



Mid-Town Seawall Design & Construction Management Services (RFQ No. 2020-05)

Presented to the Town of Palm Beach, Florida

June 22, 2020

Agenda

The background of the slide is a photograph of a tropical resort entrance. In the center, a paved road leads to a stone archway with a glowing light inside. The archway is flanked by two stone pillars with lamps. Tall palm trees line the road, and the sky is a mix of blue and white clouds. The overall scene is bright and inviting.

1 Overview of GHD Team

2 Strategy & Approach

3 Project Experience

4 Questions & Answers



1.

Overview of
GHD Team

Team Introduction



Steven Davie, PE, D.CE

Sr. Coastal Engineer, GHD Principal; Steven brings over 25 years in coastal engineering Project Management.

➤ steven.davie@ghd.com



Michael Barnett, PE, D.CE

Project Manager; Mike brings over 35 years of coastal engineering and project management experience to the Team.

➤ michael.barnett@ghd.com



Craig Lewis, PE, SE

Sr. Structural Engineer, GHD Principal; Craig brings over 27 years of design and analysis of structural elements for port and maritime infrastructure.

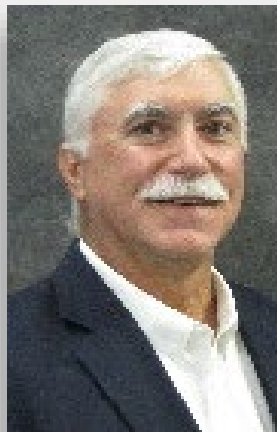
➤ craig.lewis@ghd.com



Jesse Davis, PE, Env SP

Coastal Engineer; Jesse brings over 15 years of coastal engineering experience.

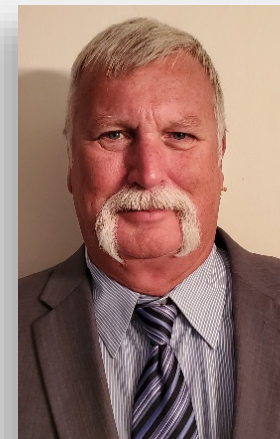
➤ jesse.davis@ghd.com



Craig Kruempel

Sr. Marine Scientist; Craig brings over 35 years of coastal zone planning, permitting and monitoring experience.

➤ craig.kruempel@ghd.com



Ken Jackson, PSM

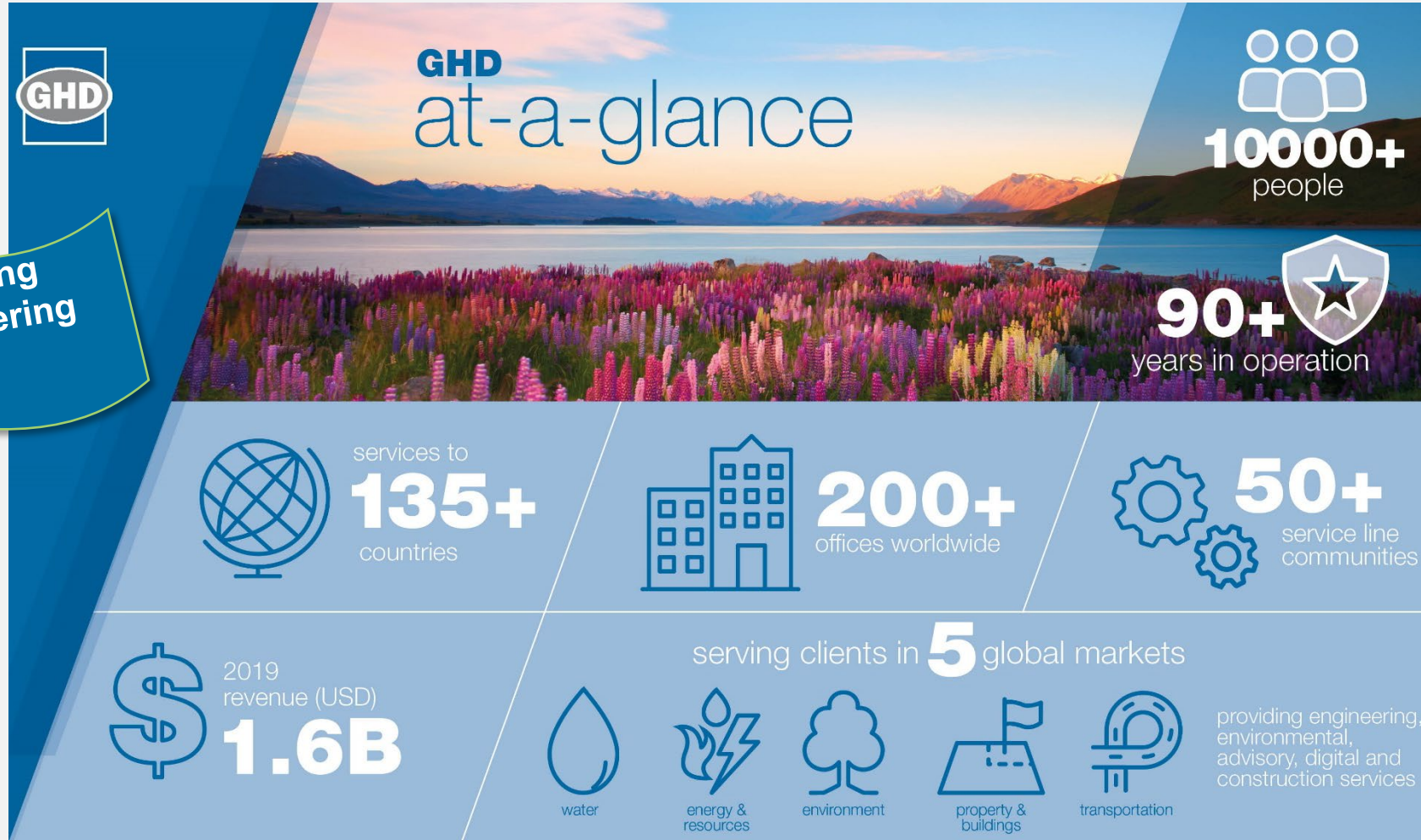
Surveyor & Mapper; Ken brings over 42 years expertise in hydrographic & remote sensing surveys, large scale wave current and tide studies.

➤ ken@terraquatic.net

GHD at a glance



Our Core Values: Safety | Teamwork | Respect | Integrity



**2019 ENR Ranking
#8 Global Engineering
Firms**



Our **Understanding**



The GHD Team recognizes the importance of thoroughly understanding the Town's preferences and needs for project delivery and efficient communication.

Our Team is fully committed to the Town.

Effective Project Management | Michael Barnett



Michael Barnett, PE, D.CE

Mr. Barnett has worked both for, and with, the Town since 1995.

He knows the Town's structure and expectations for quality, schedule, and price.

As Project Manager, Mr. Barnett will lead the GHD Team through the entirety of the design, permitting, bid and construction phase services with the Town. Mike will be responsible for establishing the project scope of services, schedule, deliverables, workload distribution and adherence to cost controls. Mike will provide quality control and final confirmation reviews on all design and work products produced by the GHD Team. Mike will communicate directly with the Town on all Project matters.

Town Experience

- ✓ Mid-Town Beach Restoration Project - 1995-1996
- ✓ Lake Worth Inlet Management Plan (sand transport, sand transfer to Palm Beach Island) – 1995
- ✓ Comprehensive Coastal Management Plan Update (understand entire shoreline) – 1997-1998
- ✓ Sand Transfer Plant Improvements, Inlet Maintenance Dredging, Mid-Town and Phipps Nourishment Project (permitting); interactions with the Shore Protection Board – 2003-2011
- ✓ Reach 2 Dune Forepassing Project (design and permitting) - 2017



Education

BS, Ocean Engineering
MS, Coastal & Oceanographic Engineering



Licenses/Registration

Professional Civil Engineer – Alabama, **Florida**, Louisiana, Mississippi and Texas



Memberships/Affiliations

- ✓ Diplomate, Coastal Engineering from the Academy of Coastal, Ocean, Port & Navigation Engineers (ACOPNE)
- ✓ Member of the American Society of Civil Engineers
- ✓ Member of the American Shore & Beach Preservation Association; Member of the Florida Shore & Beach Preservation Association
- ✓ Member of the Society of American Military Engineers, Mobile, AL Post

Team Organization




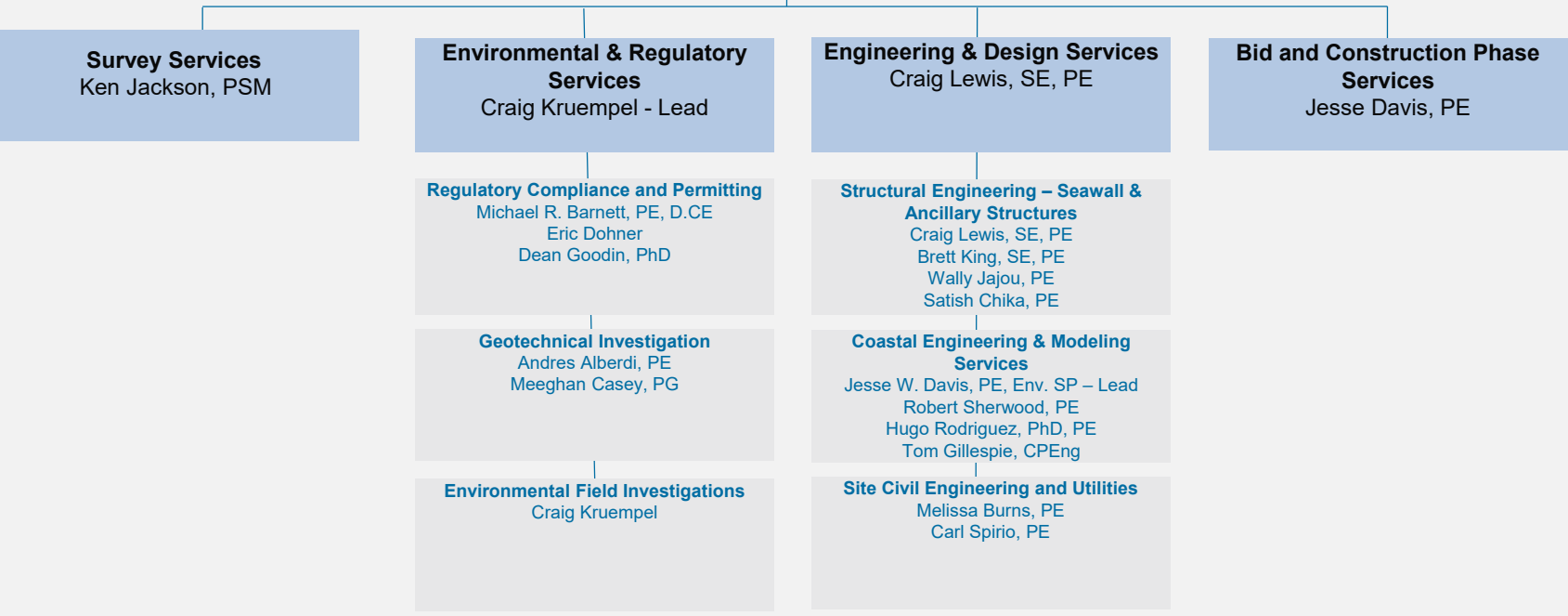
Michael R. Barnett
PE, D.CE
Project Manager



Steven Davie
PE, D.CE
Firm Principal



Jesse W. Davis,
PE, Env. SP
Deputy Project Manager

What Makes Our Team the Best Choice?



Core Team locally based that understands the Town's goals



Established history working on Town projects



Experienced design professionals ensure Project success



Proven Performance



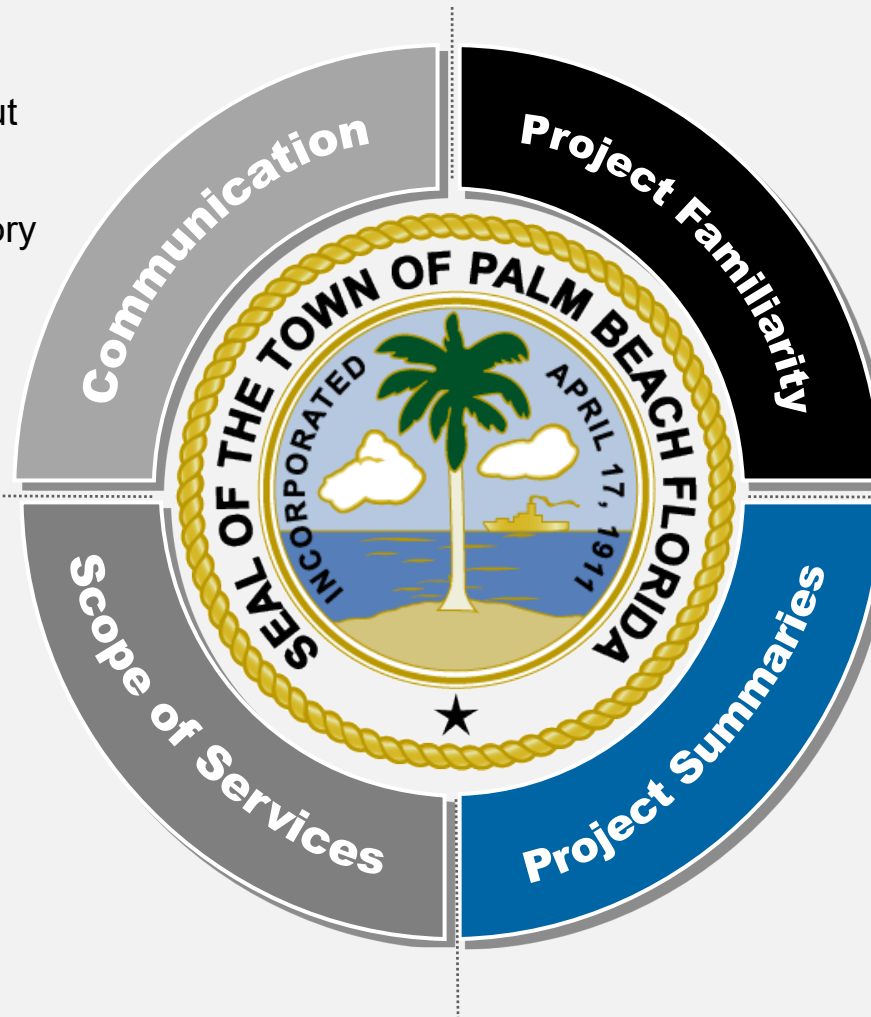
Extensive Institutional Knowledge of the Town!

Keys to Success



- Continuous Throughout Project
- Stakeholders/Regulatory Agencies
- GHD Project Team

- Vetted Scope of Work with Town Staff
- Multiple Service Lines under one Roof
- Accurate Work Plan/Estimates



- Knowledge of Local Area
- Understand Town Goals
- Identification of Special Considerations along Project Frontage

- Status Updates
- Technical Reports
- Quality (and Timely) Deliverables



2.

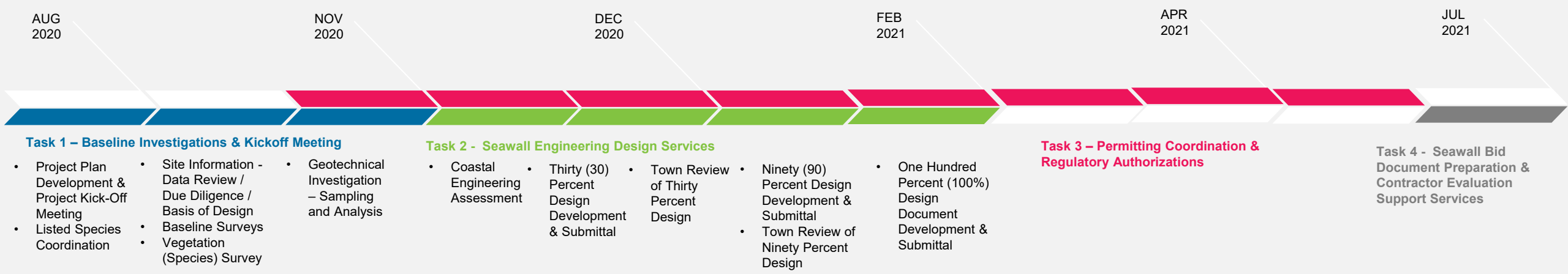
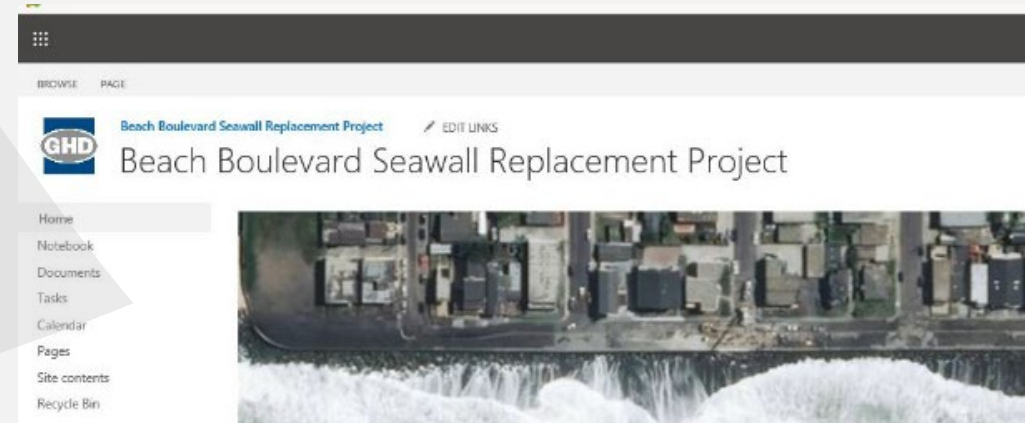
Strategy & Approach



Project Approach & Scope Overview

- Simple, effective project management
- Clear leadership and strong communication

- Documents
- Notebook
- Conversations (Outloo...
- Calendar (Outlook)
- Teams
- Planner
- Recycle bin
- Edit

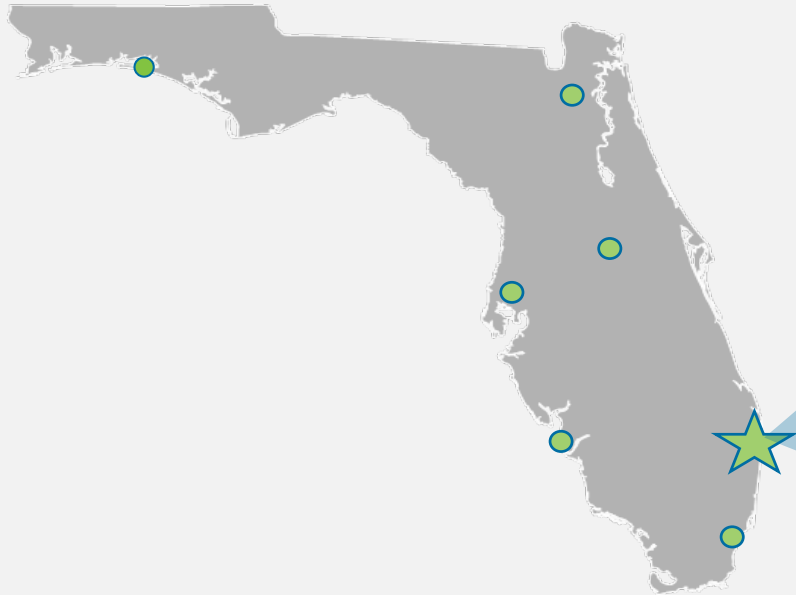


Project Expertise | Both Sides of the Seawall

- Identification of design consideration areas along 0.5 mile Project frontage
- Mid-Town Beach Project (inclusive of groins tied to face of wall)
- No learning curve or spin-up time needed – ready to GO



Project Expertise | Design & Permitting of Seawalls



Knowledge of FDEP CCCL Program requirements AND their key decision-makers



Recent experience in the Town and in the SE working with FDEP and marine contractors to implement relevant and effective designs



Project Considerations

- ✓ Evaluate cantilever wall design – greatly reduces landside considerations
- ✓ Determine viability of construction from beach side of existing wall
- ✓ Maintenance of Traffic
- ✓ Provision of access to Mid-Town public beach, continuity of services and protection (i.e., Ocean Rescue)
- ✓ Sequencing and logical progression of wall construction



Design Considerations

1. Groin tie-ins to seawall
2. Dune vegetation
3. Buried toe scour walls and stone
4. Access stairs & ramps to beach
5. Tunnel at 100 Worth Avenue
6. Emergency Vehicle access ramp/gate
7. Lifeguard Station/Restroom Facility
8. Ocean outfall/vault
9. Worth Avenue Clock Tower
10. Existing wall tie-back rods and anchors
11. Underground utilities
12. Parapet wall



GHD has communicated with the **Woods Hole Group** and understands their contributions to the Town.



Seawall

Photo courtesy of Kimley-Horn & Associates, Inc.
May 1, 1948



Project Shoreline - January 1995, prior to construction of the Mid-Town Beach Restoration Project.

Minimal beach seaward of the wall.

Image U.S. Geological Survey (Imagery Date: 1/25/1995)

Google Earth



Imagery Date: 12/14/2017

Google Earth



3.

Project
Experience



REST BEACH SHORELINE ARMORING

Key West, Florida

Role: Provided services to the City as the Project Manager/Engineer of Record and Coastal Engineer

Project elements:

- ✓ Managing the collection of field data such as soil borings and topo/bathy survey data
- ✓ Storm erosion modeling to assess the vulnerability of Atlantic Blvd to scour during high frequency storm events
- ✓ Design and cost evaluations for two shoreline armoring alternatives,
- ✓ FDEP CCCL Permitting
- ✓ Preparation of construction drawings & specifications
- ✓ Construction phase services



Design Experience and Expertise | Craig Lewis



Craig Lewis, PE, SE

Structural engineer with the assessment, design and analysis of marine terminals, waterfront and port infrastructure

Mr. Lewis has more than 27 years of experience in marine structural engineering for bulkheads, piers, and wharves. He has performed static and dynamic analyses and seismic analysis/design using non-linear pushover methods per ASCE 61; non-linear soil-structure interaction analysis using LPILE and SAP2000; and is experienced with design codes UFC, AISC, ACI, ASCE, IBC and USACE. Mr. Lewis has managed many waterfront projects including the San Francisco Marina West Harbor Renovation (\$26M construction) and Brannan Street Wharf-Port of SF (\$19.8M construction). Awards include the ACEC 2013 Honor Award – Brannan Street Wharf.

Experience Level

- ✓ Project Manager, Brannan Street Wharf Project | Port of San Francisco | San Francisco, CA
- ✓ Project Manager, San Francisco Embarcadero Seawall Vulnerability Study | Port of San Francisco | San Francisco, CA
- ✓ Restoring waterfront amenities after Hurricane Irma | City of Saint Marys, GA
- ✓ MSC Cruises Terminal Expansion at PortMiami | Miami, FL
- ✓ Pier Replacement | United States Coast Guard Station Buffalo | Lake Erie, Buffalo, NY



Education

BS, Civil Engineering, UC Davis, 1991



Licenses/Registration

Structural Engineer: CA #S4765, WA #42655;
Civil Engineer: CA #C58706, WA #42655



Proven Expertise

- ✓ Mr. Lewis has managed many waterfront projects including the San Francisco Marina West Harbor Renovation (**\$26M construction**) and Brannan Street Wharf-Port of SF (**\$19.8M construction**).
- ✓ Awards include the ACEC 2013 Honor Award – Brannan Street Wharf.



SEAWALL VULNERABILITY STUDY, PORT OF SAN FRANCISCO

San Francisco, California

Role: GHD performed an earthquake vulnerability study of the Northern Waterfront Seawall which extends approximately 4 miles from Fisherman's Wharf to AT&T Park along the Embarcadero.

Project elements:

- ✓ Assessment of available information and condition, state of the art engineering analysis
- ✓ Earthquake and Flooding vulnerability assessment
- ✓ Developed adaptation strategies for various scenarios.
- ✓ GHD provided overall project management for the study and performed conceptual design of the structural retrofit / rehabilitation alternatives for seawall sections with identified structural stability deficiencies.





P-204 WHARF IMPROVEMENTS (UNIFORM & TANGO) PHASE 1

Naval Base Apra Harbor, Guam

Role: Design-Build project provided infrastructure, wharf improvements, and new utilities at Tango Wharf, Apra Harbor, Guam to allow naval vessel berthing for "extended" transient ships, primarily, the Amphibious Readiness Group (ARG), its combatant escort ships and the Joint High Speed Vessels (JHSV) required after relocation of the III Marines Expeditionary Force from Okinawa, Japan to Guam.

Project elements:

- ✓ GHD was the Designer of Record (DOR) and provided architecture, civil, environmental, structural, mechanical engineering Project management and Design Quality Control.
- ✓ Replacement bulkhead consisting of sheet pile combi-wall
- ✓ GHD also led the Concept Design Workshop and prepared both the complete project design submittals, as well as a critical path package concurrently.





BEACH BOULEVARD SEAWALL REPLACEMENT

City of Pacifica, California

Role: GHD is providing a full suite of services from project feasibility, concept design, design alternative analysis through to detailed design, construction documentation, and permitting.

Project elements:

Current Issues:

- ✓ Existing wall is experiencing structural failures, wave overtopping and flooding issues
- ✓ The seawall protects critical public infrastructure and public and private properties
- ✓ Replacement infrastructure must address complex challenges both physically in the coastal environment, and in the social and political environment

Our strategy includes:

- ✓ Clear leadership and open communication
- ✓ Coastal and structural engineering expertise
- ✓ Transparency and integrity





4.

Questions and
Answers

Question 1



- **The project manager/firm should present their specific approach in delivering the services detailed in the scope of work for the project.**
- **The Town will evaluate how well your approach demonstrates an understanding of the requirements of the project as well as the firm's ability to perform the scope as specified.**
 - **The Town will evaluate your approach for correlation to the scope.**
 - **The Town will evaluate the firm's approach to mobilization, transition, and the plan and schedule for executing the scope.**
 - **The Town will assess the firm's overall approach to identifying and mitigating risk in implementing its approach**

➤ **Answer:**

- The GHD Team has provided a logical, sequential approach to the scope of work.
- The approach provided in our response to the RFQ and as briefly summarized today was based on our scope of services that was thoroughly vetted by Town staff in 2019.
- Our recognition of the design considerations along the Project frontage has us positioned to address these challenges and convert them to favorable solutions/outcomes.



Question 2



➤ Your proposal indicated that only 10 borings (@ 250' spacing) and 3 rock cores were to be performed. Please explain why you believe that is adequate.

➤ **Answer:**

- The GHD Team discussed this matter at length with Town Staff in 2019. The number and spacing of the cores should be representative of sub-surface conditions and further, should provide adequate indications of the anticipated foundation conditions to inform the design of the replacement seawall.
- Our in-house geologists and geotechnical/ structural engineers, coupled with our field technicians and company owned drilling equipment, will efficiently conduct the field operations with little to no disruption to use of Ocean Boulevard and the amenities present along the Project shoreline.



Question 3



➤ **How do the existing groins/PEP reefs impact the design, and can you describe the tie-in of those to the new seawall in more detail?**

➤ **Answer:**

- Of the nine groins in the Project area, eight of them are comprised of PEP reef modules that are close to (but do not directly abut) the existing seawall.
- The PEP reef modules were placed approximately 3 feet seaward of the existing seawall face where the toe wall exists, and ~20 feet seaward of those locations that had a toe scour rock revetment in place.
- The ties of the PEP reef modules to the wall consist of precast concrete plugs at four locations, and rock riprap atop marine mattresses at the other five locations.
- Optimal seawall alignment is predicated on design considerations and existing challenges.



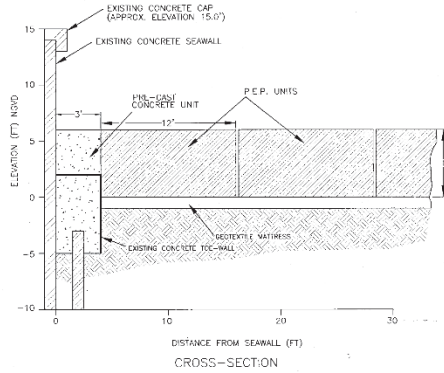
LANDWARD STRUCTURE CONNECTIONS

NOTES:

- 1) IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE NO DAMAGE OCCURS TO EXISTING EROSION CONTROL STRUCTURES. ANY DAMAGE SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE.
- 2) OWNER'S FIELD REPRESENTATIVE SHALL APPROVE ALL LANDWARD GROIN CONNECTIONS IN THE FIELD PRIOR TO CONTINUING GROIN CONSTRUCTION.
- 3) STONE DETAIL AND PLACEMENT REQUIREMENTS DETAILED IN CONTRACT SPECIFICATION.
- 4) WORK AT S-1 MAY REQUIRE HAND EXCAVATION TO REACH EXISTING STEP REVETMENT. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO EXISTING STRUCTURE.

EXISTING TOE WALL

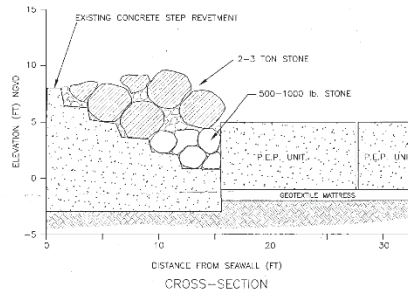
GROINS: S-2, S-3, S-4, S-9, S-10, S-11



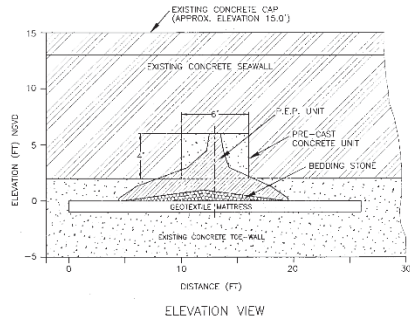
CROSS-SECTION

EXISTING STEP REVETMENT

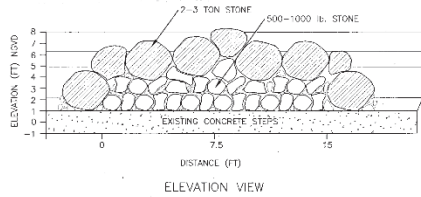
GROIN: S-1



CROSS-SECTION



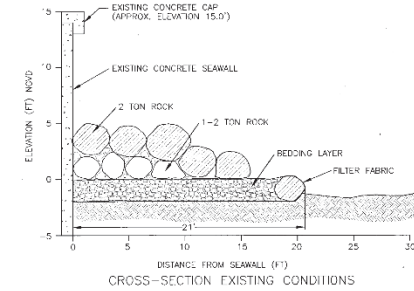
ELEVATION VIEW



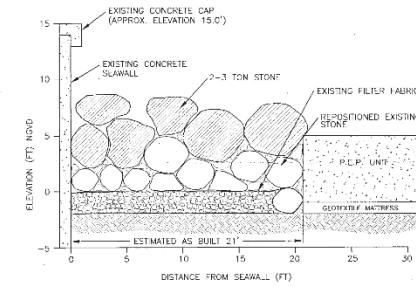
ELEVATION VIEW

EXISTING ROCK REVETMENT

GROINS: S-5, S-6, S-7, S-8



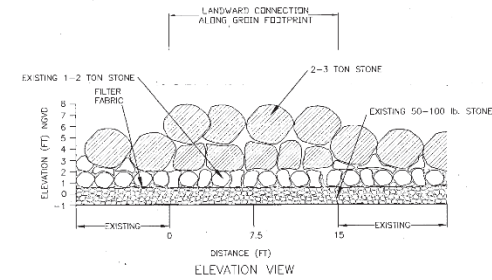
CROSS-SECTION EXISTING CONDITIONS



CROSS-SECTION PROPOSED IMPROVEMENTS

NOTES:

- 1) REPOSITION THE TOP LAYER OF EXISTING ARMOR STONE TO FORM A CONTINUOUS BOTTOM LAYER OF STONE.
- 2) ADD CHINKING STONE TO FILL SURFACE VOIDS OF BOTTOM LAYER.
- 3) PLACE REMAINING STONES WHICH WERE REMOVED FROM THE EXISTING REVETMENT AND ADDITIONAL 2-3 TON STONE TO FORM SECOND LAYER OF ARMOR STONE.



ELEVATION VIEW

Job Number: 95-542	
Drawn by: WJS	Checked by: R/L
Date: 7/11/95	Approved by: R/L
Scale: 1/4" = 1'-0" UNLESS STATED	

**MID-TOWN GROIN CONSTRUCTION PROJECT
CONSTRUCTION DETAILS
TOWN OF PALM BEACH**

APPLIED TECHNOLOGY & MANAGEMENT, INC.
2770 NW 43rd Street, Suite B
Palm Beach, Florida 33406
Phone (561) 375-8700 Fax (561) 375-0995

Sheet #:



Question 4



› Is 15-year storm modeling typical for vulnerability determinations, and would you suggest a different storm interval be used?

› **Answer:**

- FDEP Rule 62B-33, Florida Administrative Code stipulates a 15-year storm event to determine vulnerability, so as far as CCCL permitting in Florida, such a threshold is what has been accepted as the State standard for regulatory authorization.
- The Mid-Town Seawall serves to protect Ocean Boulevard, which is considered by the FDEP to be an eligible structure. **Because the hurricane evacuation route resides entirely seaward of the Coastal Construction Control Line, the seawall is exempt from the vulnerability determination.**
- The Mid-Town shoreline is considered by FDEP to be a managed shoreline; therefore, FDEP could not authorize 'new' armoring.





Why GHD?

- Trusted partner with the Town
- Focused, dedicated Team
- In-house geotechnical staff and equipment
- Experience, qualifications, knowledge
- Successful design of ocean seawalls



Thank you



Steven Davie, PE, D.CE



Michael Barnett, PE, D.CE



Craig Lewis, PE, SE



Jesse Davis, PE, EnvSP



Craig Kruempel



Kenneth Jackson, PSM

Silent Piler | Press-in Working Procedure

