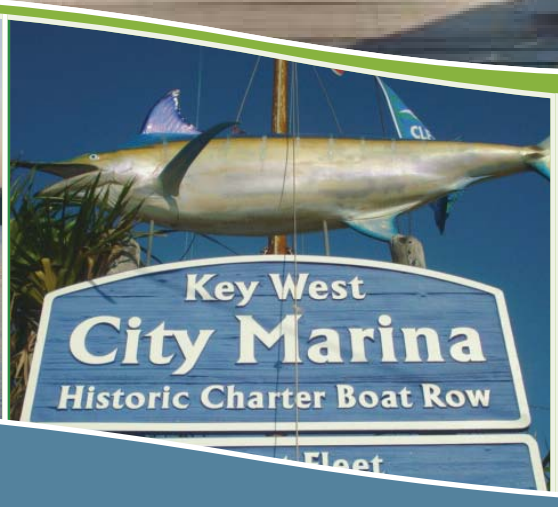
Design of Tarpon Pier Replacement for City Marina at Garrison Bight

RFQ# 11-002



PREPARED BY

TAYLOR ENGINEERING, INC.

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FIRM: **TAYLOR ENGINEERING, INC.**

PROJECT: **DESIGN OF TARPON PIER FOR CITY MARINA AT GARRISON BRIGHT**

RFQ #: **11-002**

TAB

May 17, 2011

City Clerk
City of Key West
525 Angela Street
Key West, FL 33040

Re: RFQ #11-002: Design of Tarpon Pier Replacement for City Marina at Garrison Bight

Dear City of Key West Staff and Commission Members:

Taylor Engineering, Inc. is pleased to submit this qualifications package to provide professional engineering services to replace Tarpon Pier at Garrison Bight. We have customized this submittal to give you a thorough account of our company, our staff members' qualifications, and our corporate experience with waterfront and marine infrastructure projects.

Granted, other companies will make claims similar to ours. They will emphasize their "extensive experience," personnel with "specialized expertise," and familiarity with permitting requirements. However, we contend that few companies, if any, can match Taylor Engineering's combination of assets: our superb working relationship with local, federal, and state agency personnel; our proven ability to design constructible and cost-effective coastal and waterfront facilities; and our strength in construction inspection and administration of coastal and waterfront infrastructure projects. Our staff — marine structures engineers, coastal engineers, and environmental scientists — work only on projects in the water or at the water's edge. This *true* specialization demands we succeed on every project to survive as a company, and that success leads to our client's success.

To complement our West Palm Beach and Jacksonville office capabilities, we have formed a primarily South Florida-based, comprehensive team of civil engineers, environmental scientists, surveyors, and geotechnical and electrical engineers. Chen Moore and Associates — a State of Florida and locally certified MBE civil and environmental engineering firm with offices in Palm Beach, Miami-Dade, and Broward County — will lead utility coordination efforts. Sandra Waters Consultants, Inc. (SWC), a DBE-certified firm founded in Key West, will lead the natural resources investigation requirements for the project. Morgan & Eklund, Inc., a Port St. Lucie-based firm, will lead the topographic, bathymetric, and utility surveying and mapping efforts. Nutting Engineering, based in Port St. Lucie, will provide geotechnical engineering and laboratory testing services. Lastly, Eng Engineering, located in Jacksonville, will take design responsibility for any necessary dockside electrical engineering.

As an officer authorized to bind Taylor Engineering to the outcome of this submittal (see next page), I thank you for this opportunity to present our qualifications. We look forward to your response.

Sincerely,

Rajesh Srinivas, Ph.D., P.E.
RSrinivas@taylorengineering.com
Vice President

Information Page

PROJECT NAME: Design of Tarpon Pier for City Marina at Garrison Bright

PRIME FIRM: Taylor Engineering, Inc.

PROJECT MANAGER:

Lori Brownell, P.E.
Assistant Director, Waterfront Engineering
10151 Deerwood Park Boulevard
Bldg. 300, Suite 300
Jacksonville, FL 32256

Phone: (904) 731-7040
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LBrownell@taylorengineering.com

REPRESENTATIVE AUTHORITY:

Rajesh Srinivas, Ph.D., P.E.
Vice President, Engineering
1675 Palm Beach Lakes Blvd.
Suite 210
West Palm Beach, FL 33401

Phone: (561) 640-7310
Fax: (561) 640-7805
Cell: (904) 233-9612
RSrinivas@taylorengineering.com

Organization Chart

Location of Personnel

Jacksonville, FL
Statewide (Florida)
West Palm Beach, FL
Miami, FL
Wabasso, FL
Key West, FL
* Resume Included

Project Manager
Lori Brownell, P.E.*

Principal-In-Charge
Rajesh Srinivas, Ph.D., P.E.*

Marina Engineering
Jonathan Armbruster, P.E.*
Keith Knight, P.E.
William Miller, Ph.D., P.E.*
Ashley Naimaster, E.I.
Edward Eng, P.E.*

Utility Coordination and Construction Engineering
Nancy Lehr, P.E.*
Leslie Malick, E.I.
Oscar Bello, P.E.*
Ben Chen, Ph.D., P.E., BCEE

Environmental Science / Permitting
David Stites, Ph.D.*
Christopher Ellis
Sandra Walters*
Michelle Braynard

Geotechnical Engineering
Richard Wohlfarth, P.E.*
Don Tyson

Topographic, Bathymetric, and Utility Survey
John Morgan, II, P.L.S.*
David Coggin, P.S.M.

COMPANY INFORMATION

Since 1983, **Taylor Engineering** has completed over 1,700 marine structure, coastal, and water resources engineering projects in the southeastern United States. The company's repeated selection as consultant to, among others, the U.S. Army Corps of Engineers, the Florida Department of Environmental Protection, the South Florida Water Management District, Florida Inland Navigation District, and the Federal Emergency Management Agency proves its success in meeting client needs in marine structures, coastal, and water resources engineering. Taylor Engineering routinely provides specialized coastal and marine structure design and evaluation services, including

- *Design, Rehabilitation, and Permitting of Marine Structures including Floating Docks, Fixed Docks, Revetments, Jetties, Bulkheads, Seawalls, Breakwaters, Piers, and Mooring Structures*
- *Waterfront Planning, Engineering Design, and Construction Phase Services*
- *Waterfront Facilities/Site Engineering including Design, Permitting, and Construction*
- *Engineering Investigation of Failing Shoreline Protection and Marine Structures*
- *Acquisition of Federal, State, and Local Permits for Marine and Waterfront Development Projects*
- *Development of Construction Drawings and Technical Specifications*
- *Construction Cost Estimating, and Construction Observation and Contract Administration*

SUBCONTRACTOR COMPANY INFORMATION

Chen Moore & Associates, Inc. (Chen Moore) — As a Florida State SDBE, Chen Moore has provided South Florida with quality civil and environmental engineering services since 1986. As a known consultant to the City of Key West staff, Chen Moore brings 25 years of expertise in utility design, coordination, and construction inspection services that will provide invaluable information to the project team. The firm's efforts will result in a seamless connection between the land and residents of the Tarpon pier floating dock.

Sandra Waters Consulting, Inc. (SWC) — Founded in Key West and a certified DBE firm, SWC provides locally-tuned services in all areas of ecological and environmental consulting; including habitat assessments, wetland permitting and mitigation design, environmental impact statements, compliance monitoring, development agreements, and submerged land leases. The company principal, Sandra Waters, has over 25 years of experience, and her staff brings a wealth of local knowledge to the project team.

Nutting Engineers of Florida, Inc. (Nutting) — Nutting has provided high-quality and technically competent geotechnical engineering services in South Florida since 1967. With approximately 50 technicians and engineers, Nutting's comprehensive range of services include soil borings and groundwater well drilling, monitoring of pile installation, quality control/ quality assurance testing of construction materials, and structural inspections (special/threshold) of structures.

Morgan & Eklund, Inc. (M&E) — Founded in 1985, M&E is a land and hydrographic survey SBE firm with offices in Wabasso and Deerfield Beach. Chief Surveyor, John Morgan, II, P.L.S., has 33 years of experience in topographic, hydrographic, and utility surveying. Taylor Engineering has enjoyed an excellent working relationship with M&E throughout the past 20 years.

Eng Engineering — As a Florida State MBE with 24 years of experience with design for marine environments, Eng Engineering (located in Jacksonville) provides mechanical, electrical, plumbing, and fire protection design services to the team. Recent clients include Jacksonville Port Authority, Port Canaveral, and Port of Miami.

Methodology and Approach

PROJECT AND PROJECT AREA UNDERSTANDING

The City of Key West Garrison Bight Marina — located on the north side of the Key West Island at the intersection of North Roosevelt Boulevard and Palm Avenue — comprises approximately 250 fixed and floating marina wet slips with dockside amenities including potable water and 30- and 50-ampere electrical services. The 1960's era Tarpon Pier, the longest of the fixed live-aboard docks in the marina, lies on the north side of Palm Avenue between the Marlin and Kingfish floating dock piers. The current 400-foot long pier T-head structure comprises concrete precast piles, concrete pile caps, and precast double tees overlaid with timber decking. Given the degraded state of the underlying concrete structure, the City wishes to replace the 44-slip fixed pier with a floating dock structure (identical to the adjacent Marlin Pier). Project construction will occur outside the hurricane season and, to ensure a smooth permitting process, the replacement structure will have an identical footprint as the existing pier.

LEVEL OF SERVICE APPROACH AND ALTERNATIVES ANALYSIS

As with any engineering project, development of the approach must consider a range of alternatives. Based on City review of existing conditions, available project documents, and City-specified requirements, Taylor Engineering identified a few key project components which present critical alternatives. We evaluated these "level of service" alternatives (*italicized* in the section below) based on inherent pros and cons and our experience with similar work to identify the most cost-effective approaches to yield superior results. The table on the next page summarizes this analysis for the following five project components.

1. **Project Management Approach and Scheduling** – *Series Scheduling* would develop the project in a stepwise fashion with each task following the previous without project activities for different tasks occurring simultaneously. *Parallel Planning* would allow multiple tasks to occur concurrently.
2. **Dock Structure Engineering** – *Module Design* would require Taylor Engineering to develop design details for the floating dock modules from scratch to include all components and fabrication processes. *Performance Specifications* would allow the engineer to specify project-specific requirements to allow contractors to offer standardized manufactured floating dock modules to meet the project performance requirements.
3. **Tarpon Pier Residents Relocation Planning** – *Contractor Coordinated* would require the construction contractor to assume responsibility for planning and relocating all of the Tarpon Pier live aboard residents. *Engineered Plan* would rely on Taylor Engineering to develop a complete plan for relocation in advance of bidding the project.
4. **Utility Coordination** – *Performance Specifications* would embed all utility requirements within the floating dock performance specification and rely on the contractor to complete utility coordination and design to meet performance criteria. The *Engineered Design* would require Taylor Engineering to complete a thorough utility location survey and develop a detailed utility plan and construction drawings for the replacement dock.
5. **Construction Phase Services** – A *Resident Engineer* would require Taylor Engineering's design engineer live on site during construction. A *Clerk of the Works* would rely on periodic inspection of the project work with continued involvement of Taylor Engineering's design engineer for review of all technical submittals and on-site visits at critical junctures during the project. A *3rd Party* would exclude Taylor Engineering from involvement during construction, and an outside firm or City Staff member would complete construction management.

For each project component, the table highlights Taylor Engineering's recommended approach in blue. The Scope of Services following the table describes our approach for the project, and the column on the right side of the table references the scope task number where the specific approach element is described in more detail.

Table 1. Level of Service Approach Alternatives Analysis

Project Activity	Level of Service Alternative	Pros	Cons	Task No.
Project Management Approach and Scheduling	Series Scheduling	• Allows multiple reviews • Relies on simple management approach	• Protracts schedule	
	Parallel Planning	• Expedites Schedule • Integrates project activities	• Requires experienced management	Schedule
Dock Structure Engineering	Module Design	• Maintains full design control • Allows for custom design	• Increases cost • Makes competitive bidding difficult • Protracts schedule	
	Performance Specification	• Maintains dock quality • Draws from multiple suppliers • Provides strong guidelines for construction QA/QC • Allows for competitive bidding	• Requires familiarity with dock manufacturers • Requires careful review of bids/proposals • Requires strong construction oversight	4
Tarpon Pier Residents Relocation Planning	Contractor Coordinated	• Maintains contractor flexibility	• Generates potential conflict - contractor vs. owners • Causes project construction delays • Increases probability for poor execution	
	Engineered Plan	• Allows thoughtful pre-coordination with homeowners • Addresses public relations and technical requirements	• Extends the design schedule • Requires slightly higher engineering fees	1.2
Utility Coordination	Performance Specification	• Shifts design costs to contractor	• Requires highly-qualified contractor • Increases probability for poor execution • Generates potential for construction delays	
	Engineered Design	• Expedites construction via pre-coordination with utility suppliers • Results in superior utility system	• Requires slightly higher engineering fees	2.2, 4
Construction Phase Services	Resident Engineer	• Provides full time contractor supervision • Provides continuous involvement by design engineer	• Results in highest costs	
	Clerk of the Works	• Provide design engineer availability on-site at key intervals • Provides day-to-day oversight via locally based inspector • Allows design engineer reviews for all technical submittals	• Provides only limited on-site availability of design engineer	6
	3rd Party	• Generates perception of cost saving	• Results in complete loss of design engineer involvement • Results in potential loss of initially perceived cost saving • Increases probability of poor execution	

SCOPE OF SERVICES INCLUDING TASKS, DELIVERABLES, AND SCHEDULE

The following Scope of Services outlines the task- and deliverable-based activities necessary to complete the permitting, design, and construction of the Tarpon Pier replacement structure. This section concludes with an estimated task schedule.

TASK 1 REVIEW OF EXISTING INFORMATION AND COMMUNITY ENGAGEMENT

1.1 Literature Review and Data Collection

This sub-task will focus on the collection and review of existing information pertinent to the Tarpon Pier replacement. Such information includes previous studies of the marina, pier, utility plans, permits, and relevant authorizations. For this task the Taylor Engineering team expects to meet with the City of Key West Marina Manager, Mr. David Hawthorne, and the City's assigned Project Manager, Mr. Birchard Ohlinger, to determine the available information, identify items on the pier to maintain (e.g., power poles, pump out stations, etc.) and review previous permits and authorizations. Review of existing information will provide key input into the collection of pertinent field data collection (Task 2) and the Joint Environmental Resource Permit Application (Task 3).

1.2 Community Engagement of Tarpon Pier Residents and Accessibility Plan

The Tarpon Pier replacement project must consider accessibility of the live-aboard owners during construction. Steps in the community engagement and accessibility plan will generally include:

1. Meet with the Marina Manager to determine availability of other live-aboard designated slips within the marina facility
2. Consider temporary expansion of adjacent pier facilities
3. Survey each of the residents at Tarpon Pier to determine mobility of their boats
4. Develop an accessibility plan (inclusive of utility hookups) and accompanying construction schedule that may include one or a combination of the following options: (a) Modification of adjacent pier structures; (b) Transfer of boats to other piers; (c) Construction of project in phases
5. Hold a community meeting to present the draft accessibility plan and solicit feedback from residents and management
6. Present final accessibility plan and detailed construction schedule to Marina Manager via a technical memorandum

Task 1 deliverables include:

- Memorandum summarizing community survey of boat mobility and accessibility issues
- Draft and final Tarpon Pier resident accessibility plan
- Community meeting presentation

TASK 2 SITE INVESTIGATIONS

2.1 Natural Resources Survey and Mitigation Coordination

Sandra Waters Consulting, Inc. (SWC) will perform a benthic resources assessment of the Tarpon Pier facility to document living marina resources (e.g., coral, seagrasses, attached algal/sponge communities) immediately beneath and adjacent to the pier and vessel mooring areas. Survey areas will include the seafloor, support piles, and dolphins. The divers will define the benthic communities in accordance with Florida Administrative Code 62-312.410(1)(1), the Florida Keys National Marine Sanctuary (FKNMS) protocols, and *Benthic Habitats of the Florida Keys* atlas. SWC staff will also record the location, on geo-referenced aerial photographs, of any emergent shoreline vegetation within the immediate vicinity of the proposed project area. All mapping will occur

with a differentially corrected global position system (DGPS). After completion of the field survey, SWC will develop a report that includes a description of survey methodology, survey conditions, photographic documentation, and a description of each natural resource observed. The report will include summary tables that identify natural resources and figures depicting submerged natural resource locations and boundaries. If necessary, our team will meet with appropriate regulatory agency staff (including FKNMS) at the site to verify the survey results and, as appropriate, determine any necessary mitigation.

2.2 Utility Coordination and Site Survey

Taylor Engineering, via our civil and surveying subconsultants (Chen Moore and Associates and Morgan & Eklund) will collect limited utility, bathymetric, and topographic survey information near the proposed project site. Chen Moore and Associates will coordinate with the Marina Manager, Mr. David Hawthorne, and local utility companies to provide the underground utility information (via flagging or paint marking) and Morgan & Eklund will provide the survey information (signed and sealed by a Florida professional surveyor) in digital and hard copy format. Survey information (of the adjacent upland) will extend a minimum of 25 feet outside the project footprint. This survey, documenting the location and elevation of underground utilities and existing topographic and bathymetric survey conditions for the project area, will provide key information for project design and construction.

2.3 Geotechnical Investigation

Taylor Engineering will subcontract Nutting Engineering to conduct an in-water geotechnical investigation. The information gathered will allow Taylor Engineering to set design parameters for the required depth and capacity of the floating dock guide piles. The information will also provide an understanding of subgrade conditions expected during pile driving and dock construction. The geotechnical work will generally include collection of, at a minimum, two SPT borings taken from a barge in the location of the Tarpon Pier replacement structure, visual classification of soil samples, in situ blow count determination, a sieve analysis, and engineering analysis to develop recommended compression, tension, and lateral pile capacities for up to two alternative driven pile types.

Task 2 deliverables include:

- Natural Resources Survey Report and, as applicable, coral mitigation plan
- Utility, bathymetric, and topographic survey
- Geotechnical Investigation letter report

TASK 3 ENVIRONMENTAL RESOURCES PERMIT APPLICATION

3.1 Pre-Application Meeting with Permitting Agencies

As soon as the City provides a Notice to Proceed for the project work, Taylor Engineering will arrange a pre-application meeting with Florida Department of Environmental Protection and U.S. Army Corps of Engineers staff. Meeting objectives will include introducing the project to regulatory staff, informing them of the desired project construction timeline, and determining agency-specific items for the permit application.

3.2 Preliminary Design and Joint Environmental Resource Permit Application

Replacement of an existing pier structure requires development and application of state and federal permits. Taylor Engineering will prepare and submit, on behalf of the City of Key West, a Joint Environmental Resource Permit (ERP) Application based on field investigations prepared in Task 2 and other tasks of this proposed scope of services. Application development will include preparation of preliminary design drawings in agency-approved format. We understand that the City of Key West owns the bay bottom where Tarpon Pier is located; therefore, permission to use sovereign submerged lands presently exists. Given this, we do not expect to acquire or modify a

sovereign submerged land lease. Following submittal of the permit application, we will maintain regular contact with the regulatory agencies to facilitate agency review. To help the City gauge expected facility construction costs, this sub-task also includes preparation of an order-of-magnitude cost estimate for the proposed project.

3.3 Response to Request for Additional Information (RAI)

After receiving the permit application, both the state and federal agencies will likely respond with a Request for Additional Information (RAI). RAIs typically comprise a series of questions requiring additional explanation of the proposed project work. Accordingly, Taylor Engineering will prepare responses to the U.S. Army Corps of Engineers and the Florida Department of Environmental Protection requests.

Task 3 deliverables include:

- Two hardcopies (one to the State and one to the County) and one electronic copy of the ERP application, signed and sealed permit drawings, RAI response(s), and any permits issued
- Order-of-magnitude cost estimate

TASK 4 ENGINEERING DESIGN AND CONSTRUCTION DOCUMENTS

With an understanding that the City of Key West wishes to develop a structure similar to the adjacent Marlin Pier, Taylor Engineering will prepare construction drawings to detail the demolition of the existing Tarpon Pier; identify items for reuse in the new system (e.g., power poles, pump-out station equipment); and specify locations, requirements, and parameters necessary to develop the proposed floating dock system. To provide a dock structure suited to likely coastal conditions at the site, Taylor Engineering will conduct a coastal analysis of the marina's surroundings to determine the maximum design wave height and period, boat wake, and storm surge. These coastal conditions will inform preparation of performance specification for the floating dock design and serve as input during the structural analysis of the anchor support piles. The drawings will provide the basis for competitive bidding of the project. Based on the results of the site investigations (Task 2), approved permit drawings (Task 3), and structural analysis, we will write a detailed performance specification for the floating dock. The performance specification will detail the project components in terms of project-specific requirements. Together with detailed construction drawings, the performance specification will provide engineering design detail to ensure the City of Key West receives a superior floating dock system. Because floating dock system design details and engineering parameters vary from manufacturer to manufacturer, the performance specification will require the winning bidder to provide supporting product-specific engineering documents before construction. The project team will review these documents to verify quality of the proposed system components.

In summary, Taylor Engineering will complete the marina design and prepare detailed drawings for the proposed dock replacement to present and coordinate the dock structural design with the engineered utility design. The drawings will include demolition plan, boat relocation access plan (including possible temporary expansion of adjacent structures with floating or fixed finger piers, etc.), dock layout, typical dock sections, and utility design. We will prepare technical specifications to include material, installation, and performance requirements for the floating dock system and associated piles. We will prepare the technical and performance specifications in project manual format to include supporting technical documents (completed coastal analysis report, geotechnical investigation report, project permit documents, etc.).

Task 4 deliverables include:

- *90% Complete Construction Documents* — This submittal will describe project features at a near-final design level. The drawings will depict all components with appropriate structural and utility details. The specifications will address all components or construction activities.

- *100% Complete Construction Documents* — This submittal will incorporate all City of Key West comments as well as Taylor Engineering's final QA/QC review. As appropriate, engineering documents will bear the signature and seal of a Florida licensed professional engineer.

TASK 5 BID PACKAGE PREPARATION AND ADMINISTRATION

Taylor Engineering will combine the technical construction documents with the City of Key West's legal contracting and procurement documents to prepare and distribute a complete bid package. Taylor Engineering's project representatives will attend and run a pre-bid meeting to introduce contractors to all aspects of the project and answer questions concerning elements for which Taylor Engineering is responsible. During the bidding process, we will provide written answer to all contractor questions. We will collect the bids, review them for completeness, check contractor references, and provide the City of Key West with all bid information along with our contractor recommendation.

Task 5 deliverables include:

- Bid packages delivered to interested contractors
- Recommendation for contractor selection

TASK 6 CONSTRUCTION ADMINISTRATION

We will assist the City of Key West in administering the construction project from our offices in West Palm Beach. Chen Moore's construction inspectors will periodically visit the site to observe project construction and to ensure that the project moves forward in accordance with the construction drawings and specifications and that all Tarpon residents are provided boat access and in receipt of utility services. Taylor Engineering's design engineer will visit the site at key project milestones. In addition, office duties will include reviewing contractor shop drawings and submittals, reviewing contractor requests for information (RFIs), and reviewing progress pay applications. As we expect construction to take only 3 – 4 months, we will meet (in person or via phone) with City of Key West staff on a regular basis throughout the entire project duration.

Task 6 deliverables include:

- Timely review of contractor submittals, RFI's, pay applications, and coordination requests
- Document review and completed as-built certification forms for environmental agency compliance
- Project closeout notebook organizing key project construction and closeout documents

ESTIMATED TASK-BASED DELIVERABLE AND CONSTRUCTION SCHEDULE

TASK NO.	TASK DESCRIPTION	ESTIMATED TIMEFRAME (MONTHS)
1	Review of Existing Information	½ – 1
2	Site Investigation	½ – 1
3	Environmental Resources Permit Application	3 – 6+
4	Final Design	1
5	Bid Package Preparation and Administration	½ – 1
6	Construction Administration	3 – 4
Total Project Duration (with Tasks 3, 4, and 5 running concurrent):		7 – 12

RAJESH SRINIVAS, PH.D., P.E.

VICE PRESIDENT OF ENGINEERING

EDUCATION

University of Florida, Ph.D., 1993, Coastal and Oceanographic Engineering

University of Florida, M.S., 1989, Coastal and Oceanographic Engineering

Birla Institute of Technology, Mesra, India, B.S., 1986, Mechanical Engineering

REGISTRATION

Civil Engineering / FL / 1999

YEARS WITH TAYLOR ENGINEERING

18

PRIOR YEARS EXPERIENCE

4

BACKGROUND / RESPONSIBILITIES

Dr. Srinivas has worked on coastal engineering issues since 1987. Following six years of research at the University of Florida, Dr. Srinivas joined Taylor Engineering as a Senior Engineer in 1994. His project experience includes the numerical and analytical modeling of coastal and estuarine processes and the planning, design, construction management, and monitoring of shore protection structures. He has authored several technical reports and peer-reviewed papers. In the past, he has served as the Director of Coastal Engineering and as company Chief Engineer. As Vice President of Engineering, his current responsibilities include management and quality control of all engineering projects.

PROJECT EXPERIENCE

- St. Augustine Port, Waterway, and Beach District (2005 – Ongoing) ─ Responsible for all engineering projects conducted under the master contract. Example projects include the design, permitting, and/or construction administration services for a floating dock in Lighthouse Park, navigational channel maintenance dredging at Salt Run, and a navigation channel in Sebastian River.

- Jacksonville Harbor Navigational Channel Deepening Project (2009 – Ongoing) ─ Responsible for quality assurance services for the project which applies the EFDC model to document and assess the potential changes in hydrodynamics and salinity attributable to deepening the channel from its current 40 feet to 50 feet.

- Palm Beach County Coastal and Waterfront Engineering Services (2005 – Ongoing) ─ Responsible for quality management services on all projects under the master contract. Example ongoing projects include beach restoration permitting and design, and economic modeling, for the Jupiter/Carlin shore protection project; and design and permitting services for rehabilitating the coastal Dubois Park.

- Miramar Beach Parking Structure, Walton County, Florida (2006 – 2009) — The parking structure, located on the coastline, was destroyed by the impact of Hurricane Ivan in 2004. As principal-in-charge, oversaw the planning, design, permitting, and construction administration of a replacement parking structure — pile supported, 1,000-foot long, 143 spaces — on the Gulf of Mexico shoreline.

- Pier Park Design Services, Panama City, Florida (2001) — Directed the coastal engineering design analysis, which included 100-year dune erosion modeling and application of a nonlinear wave theory to determine total water surface elevation and wave forces for piles and superstructure at the Gulf-front park.

- Coastal Processes Analyses for Seawall Design, Key West, Monroe County, Florida (2000 – 2001) — Project manager and lead engineer to compute storm surge elevations, design wave heights and periods, and wave forces as functions of storm return period for proposed seawall along US 1 in northeast Key West.

- Breakwater Optimization for Dos Bocas, Mexico (1998 – 1999) — Project manager of a fast-track study to determine optimum breakwater configuration for an oil export port. Performed statistical analysis on long-term hindcast wave data to determine design conditions. Used REFDIF to model nearshore waves. Optimized breakwater designs to ensure 85% annual port operating time for one- and two-berth harbor configurations.

TAYLOR ENGINEERING, INC.

LORI S. BROWNELL, P.E.

ASSISTANT DIRECTOR

EDUCATION

University of Wisconsin-Madison, M.S., 1998, Civil/Environmental Engineering, Water/Wastewater Treatment

University of Wisconsin-Madison, B.S., 1996, Civil/Environmental Engineering, Water/Wastewater Treatment

REGISTRATION / CERTIFICATIONS

Environmental Engineering / FL / 2003

OSHA 40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER) / US / 2002

OSHA 8-Hour Refersher Course, Updated annually (HMR8-10-21-2)

YEARS WITH TAYLOR ENGINEERING

12

BACKGROUND / RESPONSIBILITIES

Since joining Taylor Engineering in 1999, Ms. Brownell has served dual capacities in both the Environmental Services and Waterfront Engineering groups. Her diverse project experience has ranged from complex modeling to construction administration. As an Assistant Director in the Waterfront Engineering group, her recent project experience includes USACE coastal and environmental restoration feasibility studies, marina and waterfront design, construction administration, development of plans and specifications, 2-D and 3-D groundwater modeling evaluations, and dredged material management plan development for Florida's Intracoastal Waterway. From 2006 – 2007, as a contract employee (through Taylor Engineering), Ms. Brownell also worked as an Assistant Director for two large-scale stormwater treatment areas (STA Compartments B and C) in the SFWMD ACCELER8 Program. Ms. Brownell is OSHA HAZWOPER certified.

PROJECT EXPERIENCE

- Florida Inland Navigation District, Jupiter Intracoastal Waterway Dredging (2010 – 2011) — Project manager for the maintenance dredging of approximately 66,000 cy of sediment from the Intracoastal Waterway in vicinity of the Jupiter Inlet. The project involved detailed coordination with the Jupiter Inlet District and local area and state regulatory agencies.
- Harborview Marina Design, Charlotte County, Florida (2007 – 2008) — Assistant project manager for the permitting and design of a 553-slip waterfront development that included a 361-wet slip marina and single-family home facility, a 192 capacity dry storage facility, a marina-based pump-out and fueling station, a boat lift transfer system, and a public boat ramp.
- U.S. Army Corps of Engineers, Port of Miami Open-Water Dredged Material Disposal Site (ODMDS) Investigation (2009 – 2010) — The USACE intends to dredge up to 6 million cubic yards of material during its next authorized deepening project (Phase III Deepening Project at Miami Harbor). Taylor Engineering employed the ADDAMS system to evaluate dredged material placement from the Deepening Project into the designated ODMDS.
- Florida Inland Navigation District, M-5 Permitting and Design, Martin County, Florida (2008 – Ongoing) — Project manager for the permitting and design to offload approximately 365,000 cubic yards of material from an island dredged material management area for ultimate beach disposal.
- St. Augustine Port, Waterway, & Beach District, San Sebastian River Dredging Needs Assessment, St. Johns County, Florida (2008) — Project manager to review and compare shoaling rates in the San Sebastian River for dredging assessment need. Assisted with a public workshop to present and discuss report outcome with local waterfront commercial entities.
- Hammock Beach River Club Marina Design, Flagler County, Florida (2006 – 2007) — Project engineer for a 10-slip docking facility design and environmental permitting assistance for the Ginn Clubs & Resorts Development.
- Bonfire Beach Boat Ramp Permitting and Design, Bay County, Florida (2005 – 2007) — Boat ramp design, upland civil site work, dredged material management, and environmental permitting assistance for the St. Joe Development project located in the City of Mexico Beach.

TAYLOR ENGINEERING, INC.

JONATHAN T. ARMBRUSTER, P.E.

DIRECTOR OF WATERFRONT ENGINEERING

EDUCATION

University of Illinois, M.S., 1998, Environmental Hydrologic & Hydraulic Engineering

The Cooper Union, B.E., 1996, Civil Engineering

REGISTRATION

Civil Engineering / AL / 2004

Civil Engineering / FL / 2002

Civil Engineering / NY / 2002

YEARS WITH TAYLOR ENGINEERING

9

PRIOR YEARS EXPERIENCE

3

BACKGROUND / RESPONSIBILITIES

Mr. Armbruster received his Bachelors of Engineering at the Cooper Union in New York City where he developed a strong foundation in civil engineering fundamentals. In 1996, while working toward his Masters Degree, Mr. Armbruster served as a Research Assistant at Hydrosystems Laboratory of the University of Illinois at Urbana-Champaign. Mr. Armbruster's professional experience includes employment as Vice President at MRD Associates, Inc. in Florida's Panhandle for three years. There, his professional experience encompassed business development and management as well as project management for marina design and permitting, dredging and dredged material management, and marine structures engineering projects. As Director of Taylor Engineering's Waterfront Engineering group, Mr. Armbruster oversees efforts across a spectrum of activities from feasibility analysis through final design and construction phase services for a range of projects including marina and waterfront facilities, marine structures, dredging projects, dredged material management facilities, hydraulic control structures, pile foundation structures, erosion control measures, and shore protection installations.

PROJECT EXPERIENCE

- Bahia Urbana: San Juan Waterfront Redevelopment, Puerto Rico (2010 – Ongoing) — Project manager for marine and waterfront engineering design services to redevelop nearly two miles of waterfront. The project will revitalize, retrofit, or replace aging and failing deep-water port infrastructure to support new mixed-use development. Waterfront engineering includes evaluation of bulkheads, docks, and piers and design for new bulkheads, piers, mooring facilities, dredging, and floating dock water taxi and seaplane terminals.

- Waterfront Park Development, City of West Palm Beach, Florida (2007 – 2009) — Taylor Engineering provided design, permitting, and construction administration services for floating docks — key elements of the city's downtown waterfront redevelopment program — in the Lake Worth Lagoon east of downtown. As Director of Waterfront Engineering, provided QA/QC for all marine and floating dock project components.

- Final Design and Environmental Permitting: Dubois Park Redevelopment, Palm Beach County, Florida (2007 – 2010) — Project manager for engineering design and permitting redevelopment of Dubois Park. Project includes creation of day boat slips, development of a recreational snorkeling area, construction of improved and expanded shoreline stabilization bulkhead and riprap revetment, and installation of floating dock visitor dock.

- Bon Secour Village Marina, Gulf Shores, Alabama (2005 – 2006) — Engineer of Record responsible for design of 60-slip marina associated with condominium development.

- The Wharf Marina, Orange Beach, Alabama (2004 – 2006) — Engineer of Record responsible for preparation of concept plans, design, preparation of construction documents, and construction oversight for signature full-service 210-slip marina floating dock marina. This marina design included a steel sheet pile bulkhead, upland dredged basin, integrated wave fence, fuel docks, and marina utilities.

WILLIAM MILLER, PH.D., P.E.

SENIOR ENGINEER

EDUCATION

University of Florida, Ph.D., 2003, Coastal & Oceanographic Engineering, Coastal Engineering / Scour

University of Florida, M.S., 1997, Coastal & Oceanographic Engineering, Coastal Engineering

University of Michigan, B.S., 1982, Naval Architecture & Marine Engineering, Naval Architecture

REGISTRATION

Civil Engineering / FL / 2009

Civil Engineering / GA / 2009

YEARS WITH TAYLOR ENGINEERING

8

PRIOR YEARS EXPERIENCE

9

BACKGROUND / RESPONSIBILITIES

Dr. Miller has a leading role in near shore and inlet hydrodynamics, hurricane surge, wave mechanics and loading, littoral processes, shoreline stability/protection, water quality in streams, estuaries, and marinas, sediment transport, and structure induced sediment scour; as well as engineering design of shore protection and navigation projects. His work includes the application of two-dimensional finite element models such as the U.S. Army Corps of Engineers' RMA2, RMA4, CGWAVE, and ADCIRC, the MIKE21 model suite, and the REFDIF, CGWAVE, and MIKE21 wave models. He has successfully applied these models to many locations throughout Florida (including applications to inlets, bridge hydraulic studies and flushing/circulation studies).

PROJECT EXPERIENCE

- Nassau Sound Bike Path, Duval County, Florida (2011) — Developed coastal conditions estimates, including tide and surge levels, wave heights, wave runup, and wave load estimates to assist in siting and design of a bike path running under the northwest end of the SR A1A bridge over Nassau Sound. The project required close consultation with the designers to assess the feasibility of the path and the problems which may be encountered, including permitting issues.

- San Juan Waterfront Pier Design, San Juan, Puerto Rico (2010) — Lead engineer for the coastal conditions estimates (surge, waves, winds) for the San Juan, Puerto Rico waterfront. Estimated the coastal conditions and current and wave forces on boat piers, shoreline revetments, and a pedestrian bridge.

- City of Jacksonville Fire Station Dock (2010) — Developed coastal engineering design parameters for a pile supported dock structure. The parameters included water levels, wave heights, and current and wave loads for a Category 3 storm.

- Florida School for the Deaf and Blind Seawall, St. Johns County, Florida (2010) — Developed coastal conditions estimates (water level, current speed, wave heights, scour, wave loads) for seawall design at the Florida School for the Deaf and Blind in St. Augustine, FL. Supervised application of 2-D hydrodynamic model to develop water levels and currents speeds at the site. Supervised 1-D wave model application to develop wave heights and periods for various wind speeds. Estimated wave loads and scour based on conditions.

- West Palm Beach Waterfront Park Development, Florida (2008) — Conducted floating dock wave load estimates and evaluated contractor design alternatives for the City of West Palm Beach Waterfront Park Development.

- Dubois Park Development, Palm Beach County, Florida (2008) — Developed the final shore protection revetment and snorkeling/recreation basin breakwater designs. The effort included revetment and breakwater armor and toe protection design and supervision of design drawing development. The project also required modeling (RMA2 & RMA4) the final marina and breakwater designs to ensure contaminant flushing and snorkel area velocities fell within limits, including RMA2 model calibration with velocity measurements.

EDWARD JOHN ENG, P.E.

Prinicipal-in-Charge

Areas of Responsibility

As President of Eng Engineering Inc., Mr. Eng's responsibilities are corporate management, marketing, and technical review of all engineering documentation before it reaches the client. His responsibilities include total project planning, design and supervision of contract document preparation for all types of electrical, mechanical and fire protection systems. This includes facilities inspections and investigations, code compliance and forensic engineering. He qualifies as an expert witness in several areas.

Background

Mr. Eng has more than 25 years of experience in electrical/mechanical engineering, design and construction, and computer aided design. His skills include highway/roadway lighting, electrical power and design, high and medium voltage power distribution, heating, ventilating and air conditioning (HVAC), plumbing and fire protection planning, design and management, energy management analysis, and indoor air quality studies. Other specialties are above and underground storage tank management, life safety, fire losses and claims, forensic investigations, and code compliances. He has performed numerous energy conservation techniques and life cycle cost analysis of mechanical systems for both government and industrial clients. His project experience encompasses large office complexes, commercial warehouses, industrial manufacturing plants, hospitals and healthcare centers, distribution centers, convention centers, military and government facilities, grocery and retail stores, resorts, airports, schools, restaurants, churches, and residences.

Experience:

1992 to present: President and Chief Electrical/Mechanical Engineer, Eng Engineering Inc.

1988-1992: Lead Mechanical / Fire Protection Engineer of Industrial Sector at The Haskell Company, a Design/Build Construction firm

1984-1988: Mechanical Engineer / Project Manager at Turknett/MPS Engineers, a Civil, Mechanical, Electrical & Plumbing engineering firm

1980-1984: Project Mechanical Engineer at Reynolds, Smith & Hills, an Architectural/Engineering/Planning company

Education:

Bachelor of Science in Engineering, 1980, University of Florida, including studies of law with its relationship to engineering. National and college president of several engineering societies and an engineering newspaper writer.

Registrations and Professional Affiliations

Registered Professional Engineer in Florida, Alabama, Arkansas, California, Georgia, Indiana, Kentucky, Louisiana, Maryland, North Carolina, Pennsylvania, South Carolina, Tennessee, Texas, Virginia and West Virginia

Registered Standard Plans Examiner-State of Florida

NANCY E. LEHR, P.E.

PROJECT ENGINEER

EDUCATION

University of Florida, M.S, 2006, Coastal and Oceanographic Engineering

University of Florida, B.S., 2005, Civil Engineering

REGISTRATION

Civil Engineering / FL / 2010

YEARS WITH TAYLOR ENGINEERING

5

BACKGROUND / RESPONSIBILITIES

Mrs. Lehr joined Taylor Engineering in May 2004 as a summer intern in the Waterfront Design Group. While serving two internships at Taylor Engineering, Mrs. Lehr's responsibilities included assisting in dredging calculations, permit applications, and construction plan development. Before returning to Taylor Engineering as a Staff Engineer in 2006, Mrs. Lehr earned a Bachelor of Science in Civil Engineering with an emphasis in Structural Engineering and Master of Science in Coastal and Oceanographic Engineering, both from the University of Florida. Currently, her responsibilities include marina planning and design, structural design, calculations and modeling, dredging calculations, assistance in permit applications, development of plans and specifications, and construction administration.

PROJECT EXPERIENCE

- Flagler Drive Downtown Waterfront Seawall Replacement, City of West Palm Beach, Florida (2005 – 2007) — As an Engineering Intern and Staff Engineer, assisted in the design and construction administration to replace a deteriorated seawall in a downtown urban setting along Florida's Intracoastal Waterway, in coordination with an anticipated future waterfront park development.

- City Commons and Waterfront Park, City of West Palm Beach, Florida (2006 – 2009) — As a Staff Engineer, assisted in the structural design and modeling of three 400-ft long floating docks of varying widths up to 30 ft wide, as well as construction administration and observation. The public will use the docks for the West Palm Beach Boat Show and as a park. Design aspects include daily dock facilities, planters for wetland and native plants, and stability features for the dock's use as a promenade. During construction, played an active role in construction administration with review of submittals, checking calculations and routine site visits.

- San Juan Harbor, San Juan, Puerto Rico (2010 – Ongoing) — As a Project Engineer, assisted with the design, engineering calculations, and construction documents for plans to revitalize, retrofit, or replace aging and failing deep-water port infrastructure to support new mixed-use development including cruise passenger tourist attractions and commercial, residential, and civic developments. Marine structure services include evaluation of bulkheads, docks, and piers and design for new bulkheads, piers, mooring facilities, dredging, and other waterfront facilities. As construction continues, regular review of submittals and shop drawings are weekly events.

- Miramar Beach Parking and Access Structure, Walton County, Florida (2009) — As a Staff Engineer, assisted in the conceptual layout and feasibility study, as well as the final structural design, modeling, calculations, preparation of construction drawings, and construction observation and administration. The design included several features including an upland aluminum sheetpile bulkhead, concrete piles, concrete beam design, prestressed double tees, dune restoration, and timber walkways surrounding the existing bathhouse. Several times within the past decade, hurricanes (most recently Hurricane Dennis in July 2005) and tropical storms have come ashore nearby and severely damaged the parking lot. Walton County seeks a more permanent solution to the replacement of the surface parking pavement and parking structure capable of enduring a 50-year storm and the attendant beach erosion.

Oscar R. Bello, PE
Project Manager

Education:
Bachelor of Science, Civil Engineering,
University of Central Florida, 1999

Registration:
Professional Engineer, Florida, 61612, 2004

Summary:

Mr. Bello holds a bachelor's degree in civil engineering. He has more than ten years of experience in planning, design, permitting, and construction management of water, wastewater, and drainage municipal projects in Florida. Mr. Bello has worked as a project manager and project engineer for various projects in South and Central Florida. He currently manages municipal projects for the City of Miami Beach, City of Dania Beach, Florida Keys Aqueduct Authority and the City of Key West.

Project Experience:

Key West - General Transportation Engineering Services. Chen Moore and Associates was selected to provide General Transportation Engineering Services for the City of Key West Department of Transportation (KWDoT). KWDoT provides many services to the community, visitors, and their internal customers (staff), which consists of over 400 City associates. The three service areas or functions that KWDoT is responsible for providing are public transportation, fleet services, and municipal parking lot operations.

Chen Moore and Associates' first task order was the City of Key West Department of Transportation Facility. The City of Key West proposes to construct a new Transportation Facility on the site of the old Southernmost Waste to Energy Facility (SWTE). The new facility will serve as the transportation operations and administration building for the City of Key West and be the primary terminal/transfer station for lower keys shuttle bus service which serves Marathon to Key West. It will provide parking for customers of public transportation and employees as well as a plan for Phase II of the construction on the remaining land at this site to incorporate tour bus parking and shuttle services into Key West from Stock Island, Florida.

Key West Design/Build Transfer Station. Chen Moore and Associates was the lead design consultant for the design/build project of the new Key West Solid Waste Transfer Station. The project consisted of development of approximately 4 acres of vacant land in Rockland Key, Monroe County, Florida. The transfer station included a transfer building with truck tunnels, a corrugated cardboard recycling building, office and maintenance building, scale house with truck scale platforms and inspection area, leachate storage tank and retaining walls. The state-of-the-art transfer station replaces the aging Southernmost Waste to Energy facility on Stock Island, providing the capacity to handle the city's needs for at least the next 20 to 30 years

City Center Right of Way Improvement Project. Chen Moore and Associates is responsible for providing surveying, planning, geotechnical investigation, design, permitting, preparation of construction documents, bid and award and construction engineering and inspection services for infrastructure improvements within the public right of way areas of the City Center neighborhood of Miami Beach. The project encompasses approximately 24,000 LF of ROW infrastructure improvements including water main replacements, sanitary sewer upgrades, stormwater drainage improvements, paving & grading, streetscaping enhancements, landscaping improvements, lighting improvements, and roadway reconstruction.

DAVID L. STITES, PH.D.

DIRECTOR OF ENVIRONMENTAL SERVICES

EDUCATION

Emory University, Ph.D., 1986, Aquatic Ecology, Population/Community/Statistics

Georgia Institute of Technology, M.S., 1981, Applied Biology / Aquatic Ecology, Population and Quantitative

Eckerd College, B.S., 1972, Biology

YEARS WITH TAYLOR ENGINEERING

7

PRIOR YEARS EXPERIENCE

20

BACKGROUND / RESPONSIBILITIES

With 20 years of experience in aquatic and estuarine ecology as a scientist, task, and project manager, Dr. Stites joined Taylor Engineering as the Director of Environmental Services. His expertise is in freshwater, estuarine, and marine environmental matters including wetland restoration, water quality, endangered species, and associated permitting processes in Florida and around the U.S.

During his career, Dr. Stites has successfully implemented and managed a wide range of environmentally-focused water resource projects including environmental feasibility evaluations, diagnostic and pilot project studies, wetland and lake restoration design and implantation, wetland impact evaluation, mitigation, design and monitoring, state and federal environmental permitting, and document support for federal NEPA coordination activities. He has extensive experience presenting such issues to technical and public audiences, as well as negotiating environmental regulatory issues.

PROJECT EXPERIENCE

- Town of Lantana Emergency Seawall Project, Palm Beach County, Florida (2009 – 2010) — Task Manager for two CCCL permits for seawalls protecting essential infrastructure along a 700-foot municipal park Atlantic Ocean shoreline owned by the Town of Lantana. The first permit provided after the fact approval for an emergency seawall to protect county buildings. The second provided for construction of a gap seawall to complete protection of the park. Key permit issues included construction beyond "emergency level" construction recommended by FDEP and turtle nesting habitat.

- JEA Northside Generating Station (NGS) Storm Protection Design, Duval County, Florida (2007 – 2009) — Task Manager for environmental data review and permitting feasibility analysis for flood control system concepts associated with the JEA NGS. Tasks included literature review, meetings with state and federal regulatory agencies, wetland mapping from aerial photographs, and recommendations concerning environmental impacts of specific design components.

- BP Oil Terminal Dredging and Permitting, Duval County, Florida (2006 – 2009) — Senior Scientist providing permit application support for expansion of terminal basin and dredging area. Project includes natural resource surveys, permit application for dredging and submerged land lease revisions, dredging and sediment transport analyses, coordination with state and federal agencies, and QA/QC.

- Ft. George Roadway Revetment Design and Permitting, Duval County, Florida (2004 – 2009) — Project manager for Joint Coastal Permit development. Project provided a revetment armoring for a critical FDOT coastal highway running along the Atlantic Ocean Beach and marine turtle nesting habitat, and partially within a state park. The permit was approved and construction was completed in 2007. Taylor Engineering recently completed a permit revision to extend the armoring design to repair and upgrade an already armored section of waterfront adjacent to the current project footprint. Taylor Engineering is currently working with DOT on permitting a bicycle path on top of the revetment

ACADEMIC BACKGROUND

Masters Degree in Marine Affairs, University of Miami, Florida, 1983

Bachelor of Science in Animal Behavior and Marine Biology, University of California, Davis, CA, 1974

SANDRA WALTERS
President

SPECIALIZED PROFESSIONAL COMPETENCE

Ms. Walters is a seasoned environmental professional with more than 25 years of experience in South Florida. She is qualified as an Expert Witness in Florida administrative hearings and court proceedings; has conducted and supervised environmental studies, and developed and implemented avoidance and mitigation plans, in all South Florida submerged and upland habitats; has successfully acquired permits for major projects, working with all regulatory agencies; has extensive experience in design and implementation of public outreach programs; and has represented clients successfully with many agencies and government boards. She currently serves as vice-president of South Florida Association of Environmental Professionals, and is a member of EPA's Water Quality Steering Committee for the FKNMS.

REPRESENTATIVE PROFESSIONAL EXPERIENCE

Principal, SWC (Sandra Walters Consultants, Inc.), Key West, FL, 1996 to present

- **Mallory Dock Maintenance Dredge, City of Key West**
  Principal in charge for successful acquisition of all permit modifications to add Mallory Dock to scope of Navy Key West Harbor dredging project, including collection of all data on submerged habitats required by agencies, coordination with dredging company and environmental monitoring contractor, acquisition of EPA approval for use of offshore disposal site, and provision of Quality Assurance services onboard the dredging vessel.
- **Key West Mooring Field Seagrass Monitoring Project**
  Conducted seagrass monitoring project at Key West Mooring Field that investigated potential shading impacts from boats, including project design, photographic documentation of stations over time, collection of seagrass density and shoot count data, and report preparation.
- **S. Roosevelt Seawall Repair Seagrass Monitoring, Key West**
  Supervised assessment and documentation of seagrasses in vicinity of seawall undergoing repairs, including field data collection and photography, update of CAD files delineating seagrass line, measurement of seagrass impacts in project area for mitigation purposes, and report preparation.
- **Smathers Beach Seagrass Mitigation Monitoring, Key West**
  Conducted field monitoring of seagrass mitigation project for City of Key West, including establishing monitoring sites, collecting required data, supervising surveyor, assisting with preparation of monitoring reports, and providing local liaison with City and base of operation for work.
- **Submerged Habitat Study and Sediment Analysis, Key West Harbor and Vicinity**
  Principal in charge of submerged habitats survey in and around Key West Harbor. Divers collected field data from 50 randomly selected sites, collated data into maps showing general distribution of habitats in area, and compared data other sites throughout Florida Keys to assess habitat quality in relation to shipping activities in Harbor. Collect sediment samples in and near harbor following approved DEP protocol, transmit to State certified laboratory for testing for petroleum contamination and RCRA metals, and prepare report summarizing findings.
- **Residential Redevelopment Project in Marathon, Florida Keys**
  Project manager for all aspects of environmental planning and ERPs for 92-unit redevelopment project called Marlin Bay Yacht Club, including supervision of all field data collection and preparation of benthic assessments and avoidance and minimization plans, supervision of ERP application preparation and submittal and all responses to requests for additional information, work with DEP to acquire net positive public benefit exception to State submerged land lease riparian restriction, and presentations to Governor and Cabinet regarding lease rule provisions and final lease adoption. Acquired approval of ERP and submerged land lease in 9 months.
- **Environmental Compliance, FDOT Dist. 6 US Highway 1 South 1st Phase**
  Environmental compliance leader for design-build team, including benthic resources data, assistance with processing permit modifications, and training of construction staff regarding wetlands and listed species permit requirements.

Vice President & Manager of Environmental & Permitting Division, H.J. Ross, Coral Gables, FL, 1994-1996

- **US Highway 1 South Project, from Key Largo to Florida City**
  Consultant project manager in permitting for expansion of US Highway 1 South. Permits were required from U.S. Coast Guard, SFWMD, USACE, and coordination with Dade County DERM. Work included supervising field investigations including mangrove, seagrass, and freshwater emergent habitats; preparation of permit applications; responding to information sufficiency reviews; and coordinating with many commenting agencies.

Richard C. Wohlfarth, P.E.
Principal/ Director of Engineering

FORMAL EDUCATION:

University of Florida,
Gainesville, Florida

Bachelor of Science,
Civil Engineering

PROFESSIONAL REGISTRATIONS:

Registered Engineer-
State of Florida #50858

Registered Building Inspector-
State of Florida BN #3580

SBCCI #6528

ACI Level 1 #991175

UBCI

PROFESSIONAL AFFILIATIONS:

Florida Engineering Society
*Past Chapter President

National Society of Professional Engineers

REFERENCES:

Florida Keys Aqueduct Authority
1100 Kennedy Drive
Key West, Florida
Mr. Jim Reynolds
305-296-2454

Carmo Engineering
228 East Ocean Avenue
Lantana, Florida 33462
Mr. Dave Carmo
561-586-1111

Calvin Giordano & Assoc.
1800 Eller Drive, Ste. 600
Ft. Lauderdale, Florida 33316
Mr. Don Windham
954-921-7781

PROFESSIONAL EXPERIENCE:

Mr. Wohlfarth, P.E. is the Director of the Engineering Department which includes professional and technical personnel. He also has overall responsibility for the Special Inspection, Construction Materials Testing and Geotechnical Engineering Divisions where he directs training, quality system review and personnel evaluations. His responsibilities include report review, signing and sealing geotechnical engineering, structural inspection and laboratory testing reports for the company, providing contract negotiation and administration, budget estimating and project management.

Mr. Wohlfarth has 22 years of experience in various aspects of geotechnical engineering which include determining feasibility of site development, foundation design analysis and recommendations, providing engineering evaluation for bridge and roadway construction, pavement design for roadways, roadway subgrade stabilization by geotextiles and other means, design of shoring systems for utility trenches and other deep excavations, dewatering methodology for trench and other excavations and backfill procedures, setting up and monitoring pile load tests, and providing value engineering for foundations.

PROJECT EXPERIENCE:

- Proposed pump assisted drainage wells and underground storm water pump station, Duval Street, City of Key West
- Barge Drilling for multiple transmission lines for Florida Keys Electric
- City of Key West Key Largo Water Treatment District proposed Vacuum Sewer Line- approximately MM103.5 to MM105.5
- Multiple 2M gallon storage tanks throughout the Keys
- Calusa Campground & Collection Water System, approximately Mile Marker 101, Key Largo
- City of Key West Class 1 Solid Waste Transfer Station, Rockland Key, MM 9
- Miami Beach City Center R.O.W. Infrastructure Improvements
- W/WTP projects include: Clewiston WTP, Boca Raton Reverse Osmosis Facility @ Glades Road WTP; Dania Beach WWTP @ Stirling Road; Deerfield Beach WWTP; Pembroke Pines WTP Improvements @ Johnson Street; Sawgrass WTP @ Sawgrass Corporate Parkway; City of Coral Springs WTP @ 85th Avenue; Layton WWTP Expansion; Florida City WTP High Service Pump Station; Key Largo WTP @ MM 105.5; FKAA Robert Dean WTP @ Florida City; Duck Key WTP; North Key Largo Advanced Treatment and Wastewater Reuse project @ Ocean Reed Club
- Various projects for the Miami Dade County Board of Commissioners- Qualification Based Contract (since 1986)- Environmental Assessments, Geotechnical Exploration & Engineering, Material Testing, Structural Inspections

Experience

- Project Manager for a proposed marina/condominium facility on Stock Island, Key West, Florida. Performed a boundary and topographic survey of the entire tract, a bathymetric survey of the proposed marina facility, established utility easements, as-built surveys of docks and marina, condominium documents, Dockominium drawings and an overall as-built survey of all phases for Sunset Marina, Key West.
- Project Manager for a dredge project. Performed pre and post dredge bathymetric surveys at Key West Harbor.
- Project Manager for pre and post construction profiles for sand replacement at Central Miami Beach Breakwater project.
- Project Manager for a bathymetric survey of a ship berthing area on Fisher Island.
- Project Manager for a detailed topographic, location and seagrass survey of the City of Miami Park at Virginia Key. The survey included onshore and nearshore profiles along the entire shoreline together with locating rock jetties, upland features and seagrasses.
- Project Manager for coastal monitoring surveys for Miami-Dade County. Performed onshore and offshore profiles for 112 FDEP lines; performed a detailed topographic and hydrographic survey in erosion "hot spots" for the design of submerged breakwaters.
- Project Manager for a bathymetric monitoring survey of ship berthing area in Government Cut Miami-Dade County, Florida.
- Project Manager for a bathymetric survey of the Miami River using multi-beam swath bathymetry. The multi-beam swath bathymetry system allowed us to collect data around and under large cargo ships that were moored along the sides of the river.

JOHN R. MORGAN, II, P.L.S.

Chief Surveyor

Higher Education

B.A., Environmental Science – University of Virginia (1974)
Part-time, Survey Technology – Penn State (1977)

Registration

Registered Land Surveyor – PA, RLS #26134-E (1976)
Professional Land Surveyor – FL, PLS #3520 (1979)

Years Experience

With this firm: 25 years **With other firms:** 8 years

Qualifications Summary

Mr. Morgan has 33 years experience in land and hydrographic surveying. His areas of expertise include hydrographic, topographic, boundary and control surveys.

More specifically John has directly supervised all of the survey tasks associated with large-scale topographic and hydrographic survey projects for beach nourishment, Everglades Restoration projects and channel and harbor improvement projects.

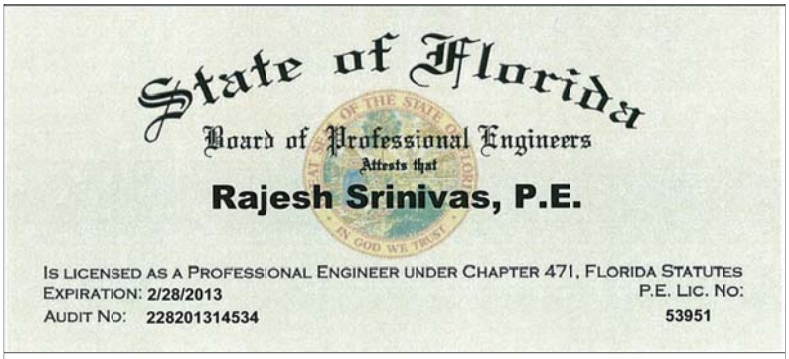
John is also responsible for the day-to-day management of the company, including project scheduling, client contact, quality control, and supervision of personnel.

Active Memberships

Florida Society of Professional Land Surveyors
American Congress on Surveying and Mapping
Florida Shore and Beach Preservation Society

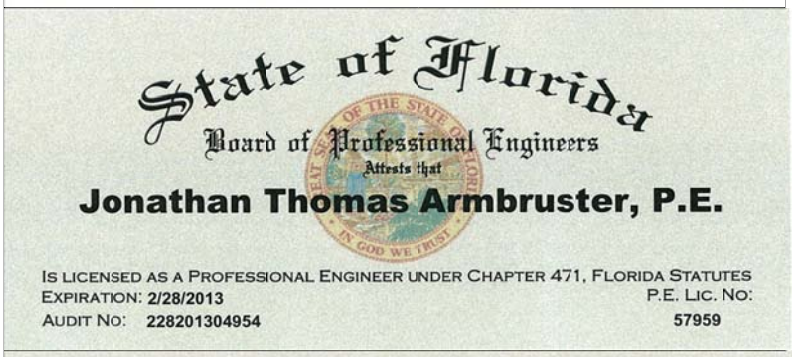
DOCUMENTATION OF STATE LICENSES

The page limitations preclude inclusion of licenses for all key personnel listed on the organizational chart. Therefore, this section includes selected licenses for key personnel.

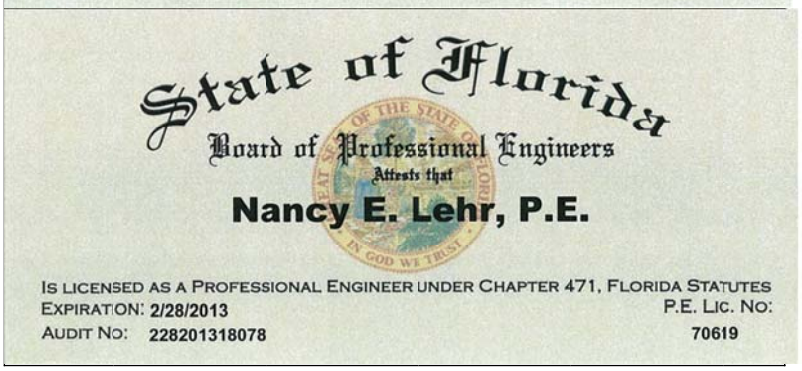


State of Florida
Board of Professional Engineers
Attests that
Rajesh Srinivas, P.E.
Is licensed as a Professional Engineer under Chapter 471, Florida Statutes
Expiration: 2/28/2013 P.E. Lic. No: 53951
Audit No: 228201314534

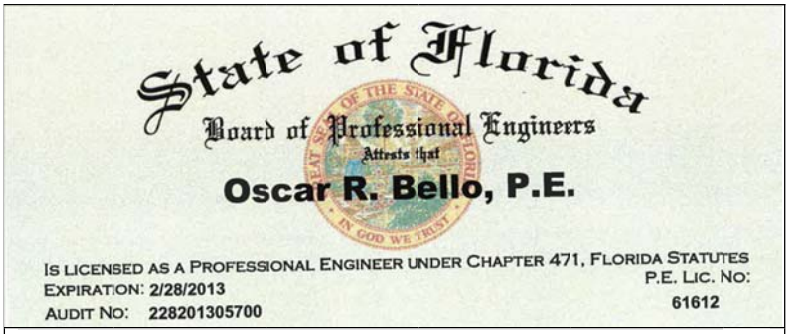
State of Florida
Board of Professional Engineers
Attests that
Lori Sue Brownell, P.E.
Is licensed as a Professional Engineer under Chapter 471, Florida Statutes
Expiration: 2/28/2013 P.E. Lic. No: 60025
Audit No: 228201303446



State of Florida
Board of Professional Engineers
Attests that
Jonathan Thomas Armbruster, P.E.
Is licensed as a Professional Engineer under Chapter 471, Florida Statutes
Expiration: 2/28/2013 P.E. Lic. No: 57959
Audit No: 228201304954



State of Florida
Board of Professional Engineers
Attests that
Nancy E. Lehr, P.E.
Is licensed as a Professional Engineer under Chapter 471, Florida Statutes
Expiration: 2/28/2013 P.E. Lic. No: 70619
Audit No: 228201318078



State of Florida

Board of Professional Engineers

Attests that

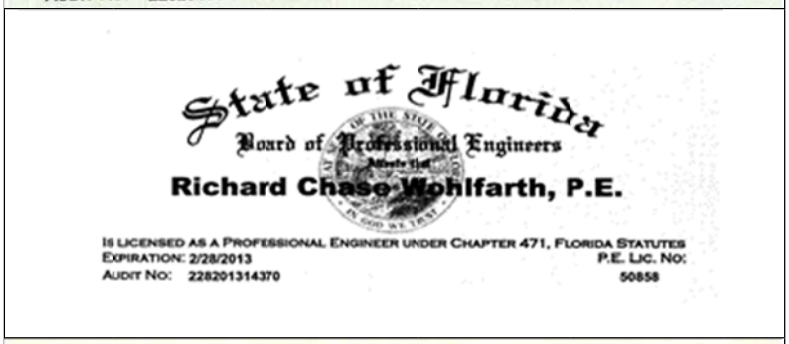
Oscar R. Bello, P.E.

IS LICENSED AS A PROFESSIONAL ENGINEER UNDER CHAPTER 471, FLORIDA STATUTES

EXPIRATION: 2/28/2013

AUDIT NO: 228201305700

P.E. LIC. NO: 61612



State of Florida

Board of Professional Engineers

Attests that

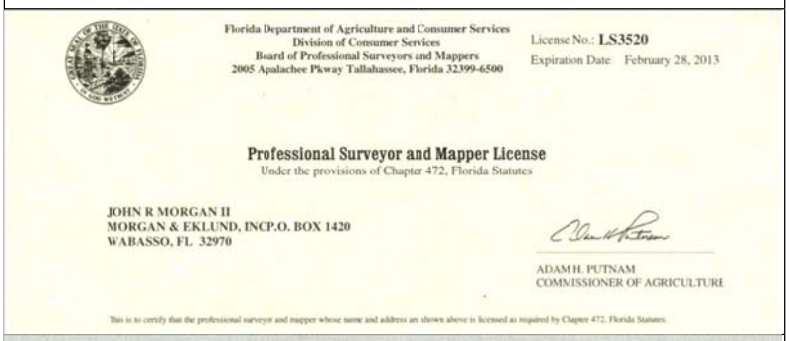
Richard Chase Wohlfarth, P.E.

IS LICENSED AS A PROFESSIONAL ENGINEER UNDER CHAPTER 471, FLORIDA STATUTES

EXPIRATION: 2/28/2013

AUDIT NO: 228201314370

P.E. LIC. NO: 50858



Florida Department of Agriculture and Consumer Services
Division of Consumer Services
Board of Professional Surveyors and Mappers
2005 Apalachee Pkway Tallahassee, Florida 32399-6500

License No.: LS3520
Expiration Date: February 28, 2013

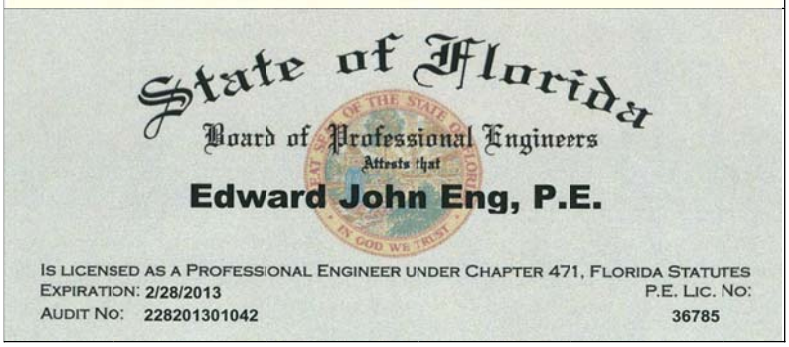
Professional Surveyor and Mapper License

Under the provisions of Chapter 472, Florida Statutes

JOHN R MORGAN II
MORGAN & EKLUND, INCP.O. BOX 1420
WABASSO, FL 32970

ADAM H. PUTNAM
COMMISSIONER OF AGRICULTURE

This is to certify that the professional surveyor and mapper whose name and address are shown above is licensed as required by Chapter 472, Florida Statutes.



State of Florida

Board of Professional Engineers

Attests that

Edward John Eng, P.E.

IS LICENSED AS A PROFESSIONAL ENGINEER UNDER CHAPTER 471, FLORIDA STATUTES

EXPIRATION: 2/28/2013

AUDIT NO: 228201301042

P.E. LIC. NO: 36785

Qualifications

Taylor Engineering's experience-based qualifications depend heavily on the individual expertise of the team's professional members as well as the organization of the project team. The organizational chart provided in Tab 3 details the team structure. Throughout, text in **green** identifies key task groups, and text in **bold** introduces task leaders and other key personnel assigned to the task group. While we briefly touch on the personnel and experiences within the document below, Tab 6 includes detailed resumes of the lead project team members, and Tab 8 provides narratives of previous projects similar in scope to the Tarpon Pier project.

PROJECT MANAGEMENT TEAM

Rajesh Srinivas, Ph.D., P.E. will serve as the **Principal-in-Charge**. Dr. Srinivas has worked on coastal engineering issues since 1987. His project experience includes numerical and analytical modeling of coastal and estuarine processes and planning, design, construction management, and monitoring of shoreline and waterfront structures projects. As Vice President of Engineering, his current responsibilities include management and technical QA/QC review of all engineering-based projects.

Lori Brownell, P.E. will serve as **Project Manager**. As Assistant Director of Taylor Engineering's Waterfront Engineering Group, Ms. Brownell helps lead a team of specialized resource personnel dedicated to marine engineering, coastal structures, civil engineering, and waterfront facilities design. Ms. Brownell has extensive hands-on design and management experience on numerous marina engineering and dredging and dredged material management projects. Ms. Brownell's greatest strength is her ability to integrate the various technical specialists required to succeed with complex coastal and waterfront engineering projects.

TEAM MEMBER QUALIFICATIONS

Taylor Engineering's staff brings career-focused expertise across the range of marine structures projects with experience in both renovation and new construction. As Director of Taylor Engineering's Waterfront Engineering Group, **Jonathan Armbruster, P.E.** will lead the team's **Marina Engineering** task group. Mr. Armbruster has hands-on design experience with numerous pier, marina, seawall, bulkhead, dock, and boat launch projects, and he has spent his career designing these facilities in the coastal environment. The floating dock design also requires an understanding of a site's coastal processes. Taylor Engineering's **William Miller, Ph.D., P.E.** will develop and quantify coastal forces (water level, currents, wind waves, boat wake, and storm surge) for the Tarpon Pier replacement structure. Finally, **Ed Eng, P.E.** of Eng Engineering will lead the dockside utilities service effort for this project. As the electrical engineer of choice for the Jacksonville Port Authority, Mr. Eng has put his 24 years of experience in mechanical, electrical, plumbing, and fire protection to work on the three main marine terminals at Jacksonville Port and several large and small projects with Taylor Engineering. Mr. Eng's marine experience also includes work for the Port of Miami, Port Canaveral, and TRAPAC.

Taylor Engineering staff (Mr. Armbruster, Dr. Miller, and Dr. Stites) worked together to successfully permit, model, design, and construct the Palm Beach County Dubois park facility (including a riprap shoreline, fixed and floating dock structure, and an offshore natural stone reef) in Jupiter, FL.

Taylor Engineering is well versed in the complex environmental permitting efforts often required for work in the coastal and waterfront environments. **David Stites, Ph.D.** will lead the **Environmental Science/Permitting** task group. He brings extensive experience with Florida's Environmental Resource

Permitting program and a strong background in submerged natural aquatic resources and mitigation policies, as well as FDEP and USACE coordination for waterfront development permitting in Florida. **Sandra Walters** (President of Sandra Walters Consultants, Inc. [SWC]), will perform all natural resource surveys and assist with any necessary mitigation efforts and overall permit coordination needed for the project. Ms. Walters, with 25 years of experience in permitting and natural resource studies, is well suited for the task at hand. Located directly in Key West, Ms. Walters has spent her career focused on the natural resources of South Florida and the Keys.

Taylor Engineering staff (Ms. Lehr and Mr. Armbruster) worked together to successfully complete the installation of the floating dock structure at Lighthouse Park in St. Augustine.

Nancy Lehr, P.E. will lead the **Utility Coordination and Construction Engineering** task group. Ms. Lehr specializes in constructability issues, construction administration of structural projects, and construction phase services. With her broad range of experience in managing construction projects, specifically floating dock and marina installation projects, Ms. Lehr focuses on identifying the best solutions and cost-saving measures for the client. **Oscar Bello, P.E.** will assist Ms. Lehr by coordinating directly with City of Key West marina staff to identify the location of the utilities and assisting with the Community Engagement of Tarpon Pier Residents and Accessibility Plan. Mr. Bello, out of Chen Moore's Miami office, is well suited for the position, given his extensive experience with the City of Key West and the Florida Keys Aqueduct Authority.

Nutting Engineers of Florida, Inc., a premier geotechnical engineering firm in South Florida for 50 years, offers a comprehensive range of geotechnical services. As the Director of the Engineering Department, **Rick Wohlfarth, P.E.** will lead the **Geotechnical Engineering** task group. Mr. Wohlfarth has over 22 years of experience in various aspects of geotechnical engineering including feasibility of site development, foundation design analysis and recommendations, setting up and monitoring pile load tests, and providing engineering evaluation for bridge and roadway construction. He has a broad range of experience with clients in the Keys and South Florida.

Taylor Engineering partnered with M&E to complete the successful design, permitting, and construction administration of the floating dock structure in Downtown West Palm Beach.

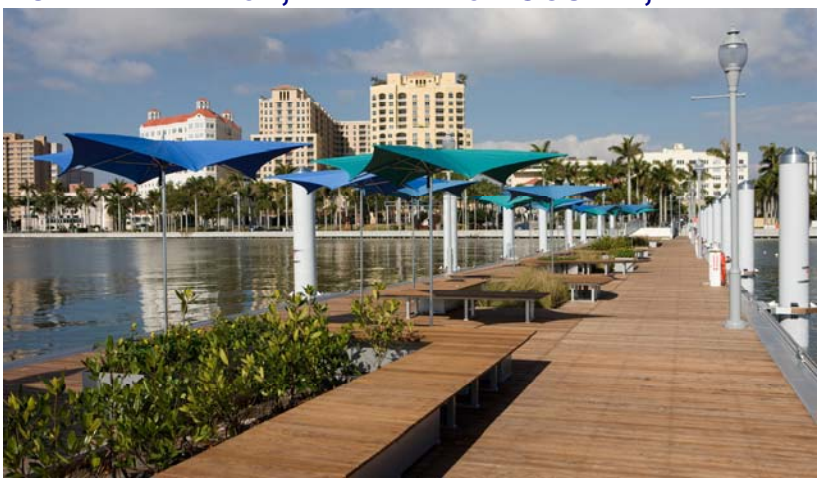
Topographical, bathymetric, and shoreline surveys play a pivotal role in waterfront and marine projects. Surveyor **John R. Morgan, II, PLS** of Morgan & Eklund, Inc. (M&E) will serve as the surveyor for the **Topographic, Bathymetric, and Utility Survey** work. M&E brings a wealth of specialized hydrographic and topographic survey experience to the project. Mr. Morgan has performed hydrographic and topographic surveys throughout Florida and the Caribbean for the past 23 years. M&E has a long professional history with Taylor Engineering. With a working relationship of over two decades, M&E and Taylor Engineering have collaborated on a significant number of coastal and waterfront engineering projects.

Tab 8 – Representative Design Projects and Client References

TAYLOR ENGINEERING, INC.

WEST PALM BEACH DOWNTOWN WATERFRONT PARK DEVELOPMENT SEAWALL AND FLOATING DOCK

WEST PALM BEACH, PALM BEACH COUNTY, FL



Opened in 2009, Waterfront Commons received the Beacon of Light Award, which recognizes the Marine Industries Association's Project of the Year

The City of West Palm Beach contracted Taylor Engineering to design the Flagler Drive seawall — a key component of the city's signature waterfront redevelopment — between the Palm Harbor Marina and the Royal Palm Bridge. The 3,220-foot long seawall protects the city's downtown waterfront and Flagler Drive. Taylor Engineering prepared the seawall design drawings and the construction specifications to meet the city's fast-track schedule for construction. Taylor Engineering coordinated with regulatory agencies to obtain a "de minimis" permit exemption for seawall reconstruction. Taylor Engineering assisted the city with bid review and provided construction observation services for this project.

Taylor Engineering is also assisting the City of West Palm Beach design team — comprising planners/architects, landscape architects, lighting consultants, utility designers, and city planners — with the design, permitting, and construction of floating docks in the Lake Worth Lagoon immediately east of the new seawall. This work requires coordination with the Florida Department of Environmental Protection, U.S. Army Corps of Engineers, and local building officials. These floating docks, with additional design elements that include seating areas, mangrove planting areas, and public art, bring the waterfront park's theme into the surrounding marine environment. Taylor Engineering also provides ongoing construction administration and observation services for dock construction.

CONTACT

Eduardo E. Balbis
Commissioner
Florida Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850
Ph. (850) 413-6038

KEY ELEMENTS

- Seawall Design
- Floating Dock Design
- Waterfront Park
- Wave Studies
- Public Waterfront Access
- Construction Drawings
- Utilities Coordination
- Permitting
- Fast-Track Schedule
- Bid Assistance
- Construction Observation
- Coastal Structures

COMPLETION DATE

Seawall — 2007
Floating Docks — 2009

FEE

Seawall — $471,163
Floating Docks — $309,609

CONSTRUCTION COST

Seawall — $6.2 mil.
Floating Docks — $3.3 mil.

Flagler Drive Construction Aerial

TAYLOR ENGINEERING, INC.

DUBOIS PARK REDEVELOPMENT

JUPITER, PALM BEACH COUNTY, FL

OWNER CONTACT

Mr. Dan Bates
Director, Environmental Enhancement and Restoration Division
Palm Beach County Environmental Resources Management
2300 North Jog Road, 4th Floor
West Palm Beach, FL 33411
(561) 233-2445

KEY ELEMENTS

- Wave Analysis and Modeling
- Opinion of Probable Costs
- Public Meetings and Outreach
- Public Access to the Waterfront
- Waterfront Park Redevelopment
- Floating Dock Engineering
- Marina Day Docks
- Dredging Design
- Shoreline Protection
- Snorkeling Area Design
- Natural Resource Evaluation
- Engineering Design Drawings and Specifications
- Environmental Permitting
- Flushing Analysis

COMPLETION DATE

2010

FEE

$490,716

Dubois Park under construction

Taylor Engineering completed feasibility assessment, planning, permitting, and final engineering for the redevelopment of Dubois Park in northern Palm Beach County. Dubois Park, a county-owned and operated park facility, lies along the southern shoreline of Jupiter Inlet.

Phase I involved an evaluation of existing park facilities, a natural resource survey, conceptual layouts for a day dock facility, shoreline protection, and several snorkeling area configurations. In addition, Taylor Engineering developed a numerical model of the area to assess wave interactions, flushing conditions, and hydrodynamic changes resulting from the proposed improvements. Staff members met with the Florida Department of Environmental Protection and the U.S. Army Corps of Engineers on site to discuss the proposed project and received positive feedback.

During Phase II, Taylor Engineering prepared the application and secured an Environmental Resource Permit. Then, Taylor Engineering prepared engineering design drawings and specifications for all project components. Project features include 700 linear feet of vinyl sheet pile bulkhead, concrete pile-supported timber docks, dredging, riprap shoreline protection, and an offshore natural stone reef to enclose and protect a recreational snorkel area. In addition to providing visitor dock facilities, the project includes fixed docks to moor a life-rescue boat and a law enforcement vessel and a floating dock to serve as a water taxi terminal. Project construction is ongoing with completion expected spring of 2012.

TAYLOR ENGINEERING, INC.

LIGHTHOUSE PARK: FLOATING DOCK AND DREDGING ENGINEERING

ST. AUGUSTINE, ST. JOHNS COUNTY, FL

CONTACT

Jerry Dixon, Chairman
St. Augustine Port, Waterway, & Beach District
P.O. Box 4512
St. Augustine, FL 32085
(904) 829-9277

KEY ELEMENTS

- Feasibility Study
- Environmental Permitting
- Floating Dock Design
- Coastal Analysis
- Dredging Template Design
- Construction Drawings and Specifications
- Performance Floating Dock Specification
- Bid Assistance
- Construction Administration
- Dredging

COMPLETION DATE

2008

FEE

$69,959

The floating dock modules arrive at Lighthouse Park

Lighthouse Park concrete floating docks under construction

The St. Augustine Port, Waterway, & Beach District (SAPWBD) contracted Taylor Engineering to design improvements to the Lighthouse Park boat ramp on Salt Run in St. Johns County, Florida. As part of those improvements, Taylor Engineering conducted a feasibility study for dredging sediments deposited around the boat ramp and replacing a deteriorated floating dock with a larger facility.

After the feasibility study, Taylor Engineering designed a new concrete floating dock installation, completed engineering for the dredging project, and successfully acquired both state and federal permits for all aspects of the project. Project tasks included preparing the final construction drawings and specifications, developing concrete floating dock performance specifications, and providing bid assistance, construction administration, and final project certification and closeout.

TAYLOR ENGINEERING, INC.

BAHIA URBANA — SAN JUAN WATERFRONT REDEVELOPMENT

SAN JUAN, PUERTO RICO

OWNER CONTACT

Tom Archer
Senior Vice President
Forest City
Juan Waterfront, LLC
1615 L Street NW
Washington, DC 20036
Phone: (202) 496-6600
TomArcher@forestcity.net

KEY ELEMENTS

- Coastal Engineering/Wave Studies
- Master Plan Development
- Opinion of Probable Costs
- Public Meetings
- Public Waterfront Access
- Marine Structures Design
- Concept Design and Studies
- Environmental Impact Assessment
- Dredging and Dredged Material Management Engineering
- Construction Documents
- Construction Cost Estimating
- Docks and Marinas
- Site Development
- Mooring Design
- Construction Phase Services

COMPLETION DATE

Ongoing

FEES

$734,712 (to date)

The San Juan Waterfront seeks to stimulate economically, socially, and environmentally sustainable growth

Taylor Engineering serves as a member on a public-private-partnership team assembled to tackle a comprehensive redevelopment program for the San Juan waterfront in Puerto Rico. The project's site — an aging port facility in the heart of San Juan — presents a unique set of challenges and opportunities. Past and present uses include Navy and Army facilities, commercial and industrial port terminals, government facilities, and small craft marinas and recreation amenities. Nearby, the waterfront hosts popular cruise ship terminals. The project team plans to revitalize, retrofit, or replace aging and failing port infrastructure to support mixed-use development including tourist attractions, commercial, residential, and civic infrastructure. Marine structure services include evaluation of bulkheads, docks, and piers and design for new bulkheads, piers, moorings, dredging, and other waterfront facilities.

Playing a lead role as the team's waterfront and marine structures engineer, Taylor Engineering provides services ranging from feasibility assessment through final engineering. Ongoing work includes evaluation of existing marine infrastructure, value engineering for retrofit and replacement alternatives, and design of pier and park facilities to host a variety of activities and vessels from historic replica tall ships to modern mega yachts. Design challenges include poor geotechnical conditions and seismic design requirements. Deep-water facilities provide a range of navigational opportunities and require significant marine structural engineering expertise. Taylor Engineering also provides unique engineering experience to design the transitions and links between the waterfront and the upland development; specific design features include floating dock water taxi terminals and a seaplane berth.

TAYLOR ENGINEERING, INC.

WAVE MODELING AND ANALYSIS OF FRENCH LEAVE MARINA AND WAVE BARRIER

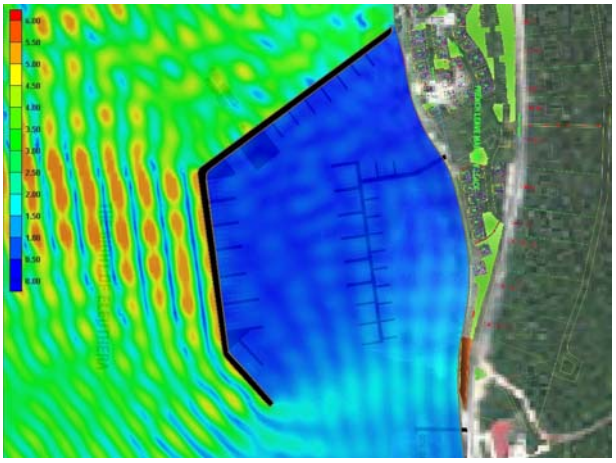
GOVERNOR'S HARBOUR, ELEUTHERA ISLAND, BAHAMAS

CONTACT
John Guttman
Consulting Engineering & Sciences, Inc.
8925 SW 148th Street
Suite 100
Miami, Florida 33176
(305) 378-5555

KEY ELEMENTS
- Coastal and Marine Structures
- Wind/Waves Studies
- Docks and Marinas
- Coastal Processes Analysis
- CGWAVE Modeling
- Wave Transmission Assessment
- Wave forces

COMPLETION DATE
2009

FEE
$24,750



50-year storm wave heights near proposed marina

As part of the design and permitting process for the French Leave Marina Project near the town of Governor's Harbour on Eleuthera Island, Bahamas, Taylor Engineering analyzed the wave climate and wave effects at the project site. Hurricanes and lesser storms generate large waves and storm surges, which can severely damage moored vessels, wharfs, and structures within the marina. Proper design of protective wave barriers and thoughtful placement of wharfs and docks within the marina can reduce the effects of storm-generated seas under design conditions. Such a design effort required prediction of storm generated wave heights and storm surge levels and analysis of the stress they place on marina structures. This study analyzed the atmospheric and oceanic factors affecting the project site, developed storm surge and wave predictions, and evaluated the proposed marina layout to optimize the protection to moored vessels against storm seas.

Taylor Engineering assessed wave diffraction around and through/over the proposed vertical wave barrier and wave impacts on adjacent shorelines, and developed vertical wave barrier design criteria. The numerical model, CGWAVE, which handles wave diffraction and reflection, transformed the waves to the site and served as a primary assessment tool. To limit wave transmission through the proposed barrier, the study recommended placing a double-walled barrier — an impermeable outer wall and a permeable inner wall — to limit wave transmission and resonant conditions inside the marina. Finally, Taylor Engineering calculated anticipated wave loads on the vertical barrier.

TAYLOR ENGINEERING, INC.

HARBORVIEW MARINA ENGINEERING DESIGN AND PERMITTING SUPPORT

PORT CHARLOTTE, CHARLOTTE COUNTY, FL

CONTACT

Beverly Birkitt, President
Birkitt Environmental
110 S. Edison Avenue
Tampa, FL 33606
(813) 259-1085
bbirkitt@birkitt.com

KEY ELEMENTS

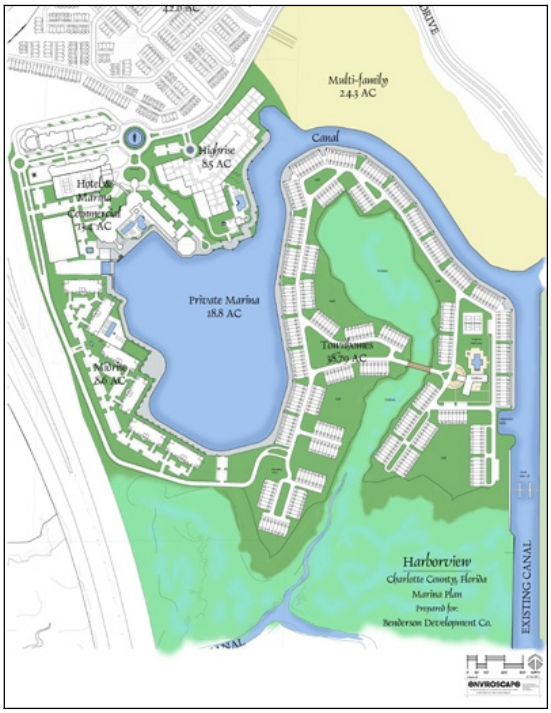
- Marine Structures Engineering
- Docks and Marinas Design
- Dredging Design
- Dredged Material Management Engineering
- Environmental Permitting
- Hydrology and Hydraulics
- Shoreline Stabilization Design
- Site Development Coordination
- Stormwater Management

COMPLETION DATE

2008

FEE

$213,524



Harborview marina site plan

Taylor Engineering provided engineering design services as subconsultant to the Tampa-based Birkitt Environmental Services (BES) for a large-scale site development project in Charlotte County, Florida. BES, with our support, led the environmental permitting effort for the project's marina-related components. This Benderson Development project — located on the north bank of the Peace River adjacent to Interstate 75 — involved designing a series of navigable canals, an upland-cut marina, boat ramp, dry storage facility, residential docks, and a boat transfer lift. The unique characteristics of the site required a design to isolate the interior waters from the tidally influenced Peace River to meet State of Florida flushing requirements. As such, the canal system will serve as part of the overall stormwater system for the entire development. Work on the project required contributions from our Waterfront Engineering, Hydrology and Hydraulics, and Coastal Engineering groups. Design tasks included development of a marina plan; preliminary engineering for bulkhead and shoreline treatment systems, dock design, dredging and dredged material management systems, and marina/dry storage building coordination.

TAYLOR ENGINEERING, INC.

JUPITER INLET DISTRICT GENERAL ENGINEERING SERVICES

JUPITER INLET, PALM BEACH COUNTY, FL

CONTACT

Michael J. Grella
Jupiter Inlet District
400 N. Delaware Blvd.
Jupiter, FL 33458
(561) 746-2223

KEY ELEMENTS

- Jetties
- Navigation
- Dredging
- Erosion Control
- Environmental Services
- Expert Witness Testimony
- Public Coordination

COMPLETION DATE

Ongoing

FEE

$ 994,762

Jupiter Inlet vicinity

Since 2002, Taylor Engineering has served as the District Engineer to the Jupiter Inlet District's (JID) Board of Commissioners in northern Palm Beach County, Florida. In this role, Taylor Engineering staff members oversee a wide variety of activities including maintenance of the north and south jetties (including all associated infrastructure) as well as the functionality of all aids-to-navigation under JID control. Taylor Engineering coordinates annual sand trap dredging activities, annual seagrass surveys of the Loxahatchee River, monthly jetty inspections, and attends monthly Board meetings at the JID offices.

In 2007, JID completed a substantial reconstruction of both the north and south jetties. For the project, Taylor Engineering developed a detailed design, acquired environmental permits from both the FDEP and USACE, coordinated bidding, and provided construction observation services. The project placed nearly 12,000 tons of granite armor stone in three location-specific gradations.

Taylor Engineering also oversees navigation related issues within the Loxahatchee River on behalf of JID. Services have included periodic dredging of the northern channel; design, installation, and periodic maintenance of aids-to-navigation; and design and permitting of a new navigation channel along the southern shoreline of the Central Embayment. Associated with this last project, Taylor Engineering is currently seeking permits to dredge muck from the Loxahatchee River's Southwest Fork and the South Florida Water Management District's C-18 canal. Finally, Taylor Engineering provided expert witness testimony in support of JID's administrative appeal of a new dock permit within the Central Embayment. Support included calculation of tidal elevation frequency curves to determine percentage of time sufficient water depth was available along different paths within the Embayment.

TAYLOR ENGINEERING, INC.

ENGINEERING CONSULTING SERVICES FOR THE ST. AUGUSTINE PORT, WATERWAY, & BEACH DISTRICT

ST. JOHNS COUNTY, FL

CONTACT

Jerry Dixon
St. Augustine Port, Waterway & Beach District
P.O. Box 4512
St. Augustine, FL 32085-4512
(904) 824-0113

KEY ELEMENTS

- Coastal Engineering Services
- Hydrographic Surveys
- Historic Site Restoration
- Public/Interagency Coordination
- Marking System Design and Installation
- Dredging and Dredged Material Management
- Environmental Permitting, Mitigation, & Design
- Marine Structures Design and Construction

COMPLETION DATE

Ongoing

FEE

$755,934

Historic St. Augustine Lighthouse

In 1991, the St. Augustine Port, Waterway, and Beach District selected Taylor Engineering to serve as its engineer. The variety of early projects ranged from the establishment of designated anchorages, the design and permitting of a dinghy dock, repair of damaged lens prisms for the historic St. Augustine Lighthouse, a hydrographic survey of Salt Run, and new channel design. In 1992, the Port District commissioned the company to develop a District Master Plan, a vehicle to establish clear and realistic District goals and objectives. With the Master Plan as a backdrop, other projects followed. These included, among others, the state-mandated management plan for St. Augustine Inlet; design and installation of a marking system in Salt Run; a hydrographic survey of the Matanzas River; the installation of a No-Wake zone in Salt Run; preparation of all engineering design, construction, and federal and state environmental permit documents required to dredge a shoal from the mouth of Salt Run; and preparation of the engineering appendix for a federal channel feasibility study of Salt Run.

Currently, Taylor Engineering is completing permitting, final plans, and specifications based on the results of an engineering appendix for a federal channel feasibility study of Salt Run, a shallow embayment that extends southward from the St. Augustine Harbor Inlet Entrance Channel. Under contract to the St. Augustine Port, Waterway, and Beach District (SAPWBD), Taylor Engineering was responsible for all aspects of preparing the Engineering Appendix in support of the Jacksonville District's (USACE's) Section 107 Feasibility Study. Specific responsibilities included analysis of existing bathymetry, patterns of sedimentation, shoaling rates, sediment characteristics, and tidal circulation within Salt Run; designing three alternative channel alignments and calculating dredging volumes for each alignment at each of three proposed depths; quantifying the variation of sediment quality with dredging depth; using hydrodynamic modeling techniques, evaluating the impact of each alternative on existing patterns of tidal circulation and sedimentation; and evaluating alternative techniques of dredging and material handling and detailing a preferred dredging and dredged material management plan appropriate to the specific requirements of the project.

TAYLOR ENGINEERING, INC.

CHARLES E. CESSNA LANDING — BOAT RAMP REPLACEMENT ENGINEERING DESIGN AND ENVIRONMENTAL PERMITTING SEVICES

SANTA ROSA BEACH, WALTON COUNTY, FL

CONTACT

David Sell
South Walton Co. Tourist Development Council
P.O. Box 1248
Santa Rosa Beach, FL 32459
(850) 978-1211

KEY ELEMENTS

- Site Survey
- Natural Resources Survey
- Geotechnical Evaluation
- Boat Ramp Structural Design
- Cofferdam Structural Design
- High Performance Marine Concrete Design
- Construction Drawings and Technical Specifications
- Environmental Permitting

COMPLETION DATE

2010

FEE

$59,932

Taylor Engineering designed a replacement boat ramp at the popular launch facility in South Walton County

The Walton County Tourist Development Council retained Taylor Engineering to provide engineering and environmental permitting services for the design and replacement of the boat ramp structure at the Charles E. Cessna Landing Park. The popular boat launch facility in South Walton County has reached the end of its useful life — the ramp has settled and the concrete driving surface is cracked. Taylor Engineering prepared a design to replace the structure with a new concrete ramp. Project tasks included site survey and geotechnical investigation. Poor soil conditions discovered during the field evaluation demanded integration of pile supports into the structural design. Engineering design elements include the driving surface of the ramp and a temporary cofferdam for dewatering and construction. Sidewall bulkheads retrofit to the existing docks will mitigate persistent shoaling of the ramp surface.

Environmental permitting services included natural resource surveys and permit application (Florida Department of Environmental Protection permit exemption and U.S. Army Corps of Engineers Nationwide Permit) assistance. Taylor Engineering also prepared construction drawings, specifications, and an engineer's opinion of probable cost.

TAYLOR ENGINEERING, INC.

KEY WEST ADDAMS (CSA)

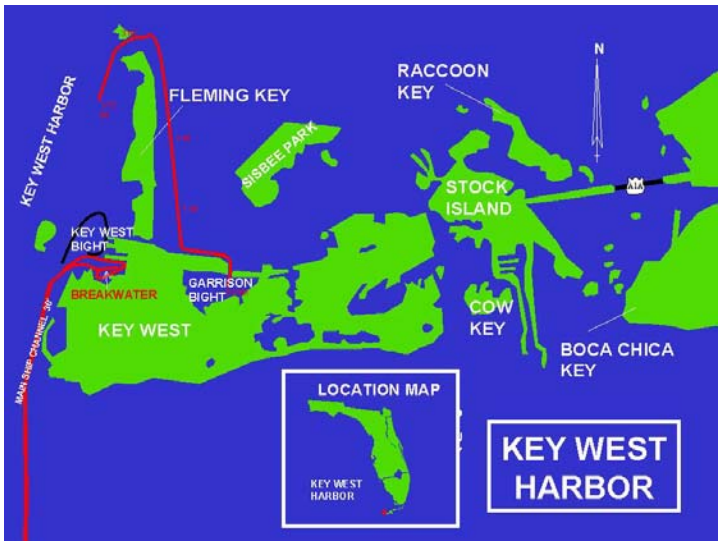
KEY WEST, MONROE COUNTY, FL

CONTACT
Fred Ayer
Continental Shelf Associates, Inc.
759 Parkway Street
Jupiter, FL 33477-9596
(561) 746-7946

KEY ELEMENTS
- Conceptual Design and Studies
- Dredged Material Management
- Dredging

COMPLETION DATE
2010

FEE
$28,410



Key West Harbor, Key West, Florida

Taylor Engineering used the Automated Dredging and Disposal Alternatives Modeling System (ADDAMS) — a suite of models developed by U.S. Army Corps of Engineers (USACE) Engineering Research and Development Center (ERDC) — to evaluate dredged material placement in an Open-water Dredged Material Disposal Site (ODMDS) located about 15 miles south of Key West, Florida. The objective of the simulations was to estimate the fate of dredged material discharged from a barge in open water and to provide design guidance to minimize the effect of dredged material on sensitive natural resources. Taylor Engineering analyzed bathymetric, current, water quality, and sediment grain size data to develop input parameters for the ADDAMS model simulations. The simulations predicted the fate of the dredged material discharged from a barge, including its plume drift and concentration as the material settled and the location and quantity of accumulated dredged material reaching the bottom.

REFERENCES OF PIER DESIGN OR SIMILAR WORK WITHIN THE LAST FIVE YEARS

1. BAHIA URBANA — PIERS 7 & 8 MARINE REHABILITATION, SAN JUAN, PUERTO RICO (2010 – ONGOING)

Mr. Tom Archer
Forest City, Inc.
1615 L Street NW
Washington DC 20036
(202) 496-6608

"Taylor Engineering has been a valuable member of the San Juan Waterfront team of consultants. They have been exceptionally responsive and creative in their approach. … on several occasions, they have presented savings to the client in both time and money." – Tom Archer, Forest City, Inc.

2. WATERFRONT COMMONS FLOATING DOCKS, WEST PALM BEACH, FL (2005 - 2008)

Mr. Eduardo E. Balbis
Commissioner
Florida Public Service Commission
2540 Shumard Oak Blvd
Tallahassee, FL 32399
(850) 413-6038

Ms. Alyssa Freemen
Assistant Executive Director, Marine Industries Association of Palm Beach County, Inc. - Beacon of Light Award
P.O. Box 10576
Riviera Beach, FL 33419
(561) 863-0012

In 2009 Taylor Engineering helped the City of West Palm Beach design, permit, and construct a series of floating docks as part of the downtown waterfront redevelopment program. The Marine Industries Association of Palm Beach County chose the West Palm Beach Floating Docks for its Project of the Year, ***Beacon of Light Award***, given annually to a project that enhances boating opportunities in the Palm Beaches.

3. LIGHTHOUSE PARK: FLOATING DOCK AND DREDGING ENGINEERING (2007 – 2008)

Mr. Jerry Dixon, Chairman
St. Augustine Port, Waterway, & Beach District
P.O. Box 4512
St. Augustine, FL 32085
(904) 829-9277

Taylor Engineering has served as the St. Augustine Port, Waterway & Beach District's (SAPWBD) engineering consultant since 1991. As the current SAPWBD Chairman and a Commissioner since 1998, I have worked with Taylor Engineering for 13 years. Taylor Engineering's staff of coastal, dredging, and waterfront infrastructure engineers and scientists have helped the District successfully complete projects ranging from feasibility studies to multi-phase construction projects. These projects include development of a District Master Plan; design, permitting, and construction management for dredging, floating dock, and kayak launch projects; preparation of a federal channel feasibility study; conceptual design and permitting for mooring fields; maintenance of aids to navigation; and preliminary evaluation of an environmental restoration project. Taylor Engineering's staff have served the District with professional integrity and delivered outstanding technical products. I highly recommend Taylor Engineering. Jerry Dixon – St. Augustine Port, Waterway & Beach District.

THE CITY OF KEY WEST

525 Angela Street
Key West, FL 33040

ADDENDUM 1:
Design of Tarpon Pier Replacement for City Marina at Garrison Bight
Request for Qualification RFQ#11-002
April 29, 2011

This addendum is issued as supplemental information to the bid package for clarification of certain matters of both a general and a technical nature. The referenced bid package is hereby addended in accordance with the following items:

1. Attached is the prebid sign in sheet (1 attachment)
2. Attached to this email is an electronic copy of the document City Marina Inspection developed by CH2MHILL (1 attachment)
3. Attached is an electronic copy of the Marina Management Plan (1 attachment)
4. Attached is a copy of the Permit documents required during the construction of the Marlin Pier Replacement Project (3 attachments)
5. Response to Questions; The following are responses to questions received.

   - Are the cover letter, covers, and section dividers included in the limit of 25 pages for responses? Response: The information page, organization chart, methodology and approach, company information, personnel, qualifications and references shall be no more than 25 written pages.

   - My copy of the RFQ only includes 2 pages for the Public Entity Crimes form (pages 10 and 11), however page 1 indicates that this form is 3 pages. Please clarify. Response: The Public Entity Crimes Form is 2 pages in length..

All Proposers shall acknowledge receipt and acceptance of this Addendum No. 1 by submitting the addendum with their proposal. Proposals submitted without acknowledgement or without this Addendum may be considered non-responsive.

Signature

Taylor Engineering, Inc.
Name of Business

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 OFFICE AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted with Bid, Bid or Contract No. RFQ #11-002 for Design of Tarpon Pier Replacement for City Marina at Garrison Bight

2. This sworn statement is submitted by Taylor Engineering, Inc.
(Name of entity submitting sworn statement)

whose business address is 1675 Palm Beach Lakes Blvd., Suite 210, West Palm Beach, FL 33401 and (if applicable) its Federal Employer Identification Number (FEIN) is 59-2850478 (If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement.)

3. My name is Rajesh Srinivas, Ph.D., P.E and my relationship to
(Please print name of individual signing)

the entity named above is Vice President.

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 entity 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 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 t 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 a 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.)

___X___ 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.

_____ The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, or an affiliate of the entity has 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. Them has been a subsequent proceeding before a hearing officer of the Sate 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)

May 17, 2011
(Date)

STATE OF Florida

COUNTY OF Duval

PERSONALLY APPEARED BEFORE ME, the undersigned authority,

Rajesh Srinivas who, after first being sworn by me, affixed his/her signature in the
(Name of individual signing)

space provided above on this 17th day of May, 2011.

My commission expires: 7/28/2012

Laura G. Readmond

LAURA G. READMOND
Notary Public - State of Florida
My Comm. Expires Jul 28, 2012
Commission # EE 33336
Bonded Through National Notary Assn.

ANTI-KICKBACK AFFIDAVIT

STATE OF FLORIDA

~~SS:~~

COUNTY OF MONROE

I the undersigned hereby duly sworn depose and say that no portion of the sum herein response will be paid to any employee 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: _____

Rajesh Srinivas, Ph.D., P.E., Vice President

sworn and prescribed before me this 16th day of May, 2011

NOTARY PUBLIC, State of Florida

Laura G. Readmond

My commission expires: 7/28/2012

LAURA G. READMOND
Notary Public - State of Florida
My Comm. Expires Jul 28, 2012
Commission # EE 33336
Bonded Through National Notary Assn.

ANTI-KICKBACK AFFIDAVIT

STATE OF FLORIDA

SS:

COUNTY OF MONROE

I the undersigned hereby duly sworn depose and say that no portion of the sum herein response will be paid to any employee 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: _____ Peter Moore, P.E., LEED AP

sworn and prescribed before me this 9 day of May, 2011

Kathryn J Horrigan

NOTARY PUBLIC, State of Florida

NOTARY PUBLIC-STATE OF FLORIDA
Kathryn J. Horrigan
Commission # DD997048
Expires: JUNE 01, 2014
BONDED THRU ATLANTIC BONDING CO., INC.

My commission expires: June 1, 2014

ANTI-KICKBACK AFFIDAVIT

STATE OF FLORIDA

SS:

COUNTY OF MONROE

I the undersigned hereby duly sworn depose and say that no portion of the sum herein response will be paid to any employee 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: Sandra Walters

sworn and prescribed before me this 9 day of May 2011

NOTARY PUBLIC, State of Florida

My commission expires:

ROSALIA JOHNSON
Notary Public - State of Florida
My Comm. Expires Nov 19, 2012
Commission # DD 839973
Bonded Through National Notary Assn.

STATE OF FLORIDA
COUNTY OF Monroe
The foregoing instrument was acknowledged before me
this 9 day of May, 2011
by Sandra Walters
Personally known ___ OR produced identification ✓
Type of identification produced FDL
Notary's Signature Rosalia D. J

ANTI-KICKBACK AFFIDAVIT

STATE OF FLORIDA

SS:

COUNTY OF MONROE

I the undersigned hereby duly sworn depose and say that no portion of the sum herein response will be paid to any employee 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: _____, Pres.

sworn and prescribed before me this 10TH day of May, 2011

NOTARY PUBLIC, State of Florida

DIANE M. INGLIS
MY COMMISSION # DD 780351
EXPIRES: April 30, 2012
Bonded Thru Notary Public Underwriters

My commission expires: 4-30-12

Diane M. Inglis

ANTI-KICKBACK AFFIDAVIT

STATE OF FLORIDA

SS:

COUNTY OF MONROE

I the undersigned hereby duly sworn depose and say that no portion of the sum herein response will be paid to any employee 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: Richard Wohlgemuth

sworn and prescribed before me this 11th day of May, 2011

NOTARY PUBLIC, State of Florida

My commission expires: Tracy L Meek

TRACY L MEEK
MY COMMISSION # EE 042388
EXPIRES: November 21, 2014
Bonded Thru Notary Public Underwriters

ANTI-KICKBACK AFFIDAVIT

STATE OF FLORIDA

SS:

COUNTY OF MONROE

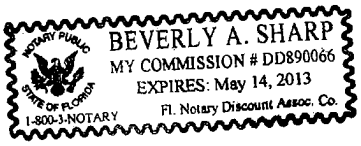
I the undersigned hereby duly sworn depose and say that no portion of the sum herein response will be paid to any employee of the City of Key West as a commission, kickback, reward or gift, directly or indirectly by me or any member of my firm or by an officer of the corporation.

BY: _____

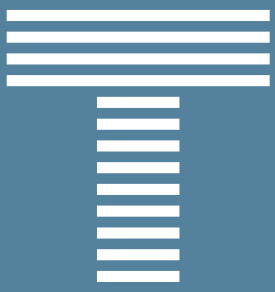
sworn and prescribed before me this 10 day of May, 2011

NOTARY PUBLIC, State of Florida

My commission expires: May 14, 2013



TAYLOR ENGINEERING, INC.



1675 Palm Beach Lakes Blvd., Suite 210, West Palm Beach, FL 33401

Phone: (561) 640-7310 Fax: (561) 640-7805

WWW.TAYLORENGINEERING.COM