc



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 Florida Fish and Wildlife Conservation Commission (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 FWC must be used. One sign which reads *Caution: Boaters* must be posted. A second sign measuring at least 8 ½" by 11" explaining the requirements for "Idle Speed/No Wake" and the shut down of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities. These signs can be viewed at MyFWC.com/manatee. Questions concerning these signs can be sent to the email address listed above.

CAUTION: MANATEE HABITAT

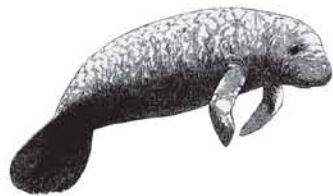
All project vessels

IDLE SPEED / NO WAKE

When a manatee is within 50 feet of work
all in-water activities must

SHUT DOWN

Report any collision with or injury to a manatee:



Wildlife Alert:

1-888-404-FWCC(3922)

cell *FWC or #FWC

**U.S. Army Corps of Engineers Jacksonville District's Programmatic Biological
Opinion (JaxBO) Project Design Criteria (PDCs) for In-Water Activities**

November 20, 2017

- 1) **(AP.7.) Education and Observation:** The permittee must ensure that all personnel associated with the project are instructed about the potential presence of species protected under the ESA and the Marine Mammal Protection Act (MMPA). All on-site project personnel are responsible for observing water-related activities for the presence of protected species. All personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing ESA-listed species or marine mammals. To determine which species may be found in the project area, please review the relevant Protected Species List at:
http://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/index.html
- 2) **(AP.8.) Reporting** of interactions with protected species:
 - a) Any collision(s) with and/or injury to any sea turtle, sawfish, whale, or sturgeon occurring during the construction of a project, shall be reported immediately to NMFS's Protected Resources Division (PRD) at (1-727-824-5312) or by email to takereport.nmfs@noaa.gov and SAJ-RD-Enforcement@usace.army.mil.
 - b) Smalltooth sawfish: Report sightings to 1-844-SAWFISH or email Sawfish@MyFWC.com
 - c) Sturgeon: Report dead sturgeon to 1-844-STURG 911 (1-844-788-7491) or email nmfs.ser.sturgeonnetwork@noaa.gov
 - d) Sea turtles and marine mammals: Report stranded, injured, or dead animals to 1-877-WHALE HELP (1-877-942-5343).
 - e) North Atlantic right whale: Report injured, dead, or entangled right whales to the USCG via VHF Channel 16.
- 3) **(AP.9.) Vessel Traffic and Construction Equipment:** All vessel operators must watch for and avoid collision with species protected under the ESA and MMPA. Vessel operators must avoid potential interactions with protected species and operate in accordance with the following protective measures:
 - a) *Construction Equipment:*
 - i) All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while operating in water depths where the draft of the vessel provides less than a 4-foot (ft) clearance from the bottom, and in all depths after a protected species has been observed in and has departed the area.
 - ii) All vessels will follow marked channels and/or routes using the maximum water depth whenever possible.
 - iii) Operation of any mechanical construction equipment, including vessels, shall cease immediately if a listed species is observed within a 50-ft radius of

construction equipment and shall not resume until the species has departed the area of its own volition.

- iv) If the detection of species is not possible during certain weather conditions (e.g., fog, rain, wind), then in-water operations will cease until weather conditions improve and detection is again feasible.

b) *All Vessels:*

- i) Sea turtles: Maintain a minimum distance of 150 ft.
- ii) North Atlantic right whale: Maintain a minimum 1,500-ft distance (500 yards).
- iii) Vessels 65 ft in length or longer must comply with the Right Whale Ship Strike Reduction Rule (50 CFR 224.105) which includes reducing speeds to 10 knots or less in Seasonal Management Areas (<http://www.fisheries.noaa.gov/pr/shipstrike/>).
- iv) Mariners shall check various communication media for general information regarding avoiding ship strikes and specific information regarding right whale sightings in the area. These include NOAA weather radio, USCG NAVTEX broadcasts, and Notices to Mariners.
- v) Marine mammals (i.e., dolphins, whales [other than North Atlantic right whales], and porpoises): Maintain a minimum distance of 300 ft.
- vi) When these animals are sighted while the vessel is underway (e.g., bow-riding), attempt to remain parallel to the animal's course. Avoid excessive speed or abrupt changes in direction until they have left the area.
- vii) Reduce speed to 10 knots or less when mother/calf pairs or groups of marine mammals are observed, when safety permits.

- 4) **(AP.10.) Turbidity Control Measures during Construction:** Turbidity must be monitored and controlled. Prior to initiating any of the work covered under this Opinion, the Permittee shall install turbidity curtains as described below. In some instances, the use of turbidity curtains may be waived by the USACE project manager if the project is deemed too minimal to generate turbidity (e.g., certain ATON installation, scientific survey device placement, marine debris removal) or if the current is too strong for the curtains to stay in place. Turbidity curtains specifications:

- a) Install floating turbidity barriers with weighted skirts that extend to within 1 ft of the bottom around all work areas that are in, or adjacent to, surface waters.
- b) Use these turbidity barriers throughout construction to control erosion and siltation and ensure that turbidity levels within the project area do not exceed background conditions.
- c) Position turbidity barriers in a way that does not block species' entry to or exit from designated critical habitat.
- d) Monitor and maintain turbidity barriers in place until the authorized work has been completed and the water quality in the project area has returned to background conditions.
- e) In the range of ESA-listed corals (St. Lucie Inlet, Martin County south to the Dry Tortugas and the U.S. Caribbean) and Johnson's seagrass (Turkey Creek/Palm

Bay south to central Biscayne Bay in the lagoon systems on the east coast of Florida):

- i) Projects that include upland earth moving (e.g., grading to install a building or parking lot associated with a dock and seawall project), must install sediment control barriers to prevent any upland sediments from reaching estuarine or marine waters.
 - ii) The turbidity curtain requirement cannot be waived for any project that moves or removes sediment (e.g., dredging, auger to create a pile, trenching to install a cableline). If turbidity curtains are not feasible in an area based on site conditions such as water current, high wave action, or stormy conditions, the project must undergo individual Section 7 consultation and is not covered under this Programmatic Opinion.
- 5) **(AP.11.) Entanglement:** All turbidity curtains and other in-water equipment must be properly secured with materials that reduce the risk of entanglement of marine species (described below). Turbidity curtains likewise must be made of materials that reduce the risk of entanglement of marine species.
- a) In-water lines (rope, chain, and cable, including the lines to secure turbidity curtains) must be stiff, taut, and non-looping. Examples of such lines are heavy metal chains or heavy cables that do not readily loop and tangle. Flexible in-water lines, such as nylon rope or any lines that could loop or tangle, must be enclosed in a plastic or rubber sleeve/tube to add rigidity and prevent the line from looping and tangling. In all instances, no excess line is allowed in the water.
 - b) Turbidity curtains and other in-water equipment must be placed in a manner that does not entrap species within the construction area or block access for them to navigate around the construction area.

**GEOTECHNICAL RECOMMENDATIONS
TT PORT & MARINE SERVICES
SEAWALL IMPROVEMENTS
GREENE STREET & ELIZABETH STREET
KEY WEST, FL
DECEMBER 19, 2017
FILE NO.: 17-2606**



Ardaman & Associates, Inc.

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Ardaman & Associates, Inc.



Ardaman & Associates, Inc.

Geotechnical, Environmental and
Materials Consultants

December 19, 2017

File No.: 17-2606

Mr. Stuart E. McGahee, P.E.
Tetra Tech
759 S. Federal Highway, Suite 314
Stuart, FL 34994

**RE: GEOTECHNICAL RECOMMENDATIONS
 TT PORT & MARINE SERVICES
 SEAWALL IMPROVEMENTS
 GREENE STREET & ELIZABETH STREET
 KEY WEST, FL**

1.0 INTRODUCTION

In accordance with your request and authorization, Ardaman & Associates Inc. has completed additional geotechnical studies of the above-captioned project site. Our work included performing soil borings, laboratory testing and engineering evaluation of the existing soil conditions.

Our report has been prepared specifically for this project. It is intended for the exclusive use of Tetra Tech, and its representatives. Our work has used methods and procedures consistent with local foundation engineering practices. No other warranty, expressed or implied, is made. We do not guarantee project information in any respect, only that our work meets normal standards of professional care.

2.0 SITE LOCATION AND DESCRIPTION

The site is located at the Northeast corner of the intersection of Greene Street and Elizabeth Street in the West, Key West, FL. A site vicinity map is presented as our Figure 1. The site consists of an operating boat pier facility where charter small and medium size boats take out tourists in pleasure or fishing trips.

3.0 PROJECT DESCRIPTION

We understand that the project will consist of the redesign and rehabilitation of the seawall that is currently at the subject site. The seawall has L shape with a long leg of about 330 feet extending to the East and short leg of about 200 feet to the North.

4.0 GENERAL SURFACE CONDITIONS

The boring logs in Appendix I present a detailed description of the soils encountered at the locations and the depths explored. The soil stratification shown on the boring logs is based on examination of recovered soil samples and interpretation of the driller's field logs. It indicates only the approximate boundaries between soil types. The actual transitions between adjacent soil strata may be gradual and indistinct.

The results of our test borings indicate the following general soil profile:

Depth below ground surface (feet)	Description
0 – 5	Fill, limerock
5 – 8	Silt with organics (muck)
8 – 30	Limestone, poorly to well cemented

The above soil profile is outlined in general terms only. Please, refer to the boring logs for soil profile details.

5.0 LABORATORY TEST RESULTS

Representative soil samples obtained during our field sampling operation were packaged and transferred to our laboratory for further visual examination and classification. Sieve analysis, organic content, moisture content and corrosion test results are discussed in section 7.3 of this report. The rest of the tests were used for classification of the soils and individual results are included in the boring logs presented in the Appendix.

6.0 DISCUSSIONS AND RECOMMENDATIONS

6.1 Suitable Fill Material and Compaction of Fill Soils

All fill materials should be free of organic materials, such as roots and vegetation. We recommend using fill with less than 10 percent by dry weight of material passing the U.S. Standard No. 200 sieve size.

All structural fill should be placed in level lifts not to exceed 12 inches in un-compacted thickness. Each lift should be compacted to at least 95 percent of the modified Proctor (ASTM D-1557) maximum dry density value. The filling and compaction operations should continue in lifts until the desired elevation(s) is achieved. If hand-held compaction equipment is used, the lift thickness should be reduced to no more than 6 inches.

6.2 Excavation of Existing Soils in the Proximity of the Seawall

The limestone layer present between 5 and 17 feet below grade is fairly hard with N values larger than 20. This suggests that excavating these soils will require equipment with appropriate power and tools as defined by the Contractor.

6.3 Reuse of Excavated Soils

The near surface limerock found at most of the boring between 0 and 5 feet below grade is appropriate for reuse as fill. However, the limerock is followed by silty soil with organics that is unsuitable fill. If the upper limerock is to be reused the contractor shall perform the excavation in a way that prevents the mixing of the limerock with the organics soils underlying it.

6.4 Sheet Pile Constructability

Sheet piles installed through the upper limestone layer shall be designed to support hard driving through the limestone layer between 5 and 17 feet below existing grade. Predrilling may be required to install sheet piles through this upper layers of limestone.

7.0 GEOTECHNICAL RECOMMENDATIONS FOR DESIGN

7.1 Soil Engineering Properties for Bulkhead Design

Table 3 presents our recommended engineering properties for the soils found in our field exploration. Note that a cohesion value has been assigned to the limestone layers, these values are considered conservative based on numerous testing and physical evidence for this type of soil.



Table 3
Engineering Soil Properties

Soil Type	Unit Weight (lbs/ft ³)		Friction Angle (°)	Cohesion c (psf)
	Moist	Saturated		
Limerock fill	125	68	35	0
Sand (loose)	105	53	30	0
Sand silty	100	48	25	0
Limestone 4<N<30	120	65	20	1,000
Limestone N>30	125	67	20	5,000
Muck/Silt	70	29	13°	0

Please notice that if pre-drilling is used for sheet pile installation, the limestone properties will be degraded and for structural analysis/sheet pile design should be considered equal to those presented above for limerock fill.

7.2 Lateral Earth Pressure

Retaining wall design (if required) may be performed using the parameters presented in Table 4 below.

Table 4
Earth Pressure Parameters Recommendations

Fill or Soil Type	Moist Unit Weight (pcf)	Buoyant Soil Unit Weight (pcf)	Friction Angle	Active Pressure Coefficient	Passive Pressure Coefficient	At rest Pressure Coefficient
Sand (loose)	105	53	30	0.33	3.0	0.5
Limerock fill	125	68	35	0.27	3.69	0.43
Silty sand	100	48	25	0.41	2.46	0.56



Please notice that a conservative assumption regarding the friction angle between the retaining wall and the backfill material has been used to define the earth pressure coefficient.

Factors of safety against sliding, overturning and bearing capacity must be included in all earth pressure analysis. We recommended the following factors of safety:

1. Sliding 1.5
2. Overturning 2.0
3. Bearing Capacity 2.5

7.3 Corrosion Test Results and Environmental Classification Recommendations

A total of two corrosion tests were completed on limestone samples taken between 8 and 15 feet at boring locations B2 and B4. The results are summarized in the Table below:

Boring	Depth (ft.)	Ph	Resistivity (Ω-cm)	Sulfate (ppm)	Chloride (ppm)	Environmental Classification
	10	9.1	6200	10	2500	Extremely aggressive
	11	8.2	3300	32	3000	Extremely aggressive

Please, notice that due the proximity of the ocean the foundations and any superstructure shall be designed for an extremely aggressive condition.

CLOSURE

This report has been prepared in accordance with generally accepted local foundation engineering practice. The recommendations submitted herein are based on the data obtained from the soil borings presented in the Appendix and the assumed loading conditions previously described. This report may not account for all the possible variations that may exist between conditions observed in the borings and conditions at locations that were not explored. The nature and extent of any such variations may not become evident until further explorations are made or construction is underway. If variations are then observed, we recommend that Ardaman & Associates, Inc. be requested to inspect the actual site conditions and, if necessary, re-evaluate the recommendations of this report.

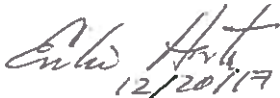
We recommend that we be given the opportunity to review more finalized plans to allow the evaluation of the possible conflict between the various structures, and the potential effects of the planned construction on adjacent property. In any case, in the event any changes occur in the design, nature or location of any project facilities from the conditions that were the basis of our analyses, Ardaman & Associates, Inc. should be requested to review the conclusions and recommendations in this report. We also recommend that we be requested to review the final foundation drawings and earthwork specifications so that our recommendations may be properly interpreted and implemented in the contract documents.

It has been a pleasure to assist you on this phase of your project. Please contact us whenever we may be of service to you, and please call if you have any questions concerning this report.

Very truly yours,

ARDAMAN & ASSOCIATES, INC.

FL Certificate No.: 0005950

Handwritten signature of Evelio Horta in black ink, with the date 12/20/17 written below it.

Evelio Horta, Ph.D., P.E., G.E.

Senior Project Engineer


FL Reg. No. 46625



Ardaman & Associates, Inc.

**SITE PLAN
AND
BORING LOGS**



 <p>Ardaman & Associates, Inc. Geotechnical, Environmental and Materials Consultants</p>	<p>SUBSURFACE EXPLORATION PROPOSED SEAWALL IMPROVEMENTS GREENE ST & ELIZABETH ST, KEY WEST MONROE COUNTY, FLORIDA</p>	<p>SITE VICINITY MAP</p> <p>Figure No 1.</p>	<p>File No.: 17-2606</p> <p>Prepared By: EHJr</p> <p>Date: 12/20/17</p>
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	Ardaman & Associates, Inc. Geotechnical, Environmental and Materials Consultants	SUBSURFACE EXPLORATION PROPOSED SEAWALL IMPROVEMENTS GREENE ST & ELIZABETH ST, KEY WEST MONROE COUNTY, FLORIDA	BORING LOCATION PLAN		File No.: 17-2606
			Figure No 2.		Prepared By: EHzr
					Date: 12/20/17

APPENDIX

STANDARD PENETRATION TEST BORING LOGS

Our borings describe subsurface conditions only at the locations drilled and at the time drilled. They provide no information about subsurface conditions below the bottom of the boreholes. At locations not explored, surface conditions that differ from those observed in the borings may exist and should be anticipated.

The information reported on our boring logs is based on our drillers' logs and on visual examination in our laboratory of disturbed soil samples recovered from the borings. The distinction shown on the logs between soil types is approximate only. The actual transition from one soil to another may be gradual and indistinct.

The groundwater depth shown on our boring logs is the water level the driller observed in the borehole when it was drilled. These water levels may have been influenced by the drilling procedures, especially in borings made by rotary drilling with bentonitic drilling mud. An accurate determination of groundwater level required long-term observation of suitable monitoring wells. Fluctuations in groundwater levels throughout the year should be anticipated.

The absence of a groundwater level on certain logs indicates that no groundwater data is available. It does not mean that no groundwater will be encountered at the boring location.



STANDARD PENETRATION TEST BORINGS

The Standard Penetration Test is a widely accepted method of testing foundation soils in place. The N-Value obtained from the test has been correlated empirically with various soil properties. These empirical correlations allow satisfactory estimates to be made of how the soil is likely to behave when subjected to foundation loads. Tests are usually performed in the boreholes at intervals of five feet. In addition, our Firm performs tests continuously in the interval directly below the expected foundation bearing grade where the soils will be most highly stressed.

Boreholes where Standard Penetration Tests will be performed are drilled with a truck-mounted CME 45A drill rig. The boreholes are advanced by rotary drilling with a winged bit that makes a hole about three inches in diameter. A bentonitic drilling mud is recirculated in order to remove the cuttings and support the walls of the borehole. The drag bit is specially modified to direct the mud upward and reduced disturbance of the soil ahead of the bit.

Occasionally, running or squeezing ground is encountered that cannot be stabilized by the drilling mud alone. In addition, drilling mud may be lost into the soil or rock strata that are unusually pervious. In such cases, flush-coupled steel casing with an outside diameter of about 3.5 inches is driven as a liner for the borehole.

After the borehole has been advanced to the depth where a Standard Penetration Test will be performed, the soil sampler used to run the test is attached to the end of the drill rods and lowered to the bottom of the borehole. The testing procedure used conforms closely to the methods recommended in ASTM D-1586. The sampler used has a split-barrel 24 inches long and an outside diameter of 2.0 inches. It is driven into the ground below the bottom of the borehole using a hammer that weighs 140 pounds and falls 30 inches. The driller records the number of hammer blows need to advance the sampler the second and third six-inch increments constitutes the test result; that is, the N-Value at the depth. The test is completed after the sampler has been driven not more than 24 inches or when refusal is encountered, whichever occurs first. Refusal occurs when 50 hammer blows advance the sampler six inches or less. After the test is completed, the sampler is removed from the borehole and opened.

The driller examined and classified the soil recovered by the sampler. He places representative soil specimens from each test in closed glass jars and takes them to our laboratory. In the laboratory, additional evaluations and tests are performed, if needed. The driller's classifications may be adjusted, if necessary, to conform more closely to the United Soil Classification systems, ASTM D-2487. Jar samples are retrained in our laboratory for sixty days, then discarded unless our clients request otherwise.

After completion of a test boring, the water level in the borehole is recorded.



STANDARD PENETRATION TEST BORING LOG

BORING 1

PROJECT: TT Port & Marine Services
Seawall Improvements

FILE No.: 17-2606

BORING LOCATION: See Plan

DRILL CREW: EG/FCH

WATER OBSERVED AT DEPTH 3.3'

DATE DRILLED: 11/17/17

DEPTH (FEET)	SYMBOLS FIELD TEST DATA	SOIL DESCRIPTION	SAMPLE No.	N VALUE	N VALUE
0		CONCRETE slab, upper 6"	1		
		FILL, limerock	2		
		W=11%	3		
		Boring advanced from 0' to 2' using	4	21	
		WOOD, fragments			
		FILL, limerock, white			
5		SILT, soft sandy, grey	5	11	
		-200=43%			
		LIMESTONE, poorly cemented, white to pale brown	6	41	
				42	
10				29	
		LIMESTONE, very poorly cemented, white	7	7	
				4	
15					
		LIMESTONE, poorly cemented	8	6	
20					
		LIMESTONE, white	9	13	
25					
		LIMESTONE, white	10	12	
30					
35					

NOTES:

FIELD TEST DATA ARE "BLOWS"/"INCHES DRIVEN"

140-LB HAMMER, 30-INCH FALL.

(ASTM D-1586)

STANDARD PENETRATION TEST BORING LOG

BORING 2

PROJECT: TT Port & Marine Services
Seawall Improvements

FILE No.: 17-2606

BORING LOCATION: See Plan

DRILL CREW: EG/FCH

WATER OBSERVED AT DEPTH 2.5'

DATE DRILLED: 11/16/17

DEPTH (FEET)	SYMBOLS FIELD TEST DATA	SOIL DESCRIPTION	SAMPLE No.	N VALUE	N VALUE
0		FILL, limerock, white W=9%	1		
		Boring advanced from 0' to 4' using hand auger equipment			
		FILL, limerock, grey ~200=10%	2		
5	11/6 9/6 7/6			16	
	6/6 5/6 4/6			9	
	9/6 17/6 31/6	Limestone, poorly cemented with large pockets of sand, pale brown	3	48	
10	21/6 19/6 16/6			35	
	14/6 14/6 19/6	LIMESTONE, poorly cemented sandy, white	4	33	
15	21/6 24/6 24/6			48	
	2/6 1/6 2/6	LIMESTONE, poorly cemented with small voids (oolite)	5	3	
20		LIMESTONE, poorly cemented with small voids (oolite)	6		
	5/6 7/6 6/6			13	
25					
	11/6 9/6 7/6	LIMESTONE, pale brown	7	16	
30					
35					

NOTES:

FIELD TEST DATA ARE "BLOWS"/"INCHES DRIVEN"

140-LB HAMMER, 30-INCH FALL.

(ASTM D-1586)

STANDARD PENETRATION TEST BORING LOG

BORING 3

PROJECT: TT Port & Marine Services
Seawall Improvements

FILE No.: 17-2606

BORING LOCATION: See Plan

DRILL CREW: EG/FCH

WATER OBSERVED AT DEPTH ??????

DATE DRILLED: 11/15/17

DEPTH (FEET)	SYMBOLS FIELD TEST DATA	SOIL DESCRIPTION	SAMPLE No.	N VALUE	N VALUE										
					5	10	15	20	25	30	35	40	45	50	55
0		FILL, limerock, white	1												
		FILL, sand, slightly silty with rock fragments, grey	2												
		W=11% -200=9%													
		Boring advanced from 0' to 4.5' using hand auger equipment	3												
5	10/6 5/6 12/6	MUCK, silty organics with roots, wood, construction debris, black		17											
	9/6 5/6 7/6	OC=11% W=50%		12											
	9/6 7/6 15/6	LIMESTONE, very poorly cemented with pockets of sand, pale brown	4	22											
10	14/6 15/6 11/6			26											
	10/6 9/6 11/6	LIMESTONE, white	5	20											
15	9/6			9											
	5/6 4/6 5/6	LIMESTONE, white	6	9											
20															
	9/6 11/6 7/6	LIMESTONE, white	7	18											
25															
	9/6 7/6 7/6	LIMESTONE, white	8	14											
30															
35															

NOTES:

FIELD TEST DATA ARE "BLOWS"/"INCHES DRIVEN"

140-LB HAMMER, 30-INCH FALL.

(ASTM D-1586)

STANDARD PENETRATION TEST BORING LOG

BORING 4

PROJECT: TT Port & Marine Services
Seawall Improvements











FILE No.: 17-2606

BORING LOCATION: See Plan

DRILL CREW: EG/FCH

WATER OBSERVED AT DEPTH 1.8'

DATE DRILLED: 11/16/17

DEPTH (FEET)	SYMBOLS FIELD TEST DATA	SOIL DESCRIPTION	SAMPLE No.	N VALUE	N VALUE										
					5	10	15	20	25	30	35	40	45	50	55
0		FILL, limerock, white W=10%	1												
5	 2/6 1/6 1/6	Boring advanced from 0' to 5' using hand auger equipment SILT, soft, dark grey -200=40%	2												
	 4/6 9/6 12/6	MUCK, silty organics, black OC=12%	3	2											
	 26/6 22/6 17/6	LIMESTONE, sandy, pale brown	4	21											
10	 12/6 14/6 14/6	LIMESTONE, white	5	39											
	 15/6 15/6 14/6	LIMESTONE, white		28											
15	 2/6 1/6 0/6	LIMESTONE, poorly cemented with voids (oolite), grey	6	29											
20	 0/6 1/6 2/6	LIMESTONE, poorly cemented, pale brown	7	1											
25	 4/6 2/6 4/6	LIMESTONE, white	8	3											
30	 9/6 6/6 11/6			6											
35				17											

NOTES:

FIELD TEST DATA ARE "BLOWS"/"INCHES DRIVEN"

140-LB HAMMER, 30-INCH FALL.

(ASTM D-1586)

STANDARD PENETRATION TEST BORING LOG

BORING 5

PROJECT: TT Port & Marine Services
Seawall Improvements

FILE No.: 17-2606

BORING LOCATION: See Plan

DRILL CREW: EG/FCH

WATER OBSERVED AT DEPTH 3'

DATE DRILLED: 11/15/17

DEPTH (FEET)	SYMBOLS FIELD TEST DATA	SOIL DESCRIPTION	SAMPLE No.	N VALUE	N VALUE										
					5	10	15	20	25	30	35	40	45	50	55
0		FILL, limerock, white -200 sieve=12% W=9%	1												
		SAND, silty, with rock fragments, grey -200 sieve=8%	2												
		Boring advanced from 0' to 5' using hand auger equipment													
5				7											
		MUCK, silty organics, dark grey OC=10%	3	3											
		LIMESTONE, poorly cemented, sandy, pale brown	4												
10				54											
				55											
		LIMESTONE, poorly cemented with pockets of sand, white	5												
15				21											
		LIMESTONE, poorly cemented, white	6												
20				6											
25		LIMESTONE, poorly cemented, white	7	6											
30		LIMESTONE, grey	8	17											
35		LIMESTONE, grey	9	12											

NOTES: