

**CITY OF MARATHON, FLORIDA
RESOLUTION 2010-31**

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MARATHON, FLORIDA, APPROVING WORK AUTHORIZATION NO. 37 WITH WEILER ENGINEERING CORPORATION TO CONDUCT A STUDY OF SAND MIGRATION PATTERNS AT SOMBRERO BEACH TO DETERMINE IF SAND FROM SOMBRERO BEACH IS MIGRATING INTO THE NEARBY TREASURE ISLAND CANALS IN AN AMOUNT NOT TO EXCEED \$57,315.00, PLUS REIMBURSABLES; AUTHORIZING THE CITY MANAGER TO EXECUTE THE WORK AUTHORIZATION ON BEHALF OF THE CITY AND EXPEND BUDGETED FUNDS; REPEALING RESOLUTION NO. 2009-26; AND PROVIDING FOR AN EFFECTIVE DATE

WHEREAS, the City is responsible for the maintenance and nourishment of the public beaches within the City; and

WHEREAS, the City has previously replaced sand on Coco Plum Beach but not at Sombrero Beach, due to a possible sand migration problem into nearby Treasure Island canals; and

WHEREAS, the City desires to engage the services of a an engineering firm with the necessary environmental expertise to perform a sand migration study at Sombrero Beach; and n order to determine if there is a sand migration problem

WHEREAS, City staff solicited cost proposal for the study from three engineering companies with environmental expertise that are under contract (continuing service agreements) with the City; and

WHEREAS, after negotiations with the two lowest bidders, the City desires to issue a Work Authorization to Weiler Engineering Corporation to perform the sand migration study at Sombrero Beach, in an amount not to exceed \$57,315.00.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MARATHON, FLORIDA, THAT:

Section 1. The above recitals are true and correct and incorporated herein.

Section 2. Work Authorization No.37 between the City and Weiler Engineering Corporation to conduct a sand migration study at Sombrero Beach in an amount not to exceed \$57,315.00, a copy of which is attached hereto as Exhibit "A," together with such non-material changes as may be acceptable to the City Manager and approved as to form and legality by the City Attorney is hereby approved. The City Manager is authorized to execute the agreement on behalf of the City, and expend budgeted funds.

Section 3. Resolution No. 2009-26 is hereby repealed.

Section 4. This resolution shall take effect immediately upon its adoption.

PASSED AND APPROVED BY THE CITY COUNCIL OF THE CITY OF MARATHON, FLORIDA, THIS 23rd DAY OF MARCH, 2010.

THE CITY OF MARATHON, FLORIDA



Ginger Snead, Mayor

AYES: Cinque, Keating, Ramsay, Worthington, Snead
NOES: None
ABSENT: None
ABSTAIN: None

ATTEST:



Diane Clavier, City Clerk

(City Seal)

APPROVED AS TO FORM AND LEGALITY FOR THE USE AND RELIANCE OF THE CITY OF MARATHON, FLORIDA ONLY:



City Attorney

EXHIBIT “A”

PROJECT AGREEMENT

Between

CITY OF MARATHON, FLORIDA

And

WEILER ENGINEERING CORPORATION

for

Work Authorization No. Thirty-seven (37)

Sombrero Beach and Treasure Island Feasibility Study

PROJECT AGREEMENT

Between

THE CITY OF MARATHON, FLORIDA

And

WEILER ENGINEERING CORPORATION

For

Work Authorization No. Thirty-seven (37)

Sombrero Beach and Treasure Island Feasibility Study

Pursuant to the provisions contained in the "Continuing Services Agreement" between the CITY OF MARATHON, FLORIDA (the "CITY") and THE WEILER ENGINEERING CORPORATION, ("CONSULTANT") dated June 23, 2004, this Project Agreement authorizes the CONSULTANT to provide the services as set forth below:

The CITY and CONSULTANT agree as follows:

SECTION 1. SCOPE OF SERVICES

1.1 The CONSULTANT shall provide engineering services to the CITY for the Project as described in the "Project Description" attached as Exhibit "1."

1.2 The "Scope of Services and Project Schedule" and tasks to be provided by the CONSULTANT for this Project are those services and tasks as listed in Exhibit "2."

1.3 The CITY may request changes that would increase, decrease, or otherwise modify the Scope of Services. Such changes must be contained in a written change order executed by the parties in accordance with the provisions of the Continuing Services Agreement, prior to any deviation from the terms of the Project Agreement, including the initiation of any extra work.

SECTION 2. DELIVERABLES

As part of the Scope of Services and Project Schedule, the CONSULTANT shall provide to the CITY the following Deliverables:

- Sea-grass mapping aerial and plan
- Mangrove mapping and plan
- Bathymetric survey
- Sand grain gradation report w/GPS coordinates
- CEDAS Modeling report-existing conditions/proposed conditions with coastal impacts
- Turtle nesting/Endangered species report/construction guidelines
- Feasibility Study with recommended Course of Action
- List of permitting requirements associated with recommended Course of Action

SECTION 3. TERM/TIME OF PERFORMANCE/DAMAGE

3.1 **Term.** This Project Agreement shall commence on the date this instrument is fully executed by all parties and shall continue in full force and effect 150 days, unless otherwise terminated pursuant to Section 4 or other applicable provisions of this Project Agreement. The City Manager, in his sole discretion, may extend the term of this Agreement through written notification to the CONSULTANT. Such extension shall not exceed 180 days. No further extensions of this Agreement shall be effective unless authorized by the CITY Council.

3.2 **Commencement.** The CONSULTANT'S services under this Project Agreement and the time frames applicable to this Project Agreement shall commence upon the date provided in a written Notification of Commencement ("Commencement Date") provided to the CONSULTANT from the CITY. The CONSULTANT shall not incur any expenses or obligations for payment to third parties prior to the issuance of the Notification of Commencement. CONSULTANT must receive written notice from the City Manager prior to the beginning the performance of services.

3.3 **Contract Time.** Upon receipt of the Notification of Commencement, the CONSULTANT shall commence services to the CITY on the Commencement Date, and shall continuously perform services to the CITY, without interruption, in accordance with the time frames set forth in the "Project Schedule," a copy of which is attached and incorporated into this Agreement as Exhibit "3". The number of calendar days from the Commencement Date, through the date set forth in the Project Schedule for completion of the Project or the date of actual completion of the Project, whichever shall last occur, shall constitute the Contract Time.

3.4 **Liquidated Damages.** Unless otherwise excused by the CITY in writing, in the event that the CONSULTANT fails to meet to the contract time for completion of services as determined by the Project Schedule, the CONSULTANT shall pay to the CITY the sum of dollars identified below per day for each and every calendar day unexcused delay beyond the completion date, plus approved time extensions, until completion of the project: \$ N/A per day. The CONSULTANT may claim extension if the factors involved are not under their direct control.

Any sums due and payable hereunder by the CONSULTANT shall be payable, not as a penalty, but as liquidated damages representing and estimate at or before the time of executing this Agreement. When the CITY reasonably believes that completion will be inexcusably delayed, the CITY shall be entitled, but not required, to withhold from any amounts otherwise due the CONSULTANT an amount then believed by the CITY to be adequate to recover liquidated damages applicable to such delays. If and when the CONSULTANT overcomes the delay in achieving completion, or any part thereof, for which the CITY has withheld payment, the CITY shall promptly release to the CONSULTANT those funds withheld, but no longer applicable, as liquidated damages.

3.5 All limitations of time set forth in this Agreement are of the essence.

SECTION 4. AMOUNT, BASIS AND METHOD OF COMPENSATION

4.1 **Lump Sum Compensation.** CITY agrees to pay CONSULTANT as compensation for performance of all services described in Exhibit "2" \$ 57,315.00. ~~{OR, IF HOURLY, "CITY AGREES TO PAY CONSULTANT COMPENSATION AT CONSULTANT'S HOURLY RATES, UP TO A MAXIMUM AMOUNT NOT TO EXCEED \$ _____.~~

4.2 **Reimbursable Expenses.** The following expenses are reimbursable at their actual cost: travel and accommodations, long distance telephone calls, facsimile, courier services, mileage (at a rate approved by the CITY), photo and reproduction services. All document reproductions are also reimbursable, at a rate approved by the CITY.

SECTION 5. BILLING AND PAYMENTS TO THE CONSULTANT

5.1 Invoices

5.1.1 **Lump Sum Compensation and Reimbursable Expenses.** CONSULTANT shall submit invoices which are identified by the specific project number on a monthly basis in a timely manner. These invoices shall identify the nature of the work performed, the phase of work, and the estimated percent of work accomplished in accordance

with the Payment Schedule set forth in Exhibit "3", to this Project Agreement. Invoices for each phase shall not exceed amounts allocated to each phase of the Project plus reimbursable expenses accrued during each phase. The statement shall show a summary of fees with accrual of the total and credits for portions previously paid by the CITY. The CITY shall pay CONSULTANT within thirty (30) calendar days of approval by the City Manager of any invoices submitted by CONSULTANT to the CITY.

5.2 **Disputed Invoices.** In the event that all or a portion of an invoice submitted to the CITY for payment to the CONSULTANT is disputed, or additional backup documentation is required, the CITY shall notify the CONSULTANT within fifteen (15) working days of receipt of the invoice of such objection, modification or additional documentation request. The CONSULTANT shall provide the CITY with additional backup documentation within five (5) working days of the date of the CITY'S notice. The CITY may request additional information, including but not limited to, all invoices, time records, expense records, accounting records, and payment records of the CONSULTANT. The CITY, at its sole discretion, may pay to the CONSULTANT the undisputed portion of the invoice. The parties shall endeavor to resolve the dispute in a mutually agreeable fashion.

5.3 **Suspension of Payment.** In the event that the CITY becomes credibly informed that any representations of the CONSULTANT, provided pursuant to Subparagraph 5.1, are wholly or partially inaccurate, or in the event that the CONSULTANT is not in compliance with any term or condition of this Project Agreement, the CITY may withhold payment of sums then or in the future otherwise due to the CONSULTANT until the inaccuracy, or other breach of Project Agreement, and the cause thereof, is corrected to the CITY'S reasonable satisfaction.

5.4 **Retainage.** The CITY reserves the right to withhold retainage in the amount of ten percent (10%) of any payment due to the CONSULTANT for the design until the design is completed. Said retainage may be withheld at the sole discretion of the City Manager and as security for the successful completion of the CONSULTANT'S duties and responsibilities under the Project Agreement.

5.5 **Final Payment.** Submission of the CONSULTANT'S invoice for final payment and reimbursement shall constitute the CONSULTANT'S representation to the CITY that, upon receipt from the CITY of the amount invoiced, all obligations of the CONSULTANT to others, including its consultants, incurred in connection with the Project, shall be paid in full. The CONSULTANT shall deliver to the CITY all documents requested by the CITY evidencing payments to any and all subcontractors, and all final specifications, plans, or other documents as dictated in the Scope of Services and Deliverable. Acceptance of final payment shall constitute a waiver of any and all claims against the CITY by the CONSULTANT.

SECTION 6. TERMINATION/SUSPENSION

6.1 **For Cause.** This Project Agreement may be terminated by either party upon five (5) calendar days written notice to the other party should the other party fail substantially to perform in accordance with its material terms through no fault of the party initiating the termination. In the event that CONSULTANT abandons this Project Agreement or causes it to be terminated by the CITY, the CONSULTANT shall indemnify the CITY against any loss pertaining to this termination. In the event that the CONSULTANT is terminated by the CITY for cause and it is subsequently determined by a court of competent jurisdiction that such termination was without cause, such termination shall thereupon be deemed a termination for convenience under Section 6.2 of this Project Agreement and the provision of Section 6.2 shall apply.

6.2 **For Convenience.** This Project Agreement may be terminated by the CITY for convenience upon fourteen (14) calendar days' written notice to the CONSULTANT. In the event of termination, the CONSULTANT shall incur no further obligations in connection with the Project and shall, to the extent possible, terminate any outstanding subconsultant obligations. The CONSULTANT shall be compensated for all services performed to the satisfaction of the CITY and for reimbursable expenses incurred prior to the date of termination. The CONSULTANT shall promptly submit its invoice for final payment and reimbursement and the invoice shall comply with the provisions of Paragraph 5.1 of this Project Agreement. Under no circumstances shall the CITY make any payment to the CONSULTANT for services which have not been performed.

6.3 **Assignment upon Termination.** Upon termination of this Project Agreement, a copy of all of the CONSULTANT's work product shall become the property of the CITY and the CONSULTANT shall, within ten (10) working days of receipt of written direction from the CITY, transfer to either the CITY or its authorized designee, a copy of all work product in its possession, including but not limited to designs, specifications, drawings, studies, reports and all other documents and data in the possession of the CONSULTANT pertaining to this Project Agreement. Further, upon the CITY'S request, the CONSULTANT shall assign its rights, title and interest under any subcontractor's agreements to the CITY.

6.4 **Suspension for Convenience.** The CITY shall have the right at any time to direct the CONSULTANT to suspend its performance, or any designated part thereof, for any reason whatsoever or without reason, for a cumulative period of up to thirty (30) calendar days. If any such suspension is directed by the CITY, the CONSULTANT shall immediately comply with same. In the event the CITY directs a suspension of performance as provided for herein through no fault of the CONSULTANT, the CITY shall pay to the CONSULTANT its reasonable costs, actually incurred and paid, of demobilization and remobilization, as full compensation for any such suspension.

SECION 7. INCORPORATION OF TERMS AND CONDITONS OF CONTINUING SERVICE AGREEMENT

7.1 This Project Agreement incorporates the terms and conditions set forth in the Continuing Services Agreement dated June 23, 2004 between the parties as though fully set forth herein. In the event that any terms or conditions of this Project Agreement conflict with the Continuing Services Agreement, the provisions of this specific Project Agreement shall prevail and apply.

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ATTEST:

CITY OF MARATHON

Draine Clavier
City Clerk


By: 
Roger T. Hernstadt, City Manager

Date: 03/24/10

**APPROVED AS TO FORM AND LEGALITY FOR THE USE
AND RELIANCE OF THE CITY OF MARATHON, FLORIDA ONLY:**


City Attorney

ATTEST: WEILER ENGINEERING CORPORATION

By: 
Edward R. Castle, Vice President

Date: 3/5/10

Exhibit “1”

Project Description

Provide coastal engineering services in support of a coastal feasibility study of Sombrero Beach and the adjacent canals to the east (Treasure Island). This scope of work will provide baseline beach and nearshore conditions, develop project alternatives to address shoreline and canal stabilization, and identify a preferred project alternative.

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Exhibit "2"

Scope of Services and Project Schedule

Provide coastal engineering services in support of a coastal feasibility study of Sombrero Beach and the adjacent canals to the east (Treasure Island). This scope of work will provide baseline beach and nearshore conditions, develop project alternatives to address shoreline and canal stabilization, and identify a preferred project alternative.

Sombrero Beach has had sand placed on it in the past, and the beach is possibly losing sand to adjacent canals and channels, which has resulted in shoaling of the canals. This could be due to storm events or it could be a natural occurrence.

The following is an excerpt from FDEP Bureau of Beaches and Coastal Systems:

FDEP BUREAU OF BEACHES AND COASTAL SYSTEMS
STRATEGIC BEACH MANAGEMENT PLAN FOR THE FLORIDA KEYS REGIONS
STRATEGIES FOR INLETS AND CRITICALLY ERODED BEACHES
MIDDLE KEYS SUBREGION

SOMBRERO BEACH, VACA KEY, MONROE COUNTY

This is a 0.3 mile segment of critically eroded beach at the southwestern tip of Vaca Key. Sombrero Beach is a City of Marathon public park. The beach is sheltered from east and southeast wave activity. This results in the net sediment transport along the beach to be easterly into an adjacent canal on Treasure Island. The park facilities sustained major damage from storm tide flooding and landward sediment transport during Hurricane Georges (1998). In 2005, Hurricanes Rita and Wilma combined to cause minor to moderate beach and dune erosion. Hurricane Wilma also damaged much of the park's infrastructure. Significant sand losses have occurred as a result of overwash and sediment transport into canals on Treasure Island. Private interests on Treasure Island have constructed impermeable docks and groins, which should partially mitigate the loss of material into adjacent canals from Sombrero Beach.

Strategy: *Conduct a feasibility study to determine environmentally acceptable erosion control alternatives.*

With the FDEP Beaches and Coastal Systems Strategy as a guide we have developed the following plan for a feasibility study:

Overall Task: Conduct a feasibility study of Sombrero Beach and the adjacent canals (Treasure Island) to the east.

Identify the problem: Is sand migrating from Sombrero Beach into the adjacent canals and if so why?

Solution: Determine the preferred project alternative to prevent the canals from shoaling and control beach erosion.

In order to conduct a feasibility study of this area there are several subtasks that need to be completed. First, a determination must be made as to how and to what extent the “longshore drift” and circulating currents affect Sombrero Beach. This will be a complicated process requiring analysis of data and the use of a modeling program. Second, a determination must be made whether “migration” is mainly caused by storm events, by longshore drift, or a combination of the two. Huminston and Moore (H & M) use sophisticated modeling programs, which are interactive Windows based systems that include a comprehensive collection of coastal engineering design and analysis software will be used. These programs include products developed by or for the US Army Corps of Engineers Coastal and Hydraulics Laboratory. The US Army Corps of Engineers Jacksonville District Coastal Engineering and Design Section and DEP staff in Tallahassee indicate that this software is the only recognized software for federally funded projects.

The feasibility study proposed by Weiler Engineering includes the following tasks:

TASK 1- LITERATURE REVIEW AND DATA COLLECTION

Weiler Engineering will review existing literature and data collected previously by the City and outline the information with a small explanation for Humiston and Moore (H & M). WEC will research federal and state databases for additional information including Beach Management Plans, Permits issued by Federal, State, local governments, Surveys and Studies conducted by governmental or private/consulting agencies. Historical data from nearby NOAA buoys and any storm data that would help will also be collected. This includes historical wind and storm data from the NWS. In this phase WEC will interview local homeowners that may have some valuable information over what happened during storm events in the past. All this data and historical information will be made available for evaluation. Some of the information will be made available to input into the modeling program along with the information we aim to collect using the Nortek profiler.

TASK 2 - SITE CHARACTERIZATION

WEC will provide a description and map of existing conditions and the surrounding environment. This will include a brief history of the site and detailed information on when the canals were excavated. WEC will map the beach and the sea bottom. WEC will conduct a benthic and bathymetric survey including sea-grass mapping showing the type of sea-grass [i.e. Turtle-grass (*Thalassia testudinum*), Manatee-grass (*Syringodium filiforme*), Shoal-grass (*Halodule wrightii*)], density, and location using a sub-foot GPS system. WEC is setting up a GPS Base Station to improve the horizontal accuracy to (sub-foot) within 4 inches. Using this instead of relying totally on the CORS (Continuously Operating Reference Stations) network, will increase the accuracy of the mapping. Seagrass mapping will be conducted

with a GPS instrument by boat with a diver in the water. Bathymetric survey will be conducted using an offset method taping and measuring along a transect every 10-15 feet perpendicular to the beach to a general direction of south. Obviously, the GPS operator and recorder will record the actual direction. Characterization of existing sediment/sand will also be conducted. WEC will collect samples from the sand and sediment at the beach, on the sea bottom perpendicular to the beach, and in areas adjacent to the canals. Additionally, WEC will use this data to determine if the sand that is shoaling in the mouth of the canal is actually coming from the beach area. This will require a comprehensive sieve analysis including a report showing sieve number, diameter in mm, diameter in phi units, weight retained on sieve, weight percent retained on sieve, cumulative weight percent retained on sieve. All weights and percentages will be recorded to the nearest 0.01 gm. A table of mean, median (d50), standard deviation (sorting), silt percent, and carbonate content will be provided. The report will include frequency and cumulative frequency plots of each sample, the spreadsheet used, and a cumulative frequency curve of the composite. Sieve sizes to be used: 3/4", 5/8", 3.5, 4, 5, 7, 10, 14, 18, 25, 35, 45, 60, 80, 120, 170, and 230. Any sand data that is offered by the nearby property owners will be examined and taken into consideration if conclusions can be validated.

TASK 3 - COASTAL LITTORAL PROCESS

WEC will gather wave and current information outlined below and send it to H & M. WEC has already collected and sent historical storm event information including the magnitude and direction of the storms. Historical data will be used to both verify and supplement data collected using the Nortek Profiler. Some of the verification data will have been gathered from permanent buoy mounted profilers and wave recorders that NOAA and the Florida Institute of Oceanography in Layton manage. WEC will strategically place a Nortek Aquadopp Profiler (recommended by H & M) with an emphasis of recording an event where the waves are greater than a foot. The Aquadopp Profiler will measure the current profile and wave data (pressure, and u and v components of velocity) interleaved with the current measurements. We can then calculate wave height, period, and direction using the pressure and velocity measurements and either your own spreadsheet or software or Nortek's add-on software, Quickwave. Wave data can be collected at 1 or 2 Hz. In the sediment transport study, both the current data and the wave data are important as the longshore sediment transport is dominated by the longshore currents induced by waves hitting the shore obliquely and the cross-shore sediment transport is dominated by shore normal wave action. H&M will provide the modeling and analysis of the coastal processes for Sombrero Beach based on available information and data collection provided. The engineering tasks will include analysis of the ongoing coastal processes, evaluate potential alternatives and provide preliminary recommendations for erosion control measures. Sediment budget is a concept that applies to sandy and muddy shores. It is only one of three factors (sediment budget, sea level and wave energy) that control most land loss. Sediment budget refers to the balance between sediment added to and removed from the coastal system; in this respect the coastal sediment budget is like a bank account. When more material is added than is removed, there is a surplus of sediment and the shore builds seaward. On the other hand, when

more material is removed than is added, there is a deficit in sediment supply and the shore retreats landward. Coastal erosion is a physical expression of a deficit in the sediment budget where nearshore processes remove more material from the shore than is added. Stated another way, coastal recession is the result of insufficient sediment supply compared to sediment removal. To calculate the sediment budget for a coastal segment, one must identify all the sediment sources and sinks, and estimate how much sediment is being added to or taken from the beach each year. Erosion along one stretch of sandy beach may be responsible for accretion or reduced erosion of a nearby beach in a downdrift direction if the sediment volume is sufficient and the available material is compatible with downdrift beaches. On the other hand, depletion of an updrift sediment source will initiate or accelerate retreat of downdrift beaches. The type of material eroded determines whether or not nearby beaches benefit from the erosion. For example, erosion of sandy beaches provides a ready source of sand for nourishment of downdrift beaches, whereas erosion of marshes and other muddy deposits usually does not contribute to the sand budget of adjacent beaches.

TASK 4 - ENVIRONMENTAL RESOURCES / ENDANGERED SPECIES (ES)

Endangered species coordination will be an important part of this study. The National Marine Fisheries Service (NMFS) and The U.S. Fish and Wildlife Service's (USFWS) Ecological Service Office will be contacted to make sure all Listing, Critical Habitat Information, and ES Keys are up to date for the Sombrero Beach area. New listings, 5 Year Recovery Plans, Critical Habitat Designations, Section 7 Formal and Informal Consultation Keys, and other document and additions are updated periodically and have to be checked. For example WEC's Environmental Consulting Department will make sure that (1) "Turtle Nesting Guidelines", monitoring, volunteer walkers, lighting, beach raking guidelines, etc. are up to date and in compliance. (2) Keys and construction guidelines for endangered species are updated (i.e. Manatees, Small Tooth Sawfish, Right whales, beach mice, Turtles, Elkorn and Staghorn corals construction guidelines are available) and (3) Any proposed listings, recovery plans, and habitat designations will be considered. Proposed actions sometimes take a long time to be adopted. The Army Corps will conduct either a formal or informal Section 7 consultation with either the USFWS or NMFS, or both. Formal consultation would require the agency to issue a biological opinion as part of the permitting process.

TASK 5 - CULTURAL RESOURCES

The State Historical Preservation Officer (SHPO) will be contacted to determine if there are any cultural, historical, or tribal resources that could be impacted. Additionally, construction guidelines will be implemented if an alternative requires a structure to be built.

TASK 6 - SAND RESOURCES

Both Weiler Engineering and Humiston & Moore have extensive knowledge and experience determining sources for certain types of sand that are difficult to find yet still meet the FDEP Beaches and Coastal Systems specifications. Years ago sand was imported for use at the beaches in the Florida Keys. Geotechnical Information and soil/sand analysis is required in this phase. A comparison study of geotechnical data from sand mines and borrow pits will be conducted by Weiler Engineering and coordinated with FDEP Beaches and Coastal Systems Engineers. Geotechnical reports on Core borings have to include horizon information, particle size and color information, sieve analysis, sediment analysis will also contain carbonate content and percent organics, chemical analysis may be required if the samples are suspected to be contaminated. A sediment Quality Assurance/Quality Control, (QA/QC), plan will be put in place to insure that the sediment/sand used for beach restoration or nourishment will meet the standards set forth in paragraph 62B-41.007(2)(j),F.A.C. All geotechnical information should be made available in electronic file format suitable for input to the FDEP's Reconnaissance Offshore Sand Search (ROSS) database.

TASK 7 - REGULATORY AND REGIONAL CONSTRAINTS

The Florida Keys has many Federal regional conditions/constraints because of the valued natural resources. Impacts to Submerged Aquatic Resources (SARs) in the Florida Keys are regulated much more than impacts to SARs outside of the keys. Many of the US Army Corps of Engineers nationwide and general permits are not applicable in the keys. The Florida Keys National Marine Sanctuary requires a permit be applied for through them for impacts to resources within the Keys. FDEP Parks has many restrictions as well. Local Government Growth Management Ordinances help protect the unique environment of the Florida Keys and are overseen by the State Department of Community Affairs (DCA) because the Florida Keys are considered an "area of critical concern" by the State of Florida. Although WEC will strive to recommend options with the least environmentally impacting beach management alternatives, some alternatives may require additional evaluation from state and federal agencies.

TASK 8 - DEVELOPMENT AND ANALYSIS OF ALTERNATIVES

H & M will have the lead role in this phase. The development and analysis of feasible beach management alternatives will be selected within this phase of the project. H & M tasks will include analysis of the ongoing coastal processes, evaluate potential alternatives and provide preliminary recommendations for erosion control measures. These alternatives will have to fit within the regulatory constraints within the unique environment of the Florida Keys as well as site specific concerns. WEC and H& M will consider the consequences of a 'no-action alternative' and a combination of alternatives may be evaluated/analyzed as well. Computer modeling will be extensively used to predict impacts due to the construction of alternative erosion control devices.

TASK 9 - RECOMMENDED PLAN/ALTERNATIVE

H & M will have a lead role in this phase. The recommended alternative or plan is the one that offers the best alternative with the least environmentally impacting options. The one that survives the most likely modeling scenarios without beach erosion or shoaling of canals. The perfect alternative would be the alternative that survives the largest number of scenarios without eroding to a substantial level and without causing the canals to shoal up.

TASK 10 – AGENCY SUBMITTAL/PUBLIC REVIEW

The draft study, complete with all data, modeling results, alternatives analysis, and discussion will be submitted to the FDEP Beaches and Coastal Systems and ACOE for review and comments. WEC will answer the comments.

TASK 11- GENERATE FINAL REPORT/FEASIBILITY STUDY

Weiler Engineering will make final changes after evaluating the comments received and deliver final Feasibility Study to the City, FDEP Beaches and the ACOE.

NOTE: ADDITIONAL TASKS MAY BE REQUIRED TO PERMIT AND DESIGN CONSTRUCTING DRAWINGS.



1963 FDOT Aerial of Sombrero Beach

Sombrero Beach and Treasure Island Feasibility Study

3/4/2010

Page No.15

Project Schedule

- Begin research of relevant existing data and coordination efforts with regulatory agencies upon execution of this Work Authorization
- Deploy Profiler, initiate sediment sampling, seagrass mapping, mangrove mapping and bathymetric study within **60** days of notice to proceed.
- Collect wave and current data for a tidal cycle , retrieving data and performing QA/QC checks on data throughout the period. Receive lab reports on sediment analyses. Mapping of seagrass, benthic, and bathymetric data will occur during this period as well.
- Begin modeling of current and wave action effects on sediment movement after completion of data collection, approximately **60** days after execution of Work Authorization.
- Complete modeling of the effects of normal tidal currents and storm events within **75** days of execution of Work Authorization. Models will include existing shoreline features and will examine the effects of possible alternatives to abate shoaling in the Treasure Island canals and related impacts on beach erosion.
- Draft report and recommended alternative with draft submitted to the City and regulatory agencies for comment within **90** days of execution of Work Authorization
- Final report and all deliverables submitted no later than **120** days after execution of Work Authorization.

Deliverables:

- Historical Data Outline with Explanation
- Sea-grass mapping aerial and plan
- Bathymetric survey
- Sand grain gradation report w/GPS coordinates
- Turtle nesting/Endangered species report/construction guidelines
- Draft Feasibility Study with recommended Alternative
- List of permitting requirements associated with recommended Alternatives
- Final Feasibility Study Report

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EXHIBIT "3"

Payment Schedule

Research	\$5500.00
Drafting	\$2,250.00
Bathymetric mapping	\$4,000.00
Seagrass mapping	\$4,000.00
Benthic mapping	\$2,000.00
Sediment sampling	\$3,200.00
Sediment Lab Analysis	\$2,875.00
Wave/Current velocity measurement	\$10,640.00
Data Analysis	\$3,140.00
Numeric Models	\$11,500.00
Report	\$5750.00
Review and Edit	\$640.00
Meetings	\$1,820.00
Total	\$57,315.00

Lump sum work with progress payment submitted monthly based on percentage completion of tasks.

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EXHIBIT "B"

PAGE 1 OF 2

CONSULTANT'S BILLING RATE

THE WEILER ENGINEERING CORPORATION

Principal.....	\$ 125.00
Environmental Scientist.....	\$ 125.00
Project Manager.....	\$ 105.00
Professional Structural Engineer.....	\$ 105.00
Registered Professional Engineer.....	\$ 105.00
Professional Civil Engineer.....	\$ 105.00
Professional Landscape Architect.....	\$ 95.00
Registered Engineer Intern (E.I.T.).....	\$ 95.00
Senior Engineering Designer.....	\$ 85.00
Construction Inspector.....	\$ 65.00
Engineering Technician.....	\$ 75.00
Clerical.....	\$ 35.00
Reimbursable Expenses	
Blueprints.....	\$ 2.30
Vellums.....	\$ 10.00(24 x 36 sheet)
Mylars.....	\$ 25.00(24 x 36 sheet)
Travel.....	Cost
(Travel outside of County)	
Overnight mail.....	Cost

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EXHIBIT "B"

PAGE 2 OF 2

GENERAL DESCRIPTION OF EMPLOYEE CATEGORIES

R. Jeff Weiler, P.E., President - Mr. Weiler is a Professional Engineer registered in the State of Florida. He is the President and Owner of The Weiler Engineering Corporation.

Edward R. Castle, P.E., Vice President - Wastewater Department Manager – Mr. Castle is a Professional Engineer registered in the State of Florida. He will be the Engineer in Responsible Charge for this project.

Rick Milloy, Environmental Scientist/Biologist – Environmental Consulting Department Manager – Mr. Milloy will be responsible for seagrass, bathymetric and benthic surveys and all permitting.

Todd Helt, GIS Manager – Mr. Helt will be responsible for all GIS data collection and post processing.

Michael Giardullo, P.E., Project Manager – Mr. Giardullo will be the primary designer and project manager for this project.

Serhiy Mashtakov, Senior Engineering Designer – Mr. Mashtakov will be the senior technician on this project.

Brett Moore, Coastal Engineer, Humiston and Moore Engineers – Mr. Moore and his associates will run the numeric models and report, and recommend alternatives. .

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