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## MEMORANDUM

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**To:** Mayor McConnell and Assembly Members  
Mark Gorman, Municipal Administrator

**From:** Michael Harmon, P.E., Public Works Director *MT*  
Dan Tadic, P.E., Municipal Engineer *DT*

**Reviewed:** Jay Sweeney, Chief Finance and Administrative Officer *MM*  
Stan Eliason, Harbormaster *SE*  
Tori Fleming, Contract Coordinator *TF*

**Date:** October 22, 2014

**Subject:** Sitka Transient Float Replacement  
Approval to Award Professional Services Contract

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### Background

The Sitka Transient Float (STF), formerly known as Thomsen Harbor Floating Breakwater, was designed and constructed by the State of Alaska, Department of Transportation and Public Facilities (ADOT&PF) in 1973. With the construction of the Channel Rock Breakwater and several state funded moorage expansion projects at Eliason Harbor in the 1990's the configuration and functional utility of the STF changed. Today, the STF serves to attenuate smaller waves and boat wakes propagating from the navigational channel and provides valuable transient moorage space in the harbor system. The facility is at the end of its safe and useable life and must be replaced in its entirety. A recent timeline for this facility follows:

- May 24, 2012 – Port & Harbor Commission unanimously approved the rate recommendations outlined in the Harbor Master Plan which included the STF project (under name "Thomsen Harbor Breakwater Float") with anticipated replacement in 2015 for an estimated cost of \$4,948,169.
- July 10, 2012 – Assembly approved a Municipal Harbor Facility Grant Application to the ADOT&PF in the amount of \$2,620,000 for the STF.
- July 24, 2012 – CBS Harbor Department updated Assembly about significant deterioration of STF structural components observed during a dive inspection and the need for STF emergency temporary repairs.
- August 14, 2012 – Assembly approved direct transfer and spending appropriation of \$70,000 from Harbor Fund working capital for STF emergency temporary repairs.
- July 9, 2013 – Assembly approved a Municipal Harbor Facility Grant Application to the ADOT&PF in the amount of \$2,700,000 for the STF.
- November 14, 2013 – Port & Harbor Commission unanimously approved a 6.15% rate increase for FY2014 based upon a Capital Project Plan which included the STF project (under name "Thomsen Harbor Breakwater Float") with anticipated replacement in 2015 for an estimated cost of \$5,400,000.
- July 7, 2014 – CBS received a Letter of Award of FY15 Harbor Facility Grant Funds for the STF.

The STF Replacement Project includes demolition of the existing facility and construction of a new pile supported float which will continue to provide side-tie transient moorage and serve as a wave attenuator for the adjacent Thomsen Harbor. The project includes replacement of lighting and potable water/fire suppression systems. The CBS Harbor Department is also interested in investigating the potential for inclusion of a trolling pole work float at the south end of the STF as well as providing power on the float; however both are contingent on the availability of sufficient funds.

### **Analysis**

PND Engineers, Inc. (PND) is a consulting engineering firm that was founded in 1979 with offices in Anchorage and Juneau, Alaska and Seattle, Washington. PND specializes in maritime planning and engineering and has an extensive resume of projects in Sitka which includes nearby Thomsen Harbor (2006). A selection committee, consisting of Harbor Department and Public Works Staff, selected PND as the most qualified firm to complete this project based on their proposal, strong technical expertise, and availability to complete this project within our desired timeframe.

PND has teamed with Morris Engineering Group, LLC of Juneau (electrical engineering) and O'Neill Surveying and Engineering of Sitka (surveying). The current scope of work includes Task 1 and Task 2 services consisting of project management, geotechnical investigation, surveying, wave analysis, conceptual design plans and cost estimate in order to establish a project scope that fits within the project budgetary constraints. The total estimated fee for the above described services is \$183,190. Upon completion of Tasks 1 and 2, a contract amendment will be authorized to complete final design, permitting, construction support services and public process for the project based on the final established scope. The public process will include presentations to the Port & Harbor Commission and Assembly. Bid documents are anticipated in spring 2015 with construction beginning in fall 2015.

### **Fiscal Note**

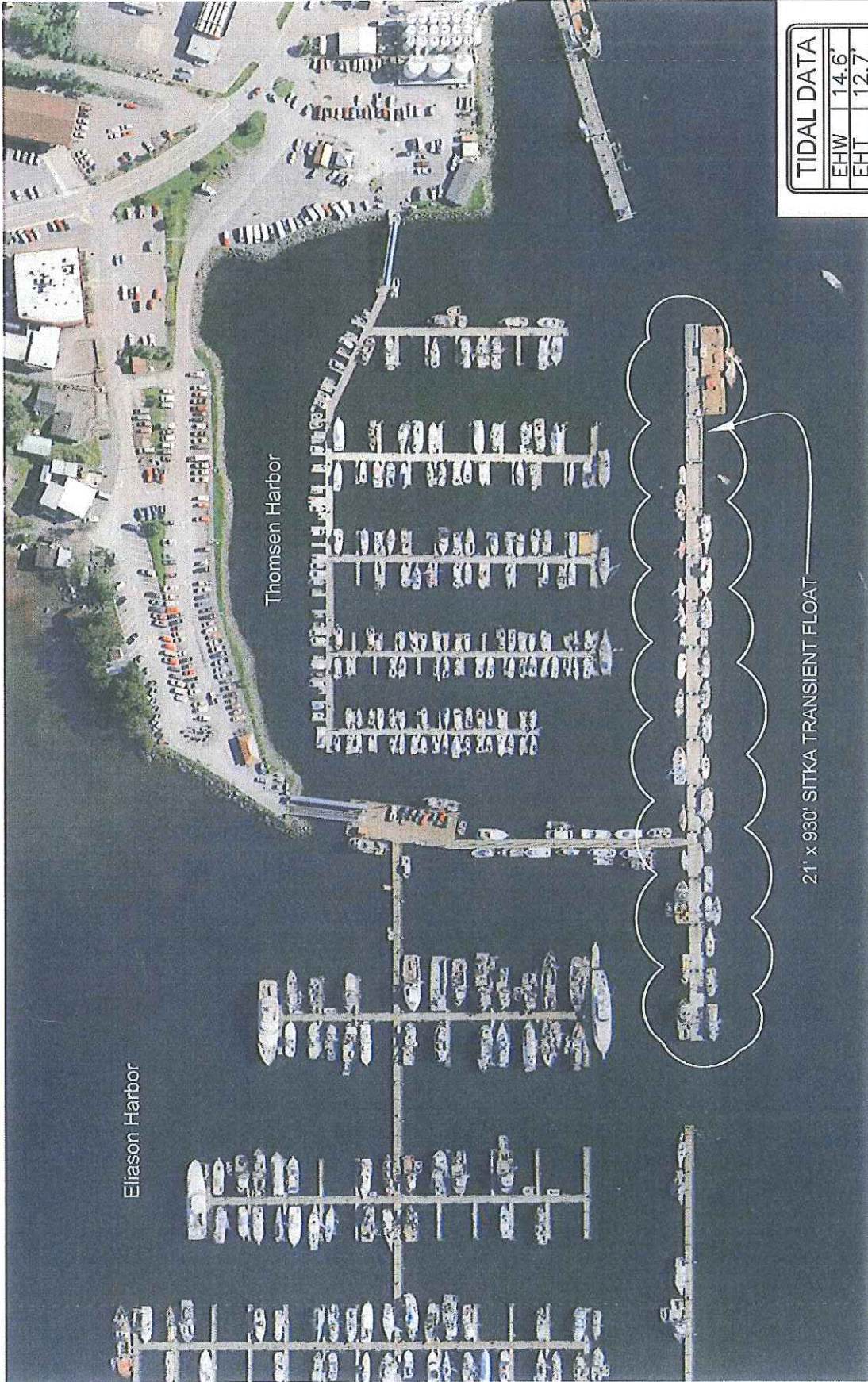
CBS received a FY15 State of Alaska Municipal Harbor Facility Matching Grant for the Sitka Transient Float Replacement project. This grant will cover 50% of eligible construction costs not to exceed \$2,700,000 in match funding. Engineering, survey, geotechnical, permitting, and public involvement are not eligible for compensation under this grant requiring CBS to cover 100% of these costs. The Harbor Department has budgeted \$750,000 toward these tasks between the FY2014 and FY2015 budgets (CBS Project No. 90757) in addition to the \$2,700,000 construction match for a total local contribution of \$3,450,000 and total project budget of \$6,150,000.

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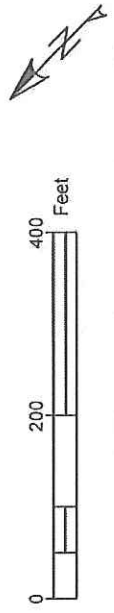
### **Recommendation**

- Approve award of a Professional Services Contract to PND Engineers, Inc. for the Sitka Transient Float Replacement project Tasks 1 and 2 on a time and materials basis for a not to exceed amount of \$183,190.
- Authorize the Administrator to approve a future contract amendment to complete final design, permitting and construction support services within the budgetary constraints outlined above.





TIDAL DATA	
EHW	14.6'
EHT	12.7'
MHHW	9.9'
MHW	9.1'
MLLW	0.0'
ELW	-4.0'



DRAWN:	JJH	SCALE = 200'
	D.TADIC	DATE 08.18.2014
CHECKED:		
DRAWING NAME	STF.dwg	
SHEET NO.	1 / 1	

# SITKA TRANSIENT FLOAT CURRENT CONFIGURATION

City and Borough of Sitka  
DEPARTMENT OF PUBLIC WORKS  
100 LINCOLN STREET • SITKA, ALASKA 99835  
TEL (907) 747-1804 FAX (907) 747-3158





**CITY AND BOROUGH OF SITKA (CBS)  
SITKA TRANSIENT FLOAT REPLACEMENT**

**APPENDIX A- SCOPE OF SERVICES**

**A. INTRODUCTION**

The City and Borough of Sitka (CBS) is planning for the full replacement of the Sitka Transient Float (STF) at Thomsen Harbor to be completed by March 2016. The CBS desires a quality float and utility design package that is simple, stable, durable, easy to maintain, resistant to corrosion, efficient to fabricate, economical to install and can be competitively bid by several float manufacturers and contractors.

The Sitka Transient Float was originally designed in 1973 by the Alaska Department of Transportation & Public Facilities as a floating concrete wave attenuator to protect Thomsen Harbor from significant westerly sea swells. With the construction of the Channel Rock Breakwater by the USACE and several state funded moorage expansion projects at Eliason Harbor in the mid 90's, the floating breakwater configuration and operational utility for this float has changed over time. It has been reoriented on site, repaired on several occasions, utilities were added and it has been decked over with timber to serve as a moorage float while still attenuating smaller waves and boat wakes propagating from the navigational channel. The STF consists of 16 segmental concrete float modules with energy absorbing connections between each developing a total float footprint of 21' x 930'. The system is anchored to the seafloor using concrete gravity blocks, stake piles and cast steel anchors. The facility has served its useful life and its condition is now beyond economical repair.

The CBS has been awarded a FY 15 Tier 1 Grant in the amount of \$2.7 million by the State of Alaska. Total project budget under this RFP is \$6,150,000 including construction, contingency, engineering, contract administration and other indirect costs.

The STF Replacement Project includes, but may not be limited to, the following improvements:

- Demolition and disposal of existing facilities
- New ~12' x 930' pile supported transient float designed for vessel moorage and wave attenuation (final float width contingent upon results of wave climate study and attenuation requirements)
- Transition assembly to existing access float
- State of the art, glare shielded LED or HID lighting
- Combined potable water and fire suppression water system with heat traced riser assemblies
- Salvaged fish cleaning stations to be installed by Owner
- Safety equipment including ladders, life rings and fire extinguishers
- Cathodic protection for steel piles
- Potential trolling pole tending float at south end
- Potential single and three phase power service pedestals on float

The final scope of improvements is contingent on the availability of funds within the established \$6.15 million budget. Close interaction with the CBS, the Port and Harbor Commission, the Assembly, and the public is essential to the formulation of final scope elements and the ultimate success of this important waterfront project. Based on preliminary discussions with the CBS, it is understood that a conventional full design/bid/build (DBB) set of contract documents is preferred over a two stage contracting method using design/build (DB) with Owner procurement of materials followed by contractor installation.

PND Engineers, Inc. (PND) was selected as lead consultant to provide engineering services for the STF project. PND will manage all consultants, prepare permit applications and provide all civil, structural, coastal

and geotechnical engineering services from its Juneau office with some assistance from its Seattle office. **Morris Engineering Group (MEG)**, also from Juneau, will provide electrical engineering services. **O'Neill Surveying & Engineering (OSE)** will provide local survey control and vicinity boundary information for PND bathymetric and topographic site surveys. **Hart Crowser (HC)** from Anchorage will provide environmental scientists as needed to address potential mitigation or other substantive environmental issues.

## **B. SCOPE OF SERVICES**

Engineering services under this project will be provided in sequential phases allowing refinement of services as each phase is further developed with the CBS. Several distinct tasks will be performed under each phase. Phase 1 services will consist of overall project scoping and site investigations to define a preferred alternative within the available funds for carrying forward to construction. Phase 2 services will consist of permitting and final design tasks for the improvements selected under the preferred alternative. Phase 3 will consist of engineering services during construction including contract administration and inspection. Fee proposals will be provided in sequential phases as well. Phase 1 services will be included in the initial contract and Phases 2 and 3 will be added by contract amendment at a future date.

### **PHASE 1 SERVICES – PROJECT SCOPING & SITE INVESTIGATIONS (Phase 1 Price Included)**

#### **TASK 1: PROJECT SCOPING & CONCEPT DEVELOPMENT**

The scoping phase will set the stage for the entire design and is thus considered one of the most significant tasks to completing this project.

##### **Task 1.1 Phase 1 Project Management**

PND's project management philosophy emphasizes communication, coordination, efficiency and technical expertise. This will ensure schedules and budgets are met and that all concerns are addressed. Each member of the team believes in working closely with clients and utilizing proper communication channels so that all personnel involved are kept informed of progress and questions are addressed in a timely manner. This philosophy relies on clear lines of communication, well-defined lines of authority, commitment to a successful project, enthusiastic approach and respectful treatment of all persons involved in the project. With over 30 years of experience, Dick Somerville, P.E. will be PND's designated Project Manager. Project management duties will include:

- A. Subconsultant Management – prepare subconsultant agreements, coordinate and direct subs
- B. Owner Work Sessions – organize & conduct teleconference meetings with Owner and PND Team
- C. Team Management – organize and conduct internal Team meetings and direct staff
- D. Correspondence – prepare and respond to formal project communications & report progress
- E. Scheduling controls – prepare, update and monitor schedule for on time deliverables
- F. Budget controls – review and deliver monthly invoices and report completion progress
- G. Contract Management – monitor scope, schedule and budget routinely with CBS and prepare necessary change documentation

##### **Task 1.2 Initial Site Visit and Work Session**

The initial step will be a one day site visit and work session with the design team and various CBS department



staff to assess existing conditions and discuss in detail all development objectives and potential design options for the STF. We will address specific development criteria for all project elements and receive CBS input on critical operations and maintenance issues. We will assess the pros and cons of other recently constructed harbor improvements and together formulate recommendations and final design criteria for moving forward with the float replacement project.

The Team will inspect the existing floats and upland utility services at Eliason Harbor with key members of CBS staff to document capacity and access conditions for extending new water services (potable and fire) and potential electrical power services to the STF. CBS staff will need to open various utility enclosures and vaults on shore and on the floats to fully ascertain existing conditions. We will review temporary moorage requirements during construction of the new STF for vessels currently moored at the existing float in Thomsen Harbor. We will also review recently constructed improvements at ANB Harbor and suggest improvements where possible.

Upon completion of the site visit the PND Team will summarize our field notes and prepare a brief outline of the design issues discussed and any preliminary decisions reached. The document will be submitted to the CBS for review and we will follow up with a brief teleconference.

### **Task 1.3 Conceptual Design Plans**

The PND Team will prepare two concept design plans concurrently with the services outlined under Task 2 since information gained from the site investigations will be instrumental in determining final float geometry and material type. We will prepare concept level plans illustrating proposed features and additive alternate options for the STF based on the input we receive at our initial site visit and work session with the CBS. We will also prepare a preliminary cost estimate for all base bid improvements and alternative options considered under the plan along with a Draft Basis of Design (BOD) document to outline basic design criteria, standards and guidelines to be incorporated into the project. The documents will be submitted for CBS review and then updated to address CBS comments. Final concept plans, cost estimates and BOD documents will be prepared to incorporate the changes made.

### **Task 1 Deliverables:**

1. Outline report summarizing issues from initial site visit
2. Initial Concept Plan, Cost Estimate & Draft Basis of Design
3. Final Concept Plan, Cost Estimate & Basis of Design

## **TASK 2: SITE INVESTIGATIONS – SURVEYING, GEOTECHNICAL & WAVE ANALYSIS**

### **Task 2.1 Site Survey**

PND survey crews will update and expand on our 2005 topographic and bathymetric survey of Thomsen Harbor to include the complete STF project vicinity area. We will incorporate adjacent moorage floats from both Thomsen and Eliason Harbors to assess proper siting of the new STF. O'Neill Surveying and Engineering will provide survey control monumentation and boundary information for tidelands, navigational channels and any other relevant properties or easements. We will collect topographic data along the shore and the drive down ramp at Eliason for siting of potential new utility service connections. Utility locates and as-built records provided by the CBS will be incorporated into the data collection. A basemap will be prepared to properly define the existing site conditions, allowing engineers to proceed with project designs.

## **Task 2.2 Geotechnical Investigation**

PND will first review the available geotechnical and geophysical information and pile driving records from Thomsen and Eliason Harbors with the CBS along with contracting methods to contain site condition construction risks to an acceptable level. We will then obtain required NWP permits and perform a limited borehole investigation at the STF. Results of the investigation will be used in concert with judicious contract pay items allowing field application flexibility. PND will contract with Denali Drilling to complete four boreholes at regular intervals along the existing float and will rely on the CBS to relocate vessels along the float during the investigation. We will collect Standard Penetration Test (STP) samples until bedrock is encountered at all four holes and will continuously log the holes using our in house geotechnical staff. Samples will be delivered to a third party lab for analysis. Bedrock will be cored to a depth of 15'-20' at two of the boreholes and rock quality will be designated on the drill logs.

PND will perform engineering analyses with lateral pile design recommendations for the STF float mooring piles. We will prepare a Draft Geotechnical Report for CBS review, followed by a Final Geotechnical Report. The Geotechnical Report will provide information on site geology, seismicity, investigation methods, borehole logs, borehole location plan, lab samples, analyses and pile design recommendations.

## **Task 2.3 Wave Analysis & Floating Breakwater Options**

Waves and sea swell propagating from the direction of Channel Rock Breakwater in Western Channel have been studied extensively by the USACE. As a result, rubble mound extensions have recently been constructed to close gaps in the breakwater in an effort to calm the long period wave conditions felt inside Eliason and Thomsen Harbors. Boat wakes are reportedly controlled by signage located on the breakwaters however the fetch within the channel contributes to wind generated short period wave activity at the site. PND Coastal Engineer, Nels Sultan, PhD, PE, will review the February 2008 USACE Report entitled *Physical Model Study of Wave Action at Thomsen Harbor, Sitka Alaska*. Dr. Sultan will prepare a brief technical memorandum summarizing the short period wave predictions for the STF location based on his review of available study data.

PND will also present float design criteria and options for attenuating short period waves to an acceptable design wave height within Thomsen Harbor. This task will evaluate floating breakwater wave transmission, with calculations for different widths, depths and types of float (including concrete, double pipe and timber poly-tub ballasted floats). The planned transient float is intended to also function as a floating breakwater for Thomsen Harbor, and would replace an existing 21 feet wide concrete ladder type floating breakwater with a new 12 feet wide float. The planned 12' wide float will allow more wave energy to pass underneath therefore PND will examine other options under this task. Floating breakwater wave transmissions are also sensitive to the type of mooring and pile design.

Dr. Sultan will apply the results of the wave analysis (described above), transmission calculations, PND judgment and experience and local knowledge to estimate the wave transmission for float alternatives. This task will help guide CBS through the selection of an effective float and pile system. It will help ensure that the final design meets expectations for harbor wave protection.

## **Task 2 Deliverables:**

1. Basemap of the site with upland topography and offshore bathymetry tied to COE and DOT control
2. Draft & Final Geotechnical Report
3. Wave Analysis & Floating Breakwater Options Technical Memorandum



**PHASE 2 SERVICES – PUBLIC INVOLVEMENT, PERMITTING, FINAL DESIGN &  
BIDDING ASSISTANCE  
(Phase 2 Price TBD at later date)**

**Phase 2 Project Management**

PND's project management functions as described under Phase 1 will continue throughout all tasks under Phase 2 to maintain contract communication channels with the CBS and to direct all engineering staff and subconsultants in the timely delivery of work products.

**TASK 3: PUBLIC INVOLVEMENT**

Community satisfaction with the development of this project can best be realized by involving the public in the process. This requires not only listening to the needs expressed at meetings but the experience and enthusiasm to present responsive solutions that stand the test of time. Our intent is to meet regularly with the public to present design information as it is developed and transmitted to the CBS for review. The PND team will make three public presentations on a coordinated schedule consistent with each of three design review submittals – at 35%, 65% and 95% levels of design completion. The first two public presentations will be made at Port and Harbor Commission meetings and the final presentation will be made at an Assembly meeting. We will confirm the schedules with the CBS well in advance.

PND will prepare a Power Point presentation for each public meeting and will bring sign in and handout materials for distribution. We will provide a project overview and discuss the status of the design at each successive meeting. Project illustrations, cost and scheduling information will be developed along with a description of the next steps to be developed at each stage of the design process. The CBS shall provide all media advertising and the meeting room for all public presentations.

We will debrief with the CBS following each meeting to confirm direction for addressing public issues and advancing the design.

**Task 3 Deliverables:**

1. Public Power Point Presentation at PHC Meeting following 35% design completion.
2. Public Power Point Presentation at PHC Meeting following 65% design completion.
3. Public Power Point Presentation at Assembly Meeting following 95% design completion.

**TASK 4 PERMITTING & APPROVALS**

PND will perform environmental permitting services with our in house specialists who routinely interact with local, state and federal agencies. A pre-application meeting will be held with the agencies to address any significant environmental concerns before submitting the applications.

The COE is the lead federal agency regulating the use of federal waters of the United States. Section 10 of the Rivers and Harbors Act of 1899 is the regulatory consideration most frequently affecting harbor rebuild projects like this one. Section 10 requires authorization from the Secretary of the Army, through the COE, for placement of structures in or over navigable waters of the U.S. Because the transient float is currently serviceable, previously permitted and will maintain its present use, it is likely that the work associated with the STF will fall under the U.S. Army Corps of Engineers Nationwide Permit 3 - Maintenance.

PND is familiar with completing work under a Nationwide Permit (NWP) and will prepare the pre-construction notification (PCN) and other necessary application documents. We will coordinate the State



permit process by meeting individually with affected state departments and local coastal district officials. PND will act as permitting agent on behalf of the CBS to coordinate directly with the agencies as required in pre and post application meetings and will provide written responses to answer all project concerns in a timely and professional manner.

Should the regulatory process change from the NWP, PND will work with the CBS to obtain DA Authorization for all float replacement activities. This would be the case if the footprint, layout or use of the project changes significantly during the development process. In that case, the following major permits requiring local, state and federal authorizations may be required depending on the final scope of improvements

- U.S. Army Corps of Engineers – Section 10 of the Rivers and Harbors Act of 1899
- U.S. Army Corps of Engineers – Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972
- Alaska Department of Environmental Conservation – Section 401 of the Clean Water Act; Alaska Water Quality Standards Certificate of Reasonable Assurance, Potable Water Plan Review

Hart Crowser (HC) is included on the PND Team in the event that the agencies require specialized environmental studies or compensatory mitigation measures. Should mitigation be required, Hart Crowser will assist in Agency/Mitigation Bank Negotiations. As part of the Sitka Airport Expansion, HC helped develop the overall mitigation package for the project which included the purchase of the Sheldon Jackson tidelands in-lieu of on-site mitigation. HC was able to demonstrate through analysis that there is likely a surplus of “credits” available from that action that should be available to the CBS for use on this project, should that need arise. HC is best suited for negotiating such a settlement given their specific experience with Sitka and its near shore resources, as well as with SEAL Trust, the administrator of the bank.

PND will submit the Water System Design to ADEC for Plan Review and Operational Authorization. We will submit the Fire Suppression Design to the local and/or state Fire Marshall for review and approval. We will submit the Electrical Design to the local Electrical and Building Departments for review and approval

#### **Task 4 Deliverables:**

1. NWP and PCN documents
2. ADEC Water System Plan Approval documents
3. Fire Marshall Fire Suppression Plan Approval documents
4. CBS Electrical System Plan Approval documents
5. Agency response documentation as needed
6. Other Permits and Mitigation Plan TBD at a later date.

#### **TASK 5: FINAL DESIGN**

Final design services will be provided as an iterative process starting with 35% design documents progressing to 65% then to 95% and ultimately to stamped bid ready documents with the goal of achieving a quality designed project reviewed by the CBS at each step. The American Society of Civil Engineers (ASCE) implies that quality is achieved when the expectations of the Owner and the requirements for the project have both been met. This requires dedication, effort, investigation, planning, innovation and responsibility. Quality results from a team effort that leads to the satisfaction of all parties involved. The PND Team will work closely with the CBS to address all review comments and to refine specific design elements for all civil, structural, mechanical and electrical systems incorporated into the work. The following project elements will be progressively developed with each design submittal.

## **Float and Pile Design**

The CBS desires an efficient, durable, low maintenance and cost effective float system for the STF. We recognize that large commercial vessels will moor and raft at the transient float and that short period waves within the channel must be addressed in the design. PND will guide the CBS through the selection of an appropriate float and pile system while remaining within the overall budget. We have recently completed full design development for three major moorage float projects in SE AK utilizing a heavy timber and steel component structural system with foam filled poly tubs and seawater ballast tanks to stabilize the float system in wave exposed locations. We will examine a similar design for the STF under a full design approach that can be competitively bid by numerous float manufacturers. We will also examine other float options such as high performance concrete or steel pipe pontoons in the event it is warranted due to the wave environment assessments performed under Task 2.3. Similarly, we will assess float design options for the Pole Tending Float, should that facility be included in the final scope of improvements selected by the CBS.

Pile designs will depend on the results of the geotechnical investigation however likely options will include individual steel pipe piles socketed into bedrock as well as socketed pile pairs with moment connecting struts to share service loads.

## **Heat Traced Combination Potable Water and Fire Line Design**

PND will review the combination water and fire line design for ANB Harbor with the CBS and determine whether any design modifications are warranted for the STF project. We will assess available water service capacity on the Eliason Harbor floats to determine whether a service line extension to the STF is possible or if a new service is required to meet pressure and flow requirements. If a new service is needed, PND will design water main connections and service equipment facilities on shore and new service pipe routing from shore, through existing floats to new potable water and fire pedestals on the STF.

## **Electrical Design**

The scope of electrical improvements carried forward to final design will be determined during the scoping phase. Electrical design scope may include the following:

- Pole mounted LED lighting for the transient float including routing cables from existing access float.
- Power pedestals for the transient float with associated power cables, panels and power centers. Depending upon the voltage configuration and quantity of pedestals selected, power feed may originate from the existing service for Eliason Harbor or from a new electrical service with main switchgear and panel boards/power center. The latter will likely be the case unless only a few dual 30 amp pedestals are desired. If the latter is selected, it is anticipated that we would not have to design the Ground Fault Protection for the existing harbor.
- Heat trace, power and controls for the water pedestals as part of the combination water system.
- Ground Fault Protection for the STF and other affected harbor electrical systems. MEG will provide public educational information on these recent code requirements.

## **Emphasis on Budget Controls & Cost Estimating during Final Design Tasks**

The design team is keenly aware of the need for maintaining control of project costs. We will prepare and submit construction cost information to the CBS on a regular basis as described below to assure that the design remains in conformity with the total \$6.15 million budget allocated for the project. We have assembled an extensive in house library of recent and similar project bid costs throughout Alaska and will use this information to confirm cost estimates at the various design completion phases. The design team will work closely with the CBS to develop strategies that fit within the allocated budget. We will prepare



recommendations for base bid and additive alternative bid schedules to allow the CBS some project award flexibility in the event that funding allocations fall short of any complete objective.

#### **Task 5.1: Preliminary Design and Cost Estimate (35% Completion Level)**

The PND Team will advance the final approved Concept Plan into more developed design drawings using the acquired survey and geotechnical information. Preliminary layout drawings and typical sections will be developed for the transient and pole floats, guide piles and transition assembly to the existing timber access float extending offshore from the drive down facility at Eliason. Schematic layout drawings and details will be developed for all utilities, including a combined potable water and fire line, lighting and power. 35% cost estimates will be prepared to reflect the improvements included in the preliminary design documents.

A layout of the new lighting system on an overall plan view will be provided. An elevation and light fixture description will be provided. The same will be done for the heat trace servicing the water pedestals. Design of the new power system single line diagram (service modifications if needed, main panel, feeder panels, feeder cables, and pedestals) for the transient float will be completed. A layout of the new power system will be provided for the transient float on an overall plan view. The preliminary design will provide the Owner an understanding of what the new electrical system will consist of, where equipment will be located, and what it will look like.

The 35% design documents will be presented to the public at a Port and Harbor Commission meeting as outlined under Task 3.

#### **Task 5.2: Design Development (65% Completion Level)**

The basic objectives of the design development (DD) phase are to prepare sufficient plans, details, material and installation specifications and refined cost estimates to thoroughly understand the character, quality, content and cost of the final scope of improvements. Design drawings will be developed to 65% completion for existing floating wave attenuator demolition, various float typical sections, specific structural weldments, floatation system, float to float connection details, piles, pile hoops, transition assemblies, potable water and fire system as well as safety equipment mounted on the floats.

An elevation and single line diagram of each electrical panel and pedestal type will be developed. Elevations of the existing drive down ramp/abutment, existing drive down ramp/ work float, existing float and new float sections at the pedestals and light poles will be provided showing cable routing. Routing through the existing work float will be a challenge and special details will be necessary. An enlarged plan at the uplands/abutment will be provided along with a detail of the conduit/cables routed under the existing drive down ramp with the method of supports to be used.

Many meetings will be held between PND and MEG to work out mounting locations of equipment, cable routing through the floats and across float modules. All equipment will be shown to scale and cable routing will be drafted to scale with the actual cable bending radius shown so final routing is verified.

Plans, specifications and cost estimates will be developed to approximately 65% design completion for all project elements during the DD phase. This will require regular input and coordination between the design team and the CBS to satisfy the specific needs and objectives for the project. The ideas envisioned and approved by the CBS during the scoping and preliminary design phase will ultimately be developed into a working set of documents that can be competitively bid by contractors. There are many important design and contract issues to cover during this period. PND will expand upon the preliminary design options and will prepare detailed drawings and specifications for all civil, structural, electrical and mechanical systems. We will update the cost estimates following completion of the 65% design documents.

We will conduct work sessions throughout the DD period to keep all parties informed of issues as they unfold. PND will maintain direct communication with the CBS's project manager at all times. We will always solicit the CBS's input and direction as needed to avoid surprises. The 65% design documents will be presented to the public at a Port and Harbor Commission meeting as outlined under Task 3.

#### **Task 5.3: Construction Documents (95% Completion Level)**

The PND team will address all review comments to the 65% submittal during the construction document (CD) phase. We will prepare written responses with back up documentation to resolve all issues and make the necessary adjustment to the documents as we move forward in the design process.

All design and contract documents including plans, specifications, cost estimates and bid documents will be advanced to an approximate 95% completion level by registered engineers familiar with all applicable design and building codes. Highly detailed documents will be produced to fully ascertain the requirements of the construction contracts. Designs will be prepared in accordance with good design practice as required by the standard of professional care for engineers practicing in Alaska. The 95% contract documents will comply with all environmental permits; ADA and OSHA requirements; and all applicable local and state building, mechanical, electrical and fire codes. Our team will develop the contract documents in accordance with CBS technical and contracting standards. Supplemental technical specifications will be provided in Construction Specification Institute (CSI) format for all applicable Divisions 0 through 16.

PND will update the cost estimates following completion of the 95% construction documents based on the most current design work. MEG will prepare an estimate of electrical construction costs with line items for each type of equipment and cable.

The Design Team will present the 95% Construction Document submittal to the CBS in a face to face meeting and will address all issues and comments related to the project. We will also prepare a PowerPoint presentation and poster board materials with informative handout materials to facilitate a joint public presentation to the Assembly and members of the Port and Harbor Commission as outlined under Task 3.

#### **Task 5.4: Bid Ready Contract Documents (100% Stamped Documents)**

Following the CBS's review and approval of the 95% Construction Documents and final cost estimate, PND and MEG will address all final comments and prepare bid ready Project Manuals and Drawings for public bid solicitation. We will coordinate with the CBS to incorporate the CBS's standard boiler plate documents. The completed project manuals will include all necessary contract documents for the project such as Bidding and Contract Requirements, Invitation to Bid, Bid Schedules, Contract Forms, Conditions of the Contract, Technical Specifications, etc. All final bid ready documents shall be stamped by Alaska registered engineers responsible for their disciplines of the project.

QA Audit: Senior level engineers will independently review all plans, specifications, costs estimates and calculations throughout the design period. Dick Somerville, PND Principal in Charge, will conduct a comprehensive Quality Assurance Audit of all final deliverables prior to stamping the documents ready for bid.

#### **Task 5 Deliverables:**

1. 35% Design Review Submittal – plans and cost estimate
2. 65% Design Review Submittal – plans, technical specification outline & cost estimate
3. 95% Design Review Submittal – plans, complete technical specification & cost estimate
4. Stamped bid ready documents in reproduction-ready hard copy and electronic PDF file formats
5. CD-ROM: AutoCAD drawing files and MSWord technical specifications



## **TASK 6 BID PHASE ASSISTANCE**

We anticipate the CBS will distribute contract documents to prospective bidders. PND will assist the CBS during the bid advertising period. Services will include responding to bidder questions, attending the pre-bid conference, keeping meeting notes and preparing any supporting addenda documents that may result from bid phase interaction. We will provide any design clarifications found necessary during this period and will be proactive in our assistance to properly inform the bidders of the design intent and bidding requirements. With proper engineering attention and interaction during the bidding phase, contractors will be well informed of the contract requirements. Bidders will reduce bid costs when their questions are adequately addressed, when construction related risks are minimized and when design intent is clearly conveyed by the contract documents. PND will review the bid documents received and prepare a letter of award recommendation.

### **Task 6 Deliverables:**

1. Addenda preparation
2. Bid document review and letter of award recommendation

## **PHASE 3 SERVICES – CONSTRUCTION PHASE ENGINEERING (Phase 3 Price TBD at later date)**

### **TASK 7 CONSTRUCTION PHASE SERVICES**

**Phase 3 Project Management:** PND's project management functions as described under Phase 1 will continue throughout all tasks under Phase 3 to maintain contract communication channels with the CBS and to direct all engineering staff and subconsultants in the timely delivery of work products.

**Contract Administration (CA) and Project Management Standards:** We will utilize CBS Standard Project Management methods on this project. CA services will include preparing contract correspondence, evaluating contractor critical path schedules, evaluating claims, managing inspectors, coordinating with the CBS and performing other such duties as described below. We will utilize an extensive files and records system to track contract changes, RFI's, DCM's, submittal reviews, schedules, quality control and assurance issues closely.

**Preconstruction Conference & Progress Meetings:** We will participate in the preconstruction conference to introduce our team to the contractor, address the roles of all parties, discuss Contractor work plans and schedules and generally assist in responding to questions and contract issues. We will also attend regular progress meetings with the CBS Project Manager, Contractors, utility companies and others and will keep appropriate meeting notes.

**Submittal Reviews and Register:** PND's Team will promptly review all civil, structural, mechanical and electrical submittals. We will prepare a detailed submittal register and will maintain this document on a regular basis to track the status of all documents delivered, reviewed and returned. There are many critical scheduling items that must remain on track in order for the Contractor to deliver the project on time. PND will review these requirements with the Contractor at the preconstruction conference.

**Information and Clarification Requests:** Our team will respond to all Requests for Information (RFI's) and Design Clarification Memo (DCM's) promptly to avoid delays.

**Fabrication Inspections:** PND's Seattle office will provide float fabrication inspections in the Pacific Northwest to avoid the expense of traveling from our Juneau office. Our inspectors have experience with nearly all of the fabrication shops in that region and are very knowledgeable of critical inspection points.

Inspection reports will be prepared for each site visit complete with photos and narratives. Issues will be described and solutions will be presented when necessary. Our inspectors are certified in all areas of fabrication inspection.

**Substitutions and Modifications:** We will assist the CBS in evaluating any Contractor proposed substitutions, proposed design modifications and any value engineered alternatives presented during construction. As designers of this harbor project, we are intimately familiar with the design intent and quality of the facility. We will be able to offer our opinions on all substitutions and modifications in a timely manner.

**Field Design Assistance:** PND's engineering team will be available to provide design assistance during construction in the event that the CBS desires to increase or decrease the scope of work or make a design change.

**Change Orders:** PND will review proposals prepared by the Contractor in response to design modifications, extra work or differing site conditions. We will assist in preparing any subsequent change orders (CO) for CBS review and action before the contractor proceeds with additional work. Field orders (FO) will be prepared and issued when necessary to provide immediate contract direction.

**Payment Applications:** PND will review payment applications prepared by the Contractor and will verify all payment quantities for completed work and stockpiled materials.

**Public Notices:** PND will facilitate any desired public information meetings and prepare flyers or notices to mariners during construction. We will coordinate directly with the CBS to ensure interruptions to operations are minimized by the Contractor during construction.

**Construction Inspection Services:** The PND team will clarify design intent and answer any questions from the Contractor and Owner during the construction period. We can also provide site inspections on a regular or periodic basis at critical inspection points to assure that the project has been constructed in accordance with the contract documents. PND and MEG will provide qualified personnel to address all work activities underway at any given time. Mr. Somerville will coordinate with the CBS and will manage PND's inspection personnel. Our inspectors will provide daily inspection reports describing all activities with narrative and electronic photos. We will produce deficiency and non-compliance reports as needed and will follow up with corrective action oversight.

**Permit Conformance:** PND's inspectors will pay close attention to the environmental permit requirements to assure that the contractor remains in conformance at all times with the permit stipulations.

**Special Inspections:** PND provides special inspections as required by code for the installation of piles, special structural systems, welding and electrical systems. Our inspectors are ICBO and AWS certified for these types of inspections.

**Substantial Completion & Punch Lists:** Key engineers will prepare punch lists for all aspects of the work upon notification of substantial completion by the Contractor or upon the Owner's early utilization of any part of the work. We will perform punch list inspections until the work is 100% complete and final completion certificates, final payments and contract releases have been received if desired by the CBS.

**Asbuilt Record Documents:** PND CAD staff will prepare electronic asbuilt drawings of the completed work from red lined information collected during construction.

**Warranty Inspections:** The PND Team will return to Sitka to inspect the facility prior to expiration of the warranty period. We will document any discovered deficiencies in a formal report to the CBS.



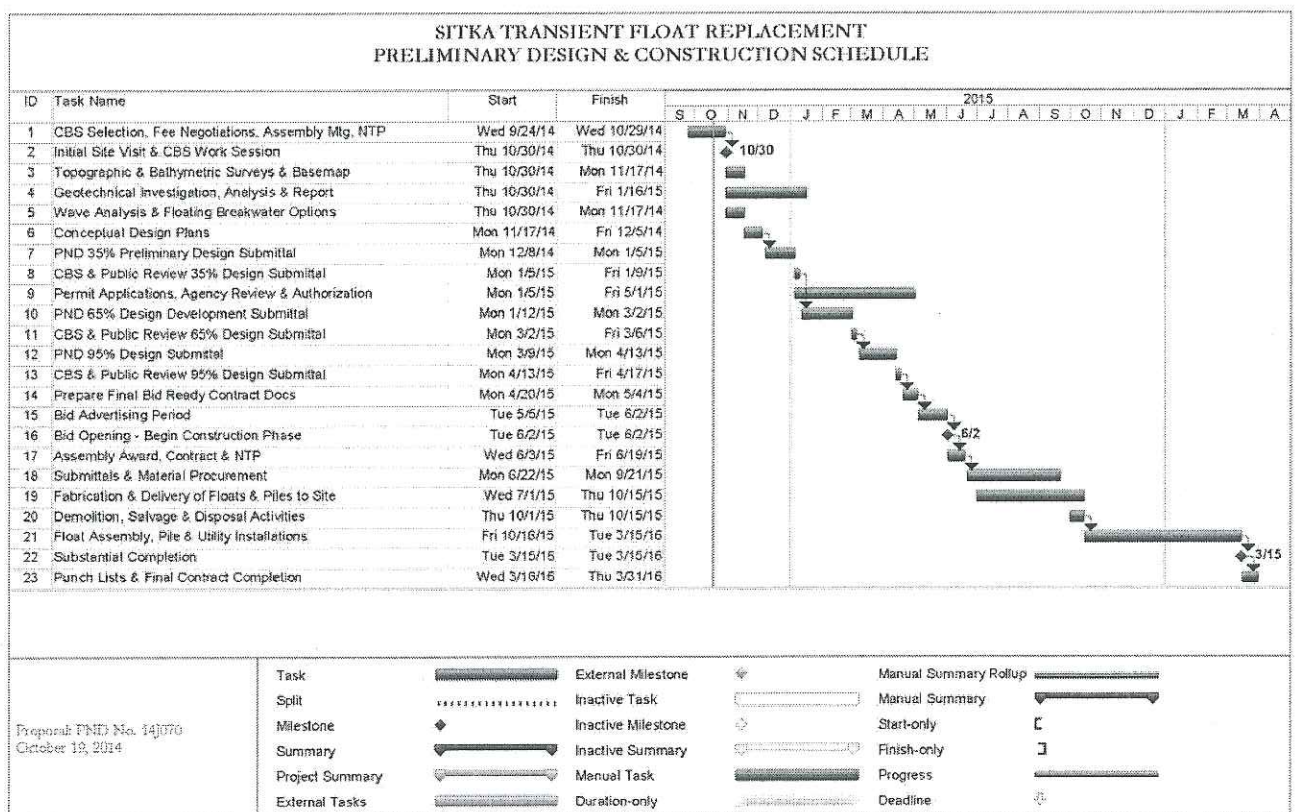
PND will be responsive to Owner and Contractor requests for information to avoid contract delays and will provide the necessary contract administration and inspection services to certify that the Contractor constructs the project in accordance with the plans and specifications.

#### Task 7 Deliverables:

1. Contract documentation listed above
2. Submittal and shop drawing reviews
3. Fabrication inspection reports
4. Onsite daily inspection reports
5. Punch lists
6. Electronic asbuilts
7. Contract closeout documentation
8. Warranty inspection report

#### C. SCHEDULE

Professional services under this project are anticipated to be completed by March 31, 2016. A preliminary design and construction schedule illustrating significant milestone activities is provided below.



**D. ITEMS TO BE FURNISHED BY CBS**

1. Background project information including design and asbuilts plans of related projects
2. Alaska Tideland Survey, ATS 15 for Thomsen and Eliason Harbor Vicinity
3. High resolution aerial photography in electronic format of project vicinity
4. Front end boiler plate bidding and contract documents for bid package – MSWord format
5. CBS Assembly & Port and Harbor Commission meeting coordination and advertising
6. Bid advertising, solicitation and distribution of bid documents & addenda
7. One coordinated set of review comments for each design review submittal delivered within 5 days of review submittal date.
8. Permitting fees



### Task 1: Project Scoping & Concept Development

Estimated Third Party Expenses

Estimated third party expenses		
Travel Expenses	3 RT airfares @ \$326 + 3 EA 1/2 day per diem \$30 + vehicle rental & fuel @ \$100	\$1,168
Morris Engineering Group	Electrical site visit, scoping options, cost estimates, summary report per MEG 101214 proposal attached	\$11,430
Admin Fee	10% Third party markup	\$1,260
TOTAL ESTIMATED FEE TASK 1 (T&E)		\$13,858
		\$47,718

## Task 2: Site Investigations - Surveying, Geotechnical Investigation and Wave Analysis

### Estimated Third Party Expenses

**TOTAL ESTIMATED FEE TASK 2 (T&E)**





PO Box 210049 Auke Bay, Alaska, 99821, 907-789-3350, 907-789-3360 fax

## Fee Estimate

10/12/2014

### Sitka Transient Float Pre-Design

Scope: Trip to site for planning harbor renovation with client to be followed by a scoping summary report outlining power and lighting options and recommendations and preliminary construction cost estimate.

Task	Engineer (Hrs)	Drafting (Hrs)	Expenses
<b>Pre-Design</b>			
<b>Site Visits</b>			
Site Investigation & meeting with client	16		\$ 550
Coordination with local utility			
Development of Power and lighting options	24		
<b>Documents</b>			
<b>Report</b>			
Narrative with power service options, pedestal options, lighting options and recommendations	16	4	
		0	
<b>Preliminary Construction Cost Estimate</b>	8		
Totals	64	4	
Hourly Rate	\$165	\$80	
Fees	\$ 10,560	\$ 320	\$ 550
<b>Total Pre-Design Electrical Fee</b>	<b>\$ 11,430.00</b>		



## Denali Drilling

October 13, 2014

PND Engineers, Inc.  
Attn: Dick Somerville  
9360 Glacier Highway, Suite 100  
Juneau, AK 99801

Ref: Sitka Offshore Drilling Program

Dear Dick,

Denali Drilling, Inc. is pleased to have this opportunity to offer the following pricing for providing labor, drilling equipment and an LCM for offshore drilling of four boreholes at the outboard side of the floating breakwater at the Sitka Transient Float location. Two holes will have 20 rock cores. We understand the water depth is 35' - 40' and overburden is around 20'.

Mob/demob - Lump Sum	\$14,340.00
Includes all transportation for Denali crew, equipment & tooling and LCM & crew to/from Sitka.	

Drilling, single shift offshore - per 12 hour day	\$10,860.00
Includes LCM, boat crew, three-man drill crew, truck drill, tooling, coring equipment, support pickup, fuel and room & board.	

Client is to provide clear access to all hole locations, utility locates, and all permits required to complete the project. Pricing is based on our in-house wage rates with no provisions for Davis Bacon wages. If standby is required for weather, the day rate will be \$4,900.00.

If you have any questions concerning this proposal, or if we can be of service in any other regard, please do not hesitate to contact our office.

Sincerely,  
DENALI DRILLING, INC.

  
Hal Ingalls  
CEO

HI:kh





**PND ENGINEERS, INC.**  
**STANDARD RATE SCHEDULE**  
**EFFECTIVE MAY 2014**

		<i>Regular Rate</i>
<u>Professional:</u>	Senior Engineer VII	\$180.00
	Senior Engineer VI	\$165.00
	Senior Engineer V	\$155.00
	Senior Engineer IV	\$145.00
	Senior Engineer III	\$135.00
	Senior Engineer II	\$125.00
	Senior Engineer I	\$115.00
	Staff Engineer V	\$105.00
	Staff Engineer IV	\$100.00
	Staff Engineer III	\$95.00
	Staff Engineer II	\$90.00
	Staff Engineer I	\$85.00
	Senior Scientist	\$110.00
	Environmental Scientist III	\$120.00
	Environmental Scientist II	\$105.00
	Environmental Scientist I	\$90.00
	GIS Specialist	\$90.00
<u>Surveyors:</u>	Senior Land Surveyor III	\$120.00
	Senior Land Surveyor II	\$110.00
	Senior Land Surveyor I	\$100.00
<u>Technicians:</u>		
	Technician VI	\$125.00
	Technician V	\$110.00
	Technician IV	\$90.00
	Technician III	\$80.00
	Technician II	\$70.00
	Technician I	\$45.00
	CAD Designer V	\$95.00
	CAD Designer IV	\$85.00
	CAD Designer III	\$70.00