

**CITY OF KOTZEBUE  
RESOLUTION NO. 24-64**

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF KOTZEBUE, ALASKA, AUTHORIZING THE CITY MANAGER OR HER DESIGNEE TO ENTER INTO A CONTRACT WITH PND ENGINEERS, INC., ANCHORAGE, ALASKA, ON BEHALF OF THE CITY OF KOTZEBUE FOR PLANNING/DESIGN CONSULTING SERVICES FOR THE CAPE BLOSSOM REGIONAL PORT.**

**WHEREAS,** the Cape Blossom Regional Strategy Committee (“Committee”) representatives – City of Kotzebue, Northwest Arctic Borough, Kikiktagruk Inupiat Corporation, Kotzebue IRA and NANA Regional Corporation – at the second day of the Committee meeting at the Nullagvik Hotel Conference Room on Friday, October 4, 2024, reviewed responses to the City of Kotzebue’s RFP for planning/design consulting services for the Cape Blossom Regional Port;

**WHEREAS,** the Committee determined that the proposal by and the qualifications of PND Engineers, Inc., Anchorage, Alaska, attached hereto as Exhibit “A” and incorporated by reference herein, best suited the planning/design consulting services needed for the Cape Blossom Regional Port and recommended that the City Council of Kotzebue contract with PND Engineers, Inc., for planning/design consulting services needed for the Cape Blossom Regional Port; and,

**WHEREAS,** funding for this type of planning/design consulting services for the Cape Blossom Regional Port has been secured through a completed and executed MARAD FY2023 PIDP Grant No. 693JF72444063 in the amount of \$2,455,485, as set forth in City of Kotzebue Resolution No. 24-41, passed and approved on June 20, 2024.

**NOW, THEREFORE, BE IT RESOLVED**, that the City Council of the City of Kotzebue authorizes the City Manager or her designee, in consultation with the City Attorney and City Planning Director, to enter into a contract with PND Engineers, Inc., Anchorage, Alaska, based upon PND’s response to the City of Kotzebue’s RFP as set forth in Exhibit “A” attached hereto.

**PASSED AND APPROVED** by a duly constituted quorum of the City Council of the City of Kotzebue, Alaska, this 7<sup>th</sup> day of November, 2024.

**CITY OF KOTZEBUE**

\_\_\_\_\_  
Derek Haviland-Lie, Mayor

[SEAL]

ATTEST:

\_\_\_\_\_  
Paeton Schaeffer, City Clerk

Attachments: Exhibit “A” – PND Response to RFP [51 pages]

# CAPE BLOSSOM PORT

CITY OF KOTZEBUE

**planning**



**design project**

9.9.2024



ENGINEERS, INC.



ENGINEERS, INC.

September 9, 2024

Tessa Baldwin  
City Manager  
City of Kotzebue  
PO Box 46  
Kotzebue, AK 99752

**SUBJECT:** Cape Blossom Port Planning & Design Project

Dear Ms. Baldwin & Cape Blossom Regional Strategy Committee:

PND Engineers, Inc. (PND) understands the City of Kotzebue is seeking the professional services of an experienced coastal and waterfront engineering consultant to work with the city, Northwest Arctic Borough (NAB), NANA Regional Corporation, U.S. Maritime Administration (MARAD), U.S. Army Corps of Engineers (USACE), and other project stakeholders to develop a comprehensive plan and provide preliminary design of a new port facility located in Cape Blossom, Alaska. This facility has long been envisioned as a key infrastructure asset to support regional maritime transportation and economic development throughout Northwest Alaska.

PND is uniquely qualified to provide these services to the City of Kotzebue. Founded in 1979 in Anchorage, Alaska, PND is one of the preeminent arctic, coastal, and waterfront engineering experts in the world. We have successfully completed the design, retrofit, and/or rehabilitation of over 1,000 marine infrastructure projects worldwide in our 45-year history, and we have provided coastal and waterfront engineering services in over 50 Alaska harbors. We have extensive experience throughout the NAB, including recent relevant planning, permitting, design, and construction support services for the Crowley Dock Repairs & Replacement Project in Kotzebue.

PND is currently the design engineer of record for the Port of Nome Modification Project, a collaborative effort with the City of Nome and USACE that is building the northernmost deepwater port in North America. PND has designed several large-scale dock facilities on the North Slope of Alaska, as well as the northernmost deepwater vessel berth in the world located on Baffin Island in Nunavut, Canada. PND is currently working with MARAD on Port Infrastructure Development Program (PIDP)-funded projects in Seward and Yakutat, Alaska.

PND and our team's collective experience and expertise will be an asset to the City of Kotzebue and all stakeholders for successfully delivering this important project to the greater NAB community, and we're excited to be your project partners. Thank you for reviewing our qualifications.

Sincerely,  
PND Engineers, Inc.  
Chip Courtright, PE, SE

PND Vice President & Principal Engineer

**PHONE:** 907.646.2709; **EMAIL:** ccourtright@pndengineers.com



# TABLE of CONTENTS

◇ FIRM EXPERIENCE & QUALIFICATIONS	01
◇ KEY PROJECTS 1-12	
◇ KEY PERSONNEL 13-29	
◇ PROJECT APPROACH & METHODOLOGY	30
◇ PROJECT SCHEDULE	38
◇ COST PROPOSAL	40
◇ REFERENCES	43

All cover photos throughout this proposal, including the title page, were taken during the Crowley Dock Repairs & Replacement Project in Kotzebue, Alaska.



An aerial photograph showing a coastal town on the left, a road along the shore, and a large cargo ship docked at a pier on the right. The ship is heavily loaded with colorful shipping containers. Various pieces of heavy machinery, including forklifts and trucks, are visible on the pier and the beach area. The water is a deep blue, and the sky is clear.

# FIRM EXPERIENCE & **qualifications**





**PND** Engineers, Inc. (PND) has successfully completed the design, retrofit, and/or rehabilitation of over 1,000 marine infrastructure projects worldwide in our 45-year history. From Adak to Nome to Yakutat, PND has provided coastal and waterfront engineering services in over 50 Alaska harbors. We have extensive experience throughout the Northwest Arctic Borough (NAB), as well, from our award-winning design services for the Napaaqtugmiut K-12 School in Noatak to planning and design for the Arctic Mine and DeLong Mountain Transportation System Studies, linking proposed mines to ports through hundreds of miles of access roads in the 1990s and 1980s, respectively.

In addition to our recent project experience in Kotzebue, most notably our Crowley Dock Repairs & Replacement Project on the Kotzebue Sound, PND has provided various multidisciplinary services in NAB communities such as Buckland, Deering, and Kivalina. PND has extensive master planning, design, permitting, and administration experience on waterfront-related infrastructure projects across Alaska. We routinely provide design through construction-phase services for complex coastal/waterfront projects and have worked with a variety of clients, including the U.S. Maritime Administration (MARAD) and U.S. Army Corps of Engineers (USACE), to ensure environmental compliance and successful installations of our designs. PND is currently working with MARAD on Port Infrastructure Development Program (PIDP)-funded projects in Seward and Yakutat and USACE on the Port of Nome Modification Project. A few of our other recent relevant projects include:



**Liberty Island**



**Northstar Island**



**Milne Inlet Ore Dock**



**Point Thomson**



**STP Dock**



**West Dock Causeway**

- » **ARRC Marine Terminal Master Plans**
- » **Chefornak Engineering Support**
- » **Chignik Dock & Harbor Expansion**
- » **Crowley Dock Repairs & Replacement**
- » **King Cove Harbor Master Plan**
- » **Pikka Project (Oliktok STP Dock)**
- » **Port of Bristol Bay Master Plan**
- » **Port of Nome Modification Project**
- » **Port of Nome Strategic Development**
- » **Unalaska Marine Center Expansion**
- » **Valdez Waterfront Master Plan**

	<b>Project Planning &amp; Feasibility Analyses</b>	<b>Public Outreach &amp; Stakeholder Engagement</b>	<b>Site Survey &amp; Data Collection</b>	<b>Coastal Engineering &amp; Metocean Analyses</b>	<b>Geotechnical Engineering &amp; Seismic Analyses</b>	<b>Dredging Design &amp; Environmental Sampling</b>	<b>Uplands Development &amp; Associated Utilities</b>	<b>Cost Estimating &amp; Economic Analyses</b>	<b>Project Permitting &amp; Regulatory Support</b>	<b>Preliminary Engineering &amp; Design</b>	<b>Contract Administration &amp; Construction Support</b>
» <b>ARRC Marine Terminal Master Plans</b>	✓	✓	✓	✓			✓	✓	✓	✓	
» <b>Chefornak Engineering Support</b>	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
» <b>Chignik Dock &amp; Harbor Expansion</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
» <b>Crowley Dock Repairs &amp; Replacement</b>	✓		✓	✓	✓		✓	✓	✓	✓	✓
» <b>King Cove Harbor Master Plan</b>	✓	✓	✓		✓		✓	✓	✓	✓	
» <b>Pikka Project (Oliktok STP Dock)</b>	✓			✓	✓	✓	✓	✓	✓	✓	✓
» <b>Port of Bristol Bay Master Plan</b>	✓	✓	✓		✓		✓	✓	✓	✓	
» <b>Port of Nome Modification Project</b>	✓	✓	✓	✓			✓	✓	✓	✓	✓
» <b>Port of Nome Strategic Development</b>	✓	✓	✓		✓		✓	✓	✓	✓	
» <b>Unalaska Marine Center Expansion</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
» <b>Valdez Waterfront Master Plan</b>	✓	✓	✓				✓	✓	✓	✓	



## Crowley Dock Repairs & Replacement | Kotzebue, AK

**PND** provided professional planning and design services to Crowley Maritime Corporation for identifying and evaluating a multitude of options for replacing its failing dock. Huge sheets of ice covering Kotzebue Sound begin to crack and break each spring, while massive 4-foot-thick ice floes are pushed from the powerful confluence of the Kobuk and Noatak rivers into the sound west of Baldwin Peninsula. Scour was undermining the Crowley Dock’s existing tied-back sheet-pile bulkhead, and several areas of sheet pile were failing from corrosion and historical damage.

Faced with the growing danger of the dock’s catastrophic failure, Crowley hired PND to assess conditions, determine erosion mechanisms, and implement an emergency temporary repair that allowed Crowley Fuels to continue using the bulkhead and complete its short season with minimal interruption to operations. As part of the planning process, PND and Crowley met with local government, Alaska Native organizations, community members, and other groups that could potentially be affected by the project.

For the permanent repair, PND developed an alternatives analysis for repairing or replacing the existing bulkhead. A new PND-proprietary OPEN CELL SHEET PILE™ (OCSP) bulkhead was determined to be the lowest-cost alternative while providing deeper draft and increased dock space for safe handling and storage, among other benefits. To minimize risks, improve safety, and expand working space, the new dock was designed to encapsulate the old dock. New sheet pile was installed seaward of the existing dock, enveloping the old dock and eliminating the need for costly demolition. The work was sequenced so dock operations would not be affected. A number of other improvements were made to potable water, shore power, dock lighting, fendering, and mooring.



Crowley Dock

### CROWLEY DOCK REPAIRS & REPLACEMENT | Kotzebue, AK

- ◆ **Client/Owner:** Crowley Maritime Corporation
- ◆ **Construction Cost:** \$5.6M
- ◆ **Engineering Fees:** \$652,000
- ◆ **Key Personnel:** Thieman, Courtright, Hughes, Brown, and RSA
- ◆ **Reference:** Jed Dixon, Project Manager, Crowley Maritime Corporation, 907.777.5598

When the planning and permitting were completed and the construction finally began, I don’t think we could have had a better advocate on site than (PND). I am sure that PND has had more technically challenging jobs, but for Crowley this was an operationally important, highly visible, and politically sensitive project, and we are very glad to have had PND as a partner on it.” ~Dixon

**Successes, Challenges, & Relevancy to Cape Blossom:** Protecting the waters and wildlife of Kotzebue Sound, a critical part of the people’s way of life and nutrition in the region, was a top priority. The project required extensive federal permitting processes with the National Marine Fisheries Service (NMFS) and U.S. Army Corps of Engineers (USACE), including an incidental harassment authorization (IHA) application, biological assessment (BA), and essential fish habitat (EFH) assessment. PND gathered biological data, identified at-risk wildlife, and formed a marine mammal management and mitigation plan to minimize negative impacts. The plan included a marine mammal observation program and underwater sound monitoring during construction. Given the tight timeline and demanding level of coordination required among several stakeholders with competing needs, this local project faced a range of challenges such as permafrost, permitting, property issues, river/sea ice, construction, and tight budget and schedule constraints, yet the project was completed on schedule and within the planned budget.





## Port of Nome Modification Project | Nome, AK

**PND** is the designer of record for this multiphased \$600M-plus arctic port expansion project for the City of Nome. Spanning three distinct phases, this project will enhance the port's capacity for growing maritime demands in the Arctic and ultimately position the Port of Nome as the northernmost deepwater port in North America. A comprehensive joint feasibility study conducted by the City of Nome and USACE determined that expanding this maritime transportation hub was foundational to the long-term viability of the surrounding communities in the region.

The first phase of the modification project focuses on expanding the existing ~2,500-foot-long armor stone causeway by 3,500 feet and adding a new OCSP bulkhead that will provide more than 2,000 feet of new dock and 10 acres of additional uplands storage for the port. The first phase is 100% design-complete and went out to bid in February 2024.

The second phase, led by USACE, will significantly deepen the port's capabilities from a 22-foot dredge depth to 40 feet. PND will design additional dock facilities and staging area during the third phase, when the existing east breakwater is removed and replaced with an armor stone causeway.

PND, working directly for the City of Nome, is serving as the designer of record for the OCSP dock and uplands, while USACE is providing design for the armor stone causeway and overseeing contracting and bidding efforts for the federally funded project. This unique arrangement has required close collaboration between PND and USACE during design to ensure adherence to federal requirements and project schedules, as well as appropriate integration of the dock and armor stone transitions.



Port of Nome Modification Project (Corvus rendering)

### PORT OF NOME MODIFICATION PROJECT | Nome, AK

- ◆ **Client/Owner:** City of Nome
- ◆ **Construction Cost:** NA
- ◆ **Engineering Fees:** \$3.2M
- ◆ **Key Personnel:** Courtright, Hudson, Ulmgren, Khokhlov, Hughes, and Corvus
- ◆ **Reference:** Joy Baker, Port Director, City of Nome, 907.304.1905

# 10

PND's design for Phase I will add 10 acres of additional uplands storage at the port, including extending the west causeway by 3,500 feet and adding a new OCSP bulkhead that will provide more than 2,000 feet of new dock face.

### Successes, Challenges, & Relevancy to Cape Blossom:

The Port of Nome faces many of the same demands as modern-day ports throughout the world, including the need to handle heavy loads efficiently, such as managing large gravel piles, stacked shipping containers, container handlers, heavy cranes – all part of the normal operations at this cold region port facility. The expanded OCSP dock in Phase I was engineered to support a uniform live load of up to 1,500 pounds per square foot, ensuring that large amounts of cargo or stockpiles of gravel can be staged anywhere along the new structure. Additionally, the dock's design allows heavy crane picks and container handlers with large axle loads to operate anywhere on the dock without worry of overload. This project illustrates our team's deep understanding for strategically developing Western Alaska ports to achieve economic growth and regional connectivity. PND submitted 100% design deliverables for Phase I earlier this year; Phase I construction costs were estimated between \$250M and \$500M, making it the largest-valued civil works project in USACE Alaska District history.



## Chefornak Engineering Support Services | Chefornak, AK

**PND** developed large-scale erosion and flood protection measures for the Chefornak Traditional Council and the Chefornak community, including village relocation planning and design for buildings and marine facilities that had become unusable. Climate change has accelerated erosion, flooding, and permafrost thawing in the village, located on the south bank of the Kinia River.

The original barge landing, built in the 1990s, was washed out during extensive flooding in 2017. PND designed and permitted a temporary barge landing and access ramp developed from gravel and locally available armor rock to extend the landing into the Kinia River, back to its original footprint, allowing freight barges to access the village for food, fuel, and supplies deliveries. PND worked closely with the community as well as government funding and permitting agencies to provide a design suitable for their needs.

PND performed structural evaluations to assess current structural conditions and the feasibility of moving structures threatened by erosion and settlement issues. PND provided geotechnical investigations to study subsurface conditions and temperatures across the site, including an in-depth permafrost analysis to evaluate current and projected permafrost conditions. PND performed hydrological and metocean investigations to assess processes affecting river shoreline erosion and estimated potential water level extremes and flood frequency, combining site visit observations with analyses of reports and studies from DGGS and USACE. PND set up an automated meteorological weather station to acquire in-situ wind, precipitation, temperature, and water level information. Comparing these data to nearby weather and tide stations with consistent historical records allowed us to estimate potential extreme events at the site.



**Chefornak Temporary Barge Landing (under construction)**

### CHEFORNAK ENGINEERING SUPPORT SERVICES | Chefornak, AK

- ◆ **Client/Owner:** Chefornak Traditional Council
- ◆ **Construction Cost:** NA
- ◆ **Engineering Fees:** \$1.29M
- ◆ **Key Personnel:** Mayrberger, Ulmgren, Khokhlov, Hughes, Brown
- ◆ **Reference:** Dora Mathews, (former) Tribal Administrator, Chefornak Traditional Council, 907.867.2076

# 3

PND identified three potential sites for village relocation, including benefits and cost-analyses. PND assessed 33 structures within the area's floodplain, then developed a multiphased strategy for relocating 22 structures.

**Successes, Challenges, & Relevancy to Cape Blossom:** PND developed the "Chefornak Infrastructure Protection Plan" in 2018 and designed a replacement for the Head Start building and a temporary replacement for the barge landing. We designed the permanent barge landing replacement (the project is currently on hold), an erosion protection plan for adjacent shoreline, and created a managed retreat plan for threatened structures. Chefornak is subject to flooding and erosion, much like Kotzebue and other western Alaska communities. The work in Chefornak involved site reconnaissance, inspections, significant public involvement, alternatives analysis, and coastal/riverine analysis to determine design criteria and develop solutions for the community's infrastructure susceptible to coastal threats. PND engaged local community members and students to assist with monitoring our data collection, which included installing thermistors throughout the village to monitor permafrost temperature and observe active-layer depth over time. Stakeholder engagement was integral for determining the best path forward for the Chefornak community.





## Pikka Project (Oliktok STP Dock) | North Slope, AK

**PND** is providing civil and structural design to Oil Search Alaska for the Pikka Project, a new oil field development approximately 50 miles west of Deadhorse, Alaska. The development includes a processing facility pad, three satellite drill pads, operations pad, a 27-mile gravel road network, two bridges, a seawater treatment plant (STP), and a boat launch on the Colville River for the Nuiqsut community.

PND's involvement in the project began in 2015 with a high-level route alternatives analysis and preliminary geotechnical investigation, then expanded to include an environmental impact statement and USACE Section 404 permit support, route reconnaissance, land surveying, mine site development, hydrology, fabrication support, construction administration, and field inspection services.

The STP Dock at Oliktok Point featured the construction of a unique high-capacity offload facility and barge slip designed to accommodate a facility that was itself a barge. The barge was floated into place within the slip at the new dock and uplands, then grounded on the ocean bottom to intake seawater for oil field operations. Situated in shallow Arctic waters in Prudhoe Bay, the project required winter construction due to permit restrictions, and all pile driving was completed in a single season.

PND developed more than 5 acres of uplands staging area, including a high-capacity berthing and offload area capable of supporting live loads of up to 2,000 psf for large drill rigs and heavy oil field module offloads. The project demanded close coordination with the client, neighboring land owners, and the STP barge designer to ensure compliance with strict permitting and environmental conditions, as well as critical dimensions and grounding criteria.



Oliktok STP Dock

### PIKKA PROJECT (OLIKTOK STP DOCK) | North Slope, AK

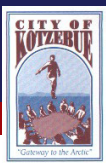
- ◆ **Client/Owner:** Oil Search Alaska
- ◆ **Construction Cost:** NA
- ◆ **Engineering Fees:** \$1.7M
- ◆ **Key Personnel:** Thieman, Hudson, Mayrberger, Hughes
- ◆ **Reference:** Brenton Savikko, PE, PMP, Project Manager, Oil Search Alaska, 907.646.7004

5

PND developed more than 5 acres of uplands staging area and a high-capacity berthing and offload area capable of supporting live loads of up to 2,000 psf for large drill rigs and heavy oil field module offloads.

### Successes, Challenges, & Relevancy to Cape Blossom:

PND provided adfreeze pile foundation design for facilities and bridges, thermal analyses, climate change analysis, and forecasting following Intergovernmental Panel on Climate Change modeling methods for this expansive project north of the Arctic Circle. PND also provided permit support, roadway design, and survey services for access road routing, including a three-week helicopter-supported route assessment and design survey. PND's design efforts included two separate 65% road alignment packages spanning 47 miles, a roads and pads issued-for-construction package involving 27 miles of road and 3 million cubic yards of gravel, and two issued-for-construction packages for the Kachemach and Miluveach bridges. The STP Dock at Oliktok Point is particularly relevant to the Cape Blossom Port Planning & Design Project as it underscores our extensive experience in delivering complex marine infrastructure projects in remote and challenging locations in Alaska while effectively managing requirements of multiple stakeholders and agencies.



## Chignik Dock & Small Boat Harbor Replacement | Chignik, AK

**PND** completed two key infrastructure projects within the Chignik Small Boat Harbor on the remote Alaska Peninsula. Phase I consisted of a new float system; Phase II included expansion of the timber float system, a new steel transient float system, an inner harbor OCSP dock, and a boatlift with an adjacent vessel washdown system.

During Phase I, PND provided comprehensive support during project development and implementation of the small boat harbor replacement. Our responsibilities included project layout and scope identification, permitting, site geotechnical investigations, development of design criteria/float performance specifications, bidding support, review of design-build proposals, construction administration, and fabrication/construction inspection services.

During Phase II, PND provided design plans/specifications, assisted with permit applications/drawings, and provided cost estimates to replace the city's dilapidated dock with a new multiuse public facility and Alaska Marine Highway System (AMHS) ferry terminal. The dock serves as an all-tide deep-draft facility that accommodates medium- and large-vessel berthing and provides moorage for AMHS ferries such as the M/V Kennicott and M/V Tustumena.

The modern high-capacity sheet-pile bulkhead is 310 feet long, with amenities such as boat storage and uplands areas. The project included comprehensive engineering services from initial concept development through construction support. The project was designed in phases for financing purposes, with documents updated to meet Alaska Department of Transportation & Public Facilities (DOT&PF) and Federal Highway Administration (FHWA) requirements for grant funding.



**Chignik Dock (under construction)**

### CHIGNIK PUBLIC DOCK & SMALL BOAT HARBOR REPLACEMENT | Chignik, AK

- ◆ **Client/Owner:** Lake & Peninsula Borough/City of Chignik
- ◆ **Construction Cost:** \$18.4M
- ◆ **Engineering Fees:** \$1M
- ◆ **Key Personnel:** Thieman, Courtright, Roche, Mayrberger, Khokhlov
- ◆ **Reference:** Nathan Hill, Borough Manager, Lake & Peninsula Borough, 907.246.3421

Most dock users will probably never know how challenging this (Chignik Public Dock) project was and the amount of effort and collaboration each of you gave to its success. Working with each of you during construction was a great pleasure. Thank you for making this project such a success." ~**Todd Boris, PE, DOT&PF Quality Assurance Engineer**

### Successes, Challenges, & Relevancy to Cape Blossom:

PND provided planning, design, management, and construction-phase support services for this dock and small boat harbor replacement project in remote Alaska. Phase I was delivered under a design-build contract, while Phase II was design-bid-build. This critical marine infrastructure facility meets both the Chignik community and greater Lake & Peninsula Borough communities' varied needs in the intense seismic and weather conditions present along the Alaska Peninsula. PND's comprehensive involvement throughout these multiphased projects illustrates our team's well-suited qualifications for overseeing all aspects of the Cape Blossom Port Planning & Design Project. The Chignik Dock, which was awarded Project of the Year honors by Engineering-News Record Northwest in 2017, survived an 8.2-magnitude seismic event in 2021 and 7.8-magnitude and 7.6-magnitude seismic events in 2020. Lake & Peninsula Borough Manager Nathan Hill inspected the dock following the August 2, 2021, earthquake and reported no issues or structural damage.





## Unalaska Marine Center Expansion | Unalaska, AK

**PND** has been providing design services for the Unalaska Marine Center (UMC) since 1989, beginning with design of the 790-foot Ballyhoo Crane Dock. Most recently, PND provided design and environmental services to replace UMC docks at positions III and IV with a new high-capacity bulkhead dock facility with expanded container crane capabilities. Prior to design, PND assisted with an extensive planning effort that involved an upfront study with site investigations, cost estimates, and design alternatives.

Our team began by organizing meetings and several on-site walkthroughs with project stakeholders and potential facility users. The site assessments allowed engineers to identify items that required repairs or upgrades, while discussions with project stakeholders helped us understand the required operational requirements. The assessments and discussions guided development of design alternatives.

The initial site survey for design included topographic survey and horizontal/vertical control, as well as all water, stormwater, and wastewater structures and pipe inverts, fuel vaults, and electrical utilities.

The initial design phase included geotechnical investigations to determine soil properties, bedrock profiles, and bedrock quality.

PND conducted real-time hydroacoustic measurements of ambient underwater sound levels near the dock to establish a baseline of existing ambient noise for permitting efforts and managed a pre-permitting program of marine mammal observations to generate additional species density data for permit applications. Our team developed the final design drawings for construction, bidding documents, and construction contracts, as well as performed project bidding and construction management.



Unalaska Marine Center (during paving)

### UNALASKA MARINE CENTER EXPANSION | Unalaska, AK

- ◆ **Client/Owner:** City of Unalaska
- ◆ **Construction Cost:** \$38M
- ◆ **Engineering Fees:** \$5.3M
- ◆ **Key Personnel:** Thieman, Courtright, Gray, Roche, Mayrberger, Khokhlov, Hughes, Brown
- ◆ **Reference:** Peggy McLaughlin, Ports & Harbors Director, City of Unalaska, 907.581.1254

I've worked with PND since 2009. Each interaction and work product has been carefully and thoroughly executed. Their professionalism and competency is reflected in the fact that we continue hiring them to perform work for us in this particularly challenging maritime environment. PND is responsive to our needs and innovative with respect to design criteria and cost-saving measures." ~**Tom Cohenour, Unalaska Public Works Director**

### Successes, Challenges, & Relevancy to Cape Blossom:

PND's final design added 610 feet of dock face with a minimum 45-foot water depth, replacing two aging pile-supported structures with a bulkhead dock. The design also extended existing container crane rails; provided an electrical service vault for a new electric container crane; upgraded water, sewer, fuel, and stormwater utility infrastructure; and incorporated numerous appurtenances to meet the current and future needs of the port. UMC was one of the first projects to adopt NOAA's modern guidance for the assessment of underwater sound effects and has been used as a model for subsequent project implementation. UMC is a high-traffic cargo and passenger port serving the largest community on the Alaska Peninsula. PND's efficient and comprehensive work on this project, designing a facility to support heavy cargo and passenger loads while accommodating the weather and seismic conditions common in Southwest Alaska, demonstrates our ability to complete waterfront development projects of any size in remote, logistically challenging locations.



## Port of Nome Strategic Development Plan | Nome, AK

**PND** is developing a comprehensive waterfront master plan, construction cost estimates, economic feasibility analyses, and action plan strategies for key areas of the Port of Nome to ensure the city and port are ready for future development. PND has completed nearly 50 projects for the City of Nome over the past 35 years and are very familiar with the community, its waterfront facilities, the variety of stakeholders and community interests, as well as the inherent design and development challenges presented by the community's local and climactic conditions.



Port of Nome

This project was divided into three distinct phases. In Phase I, the PND team gathered economic data from publicly available sources and interviews with Nome stakeholders and community members. We held bi-weekly meetings with Port of Nome staff to discuss project needs and develop advertisement strategies and timing for the first round of public meetings. The community was informed of the scope and goals of the project and encouraged to provide input during collaborative work sessions during the open meetings. PND provided a summary report of the port's existing conditions, economic opportunities, preliminary development options, and community feedback.

During Phase II, our team hosted a second round of open meetings with project stakeholders in the community and are currently refining the development options identified in Phase I based on the feedback and discussions with port personnel and other stakeholders. We are updating our report, outlining all considered alternatives. During Phase III, our planning team will develop a final draft report presenting the preferred alternative development option and associated cost estimates to the City of Nome and the Port Commission.

### PORT OF NOME STRATEGIC DEVELOPMENT PLAN | Nome, AK

- ◆ **Client/Owner:** City of Nome
- ◆ **Construction Cost:** NA
- ◆ **Engineering Fees:** \$211,000
- ◆ **Key Personnel:** Hudson and Corvus
- ◆ **Reference:** Joy Baker, Port Director, City of Nome, 907.304.1905

They've done design. They've done repairs. They've done inspections. They've done permitting. They've pretty much been my right arm. I think (PND) does a good job of understanding what your problems are and putting their collective heads together to determine the best and most practical fix. ... They stand by their work, and they're confident in their work." ~**Baker**

**Successes, Challenges, & Relevancy to Cape Blossom:** The City of Nome is determined to prepare itself for the future by thoroughly assessing its current and future maritime and harbor facilities within a comprehensive Strategic Development Plan update for the Port of Nome. PND is providing overall project management of our team of subconsultants and leading all elements of the plan, including coordinating with City of Nome staff, the Port Commission, and other stakeholders. PND developed public involvement strategies and approach; prepared drawings and narratives; provided existing facilities structural and load-capacity analyses; oversaw financial studies and benefit-cost analyses; and prepared concept-level construction cost estimates. PND is a multidisciplinary engineering firm that specializes in marine and waterfront facility planning and design, such as the Cape Blossom Port Project. We have participated in and spearheaded development planning efforts for multiple waterfront communities throughout Alaska and the Pacific Northwest, including several with our proposed subconsultant, Corvus Design.





## King Cove Harbor Master Plan | King Cove, AK

**PND** provided project management, planning, public involvement, and engineering services to the City of King Cove for producing a master plan to guide harbor development for the next 20 years. The master plan was informed by planning meetings, community outreach/engagement, and investigations/analyses of existing harbor facilities and potential for demand. The effort was supported by the community, who value the harbor's role in sustaining the city's commercial fishing and seafood processing operations.

King Cove is a small city in the Aleutians East Borough located on a sand spit on the south side of the Alaska Peninsula. The city is only accessible by boat or plane. King Cove Harbor consists of the North Harbor (small boat harbor) and South Harbor (large boat harbor); upland infrastructure includes the harbormaster building, a harbor warehouse building, and a shore power hook-up area.

PND has been designing harbor infrastructure in King Cove since the 1980s. Familiar with its existing facilities, PND collected, reviewed, and shared historical research about the harbor with the city during a preliminary planning session in King Cove to commence the master planning effort. The city and harbor staff in attendance similarly shared known deficiencies, needs, and the demand for existing and potential facilities. We performed site inspections of existing structures and facilities at the harbor, including those identified as potential projects. We met with city and harbor staff, as well as local commercial fishermen, to discuss the master plan and receive additional input and projects to consider. PND synthesized its findings in a trip report, which ultimately informed the 20-year master plan for the King Cove Harbor and community.



King Cove Harbor

### KING COVE HARBOR MASTER PLAN | King Cove, AK

- ◆ **Client/Owner:** City of King Cove
- ◆ **Construction Cost:** NA
- ◆ **Engineering Fees:** \$265,000
- ◆ **Key Personnel:** Thieman and RSA
- ◆ **Reference:** Amber Jusefowytch, Assistant City Administrator, City of King Cove, 907.274.7573

# 19

PND identified 19 projects in the King Cove Harbor Master Plan for potential improvements or replacements, including potential funding sources, ROM cost estimates, and estimated timeframes for completion.

**Successes, Challenges, & Relevancy to Cape Blossom:** The King Cove Harbor Master Plan incorporated information gathered from planning sessions with city and harbor staff, on-site inspections, research, and public engagement with the community. The plan addressed the condition of existing facilities, identified repairs and maintenance, and recommended new facilities and improvements to existing ones. The potential infrastructure improvement projects provided in the master plan included potential funding sources, rough order of magnitude cost estimates, and the estimated timeframe for completion to guide the city in identifying and prioritizing projects over the next 20 years. PND presented a list of projects to the client and project stakeholders for potential upgrades, maintenance, or expansion that would ensure effective continued operation of the harbor and strengthen the community's role in both the commercial fishing and seafood processing industries. RSA, our proposed subconsultant for the Cape Blossom Port Planning & Design Project, provided electrical and mechanical engineering services for the master plan.



## Port of Bristol Bay Waterfront Master Plan | Naknek, AK

**PND** has undertaken a series of planning efforts for different facilities throughout the Bristol Bay Borough, including the Port of Bristol Bay Waterfront Master Plan. PND developed master plans for the Port of Naknek, South Naknek Dock, King Salmon Bulkhead, Public Facilities, and the Naknek Landfill, as well as a Sewage Lagoon Shoreline Protection Study. PND worked with our proposed subconsultant, Corvus Design, to develop the Port of Bristol Bay Waterfront Master Plan, which focused on four key areas: Naknek Dock, South Naknek Dock, King Salmon Bulkhead, and the proposed Fisherman’s Wharf facility.

The master plan covered repair and development of waterfront infrastructure to promote increased industrial, commercial, and recreational activity in the borough. The plans for Naknek Dock, South Naknek Dock, and King Salmon Bulkhead were for existing facilities and required evaluation of current infrastructure conditions and recommendations for planning strategies and facility improvements based on forecasted demands and needs.

Fisherman’s Wharf is a proposed new facility; this task involved development of multiple waterfront concepts, as well as evaluation of potential siting locations within the community. Work for Fisherman’s Wharf included developing feasible access roads for each proposed location and evaluating the real estate and property procurement and development implications for each site. A number of capital improvement projects to advance economic development opportunities are identified in the plan, such as expanding Naknek Dock and incorporating a new boat launch, as well as adding shore power at South Naknek Dock. Development of the master plan required site investigations, SWOT analyses, and conceptual design and cost estimating.



**Fisherman’s Wharf Site Selection**

### PORT OF BRISTOL BAY WATERFRONT MASTER PLAN | Naknek, AK

- ◆ **Client/Owner:** Bristol Bay Borough
- ◆ **Construction Cost:** NA
- ◆ **Engineering Fees:** \$813,000
- ◆ **Key Personnel:** Hudson, Roche, Mayrberger, Ulmgren, Hughes, Brown, and Corvus
- ◆ **Reference:** James Wilson, Borough Manager, Bristol Bay Borough, 907.246.4224

5

PND reviewed five sites for locating a potential Fisherman’s Wharf, taking into consideration ample spacing for public parking, feasible waterfront access separate from the existing port area, and adequate tidal conditions for a boat ramp to launch 32-foot vessels.

### Successes, Challenges, & Relevancy to Cape Blossom:

The Port of Bristol Bay Waterfront Master Plan examined various development options for the waterfront areas of Naknek, South Naknek, and King Salmon with the intent to benefit the communities they serve while maintaining their character. PND identified structural concerns ranging from moderate to severe for each dock area that needed to be addressed with varying priority levels to prevent future deterioration; some of the outlined deficiencies compromised public safety. By developing the four focus areas, the borough’s waterfront infrastructure will be prepared to handle the ever-increasing demand for cargo shipping and sport fishing access, ensuring longevity of each community’s core industries. The extensive master planning effort, led by PND and our proposed subconsultant, Corvus Design, had primary focuses on expanding coastal infrastructure to accommodate increasing industrial traffic, addressing safety concerns, extending essential public utilities for better service for users, and repairing structural deficiencies to increase service life of the borough’s waterfront facilities.





# Valdez Waterfront Comprehensive Master Plan | Valdez, AK

**PND** provided professional services for developing a comprehensive waterfront master plan for the City of Valdez. The plan now serves the city as an essential planning and implementation tool for development over the next 30 years.

Valdez is an active waterfront community with a vibrant fishing and seafood industry, oil terminal port, container terminal facility, harbors, and recreation opportunities. The planning effort was conducted to gain the support and input of various city departments, residents, local businesses, and other stakeholders. The master plan was compatible with the community character and environmental conditions, both of which are significant considerations for the isolated city near the northern tip of Prince William Sound.

PND provided overall project management for a multidisciplinary team of subconsultants and led all elements of the master planning efforts, while our proposed subconsultant, Corvus Design, provided upland master planning assistance and led public involvement workshops in the Valdez community. PND, which has provided professional planning and design services on more than 200 projects in Valdez, developed public involvement strategies and approach; provided existing facilities structural and load-capacity analyses; oversaw financial studies and benefit-cost analyses; and prepared master planning drawings, narratives, and concept-level construction cost estimates.

The plan focused on the existing Valdez Small Boat Harbor uplands; North Harbor Drive; new Commercial Boat Harbor uplands; Sea Otter property at the end of South Harbor Drive; the Valdez Container Terminal; the Old Valdez Townsite; and the economic feasibility for a marine industrial trade park and marine dry-stacking facility.



Valdez Waterfront

### VALDEZ WATERFRONT COMPREHENSIVE MASTER PLAN | Valdez, AK

- ◆ **Client/Owner:** City of Valdez
- ◆ **Construction Cost:** NA
- ◆ **Engineering Fees:** \$397,000
- ◆ **Key Personnel:** Courtright and Corvus
- ◆ **Reference:** Jeremy Talbott, Ports & Harbors Director, City of Valdez, 907.835.4564

We had recently severed a relationship with another planning team on an unrelated project that did not end well with our local community. Knowing this, PND tailored its approach and worked with the many diverse stakeholders and community groups. This project had a very tight timeline, and the end product was delivered with overwhelming community support.”

~Talbot

### Successes, Challenges, & Relevancy to Cape Blossom:

PND primed a master planning project that helped create a vision for five key waterfront properties in Valdez based on economic opportunities, trends, and community priorities that met the needs of existing businesses and industries. The process included master planning, implementation strategies, land-use recommendations, construction estimates, and a final document that the City Council and Ports and Harbor Commission unanimously approved for funding and implementation. The project developed master plans for five sites and more than 300 acres, including the historic townsite where the community stood before the 1964 earthquake. Improvements included densification of the downtown waterfront business district, new seafood plants, dock and harbor upgrades, support facilities, new business and housing development, marine service yard expansion, transportation and parking improvements, freight handling, parks, trails, open space, and cruise ship improvements. The project included unique planning considerations for Old Town due to the historical significance of the area.



## ARRC Marine Terminal Master Plans | Seward/Whittier, AK

**PND** led a team of subconsultants to develop a comprehensive 20-year master plan for the ARRC yard and dock facilities in Seward, Alaska. The primary focus was to produce concepts for replacing the aging passenger dock that services cruise ships each spring through early fall. The master plan examined options that used all three dock sites – freight, passenger, and coal-loading dock – in various configurations to concurrently accommodate two cruise ships in excess of 1,000 feet long.

PND conducted metocean studies, dynamic finite element wave modeling, and other analysis methods to determine the most appropriate dock for the potential extreme sea state conditions expected during major storm events and successfully developed a concept that provided a floating dock configuration that was well received by the cruise ship industry. The master plan also examined economic potential for development of the real estate at the facility; designed a terminal building and associated parking area/traffic planning to simultaneously allow two full-size cruise ships; assessed/rearranged traffic patterns into and out of the facility to minimize conflicts between freight trucks, buses, vehicular traffic, and pedestrians; and established a more organized approach to use the available acreage more efficiently.

Under a separate contract, PND developed a comprehensive plan for the ARRC yard and dock facilities in Whittier, Alaska. The scope of work involved creating concepts for facilities to accommodate freight, cruise ship, and other marine traffic; analyzing economic drivers of ARRC operations; and identifying existing strengths and weaknesses. One project component included an in-depth freight dock study to identify the dock's existing conditions, business trends, and how ARRC facilities support potential improvements to freight dock operations.



ARRC Seward Passenger Dock OCSP Replacement (PND rendering)

### ARRC MARINE TERMINAL EXPANSION MASTER PLANS | Seward/Whittier, AK

- ◆ **Client/Owner:** Alaska Railroad Corporation
- ◆ **Construction Cost:** NA
- ◆ **Engineering Fees:** \$2.7M (Seward); \$232,000 (Whittier)
- ◆ **Key Personnel:** Thieman, Courtright, Hudson, Gray, Roche, Khokhlov, Hughes
- ◆ **Reference:** Brian Lindamood, PE, SE, Vice President & Chief Engineer, ARRC, 907.265.3095



PND is currently providing design and permitting services for two primary improvement priorities identified during planning for the ARRC Seward Marine Terminal: Passenger Dock Replacement and Freight Dock Improvements.

**Successes, Challenges, & Relevancy to Cape Blossom:** These comprehensive master planning efforts focused on driving economic growth at major ARRC marine facilities. The planning effort included completion of a passenger traffic study, freight traffic study, and transportation connectivity study, all supported by extensive public outreach and visioning, which led to the creation of the Seward Marine Terminal Expansion Master Plan. The master planning effort considered options developed in each of the studies and analyzed them for enabling recommendations for improvement priorities. The upgrades included concepts, planning-level designs, and cost estimates for the identified improvement priorities. The analyses examined how to best support ARRC's existing terminal operations, constructability/phasing, cost, and balancing of short- and long-term infrastructure needs with modal demands and space availability. Extensive public and stakeholder involvement contributed to considerations for how the recommended improvements would be integrated into the local Seward community and transportation network.



**PND** will manage the majority of this contract from our firm's headquarters in Anchorage, Alaska. Our team includes subconsultants AMC Engineering (AMC) for fuel systems engineering; Coastal Frontiers Corporation (Coastal Frontiers) for specialized cold regions analysis of longshore sediment transport; Corvus Design (Corvus) for port planning support and stakeholder engagement; RSA Engineering (RSA) for electrical and mechanical engineering; and Restoration Science & Engineering (RSE) for dredge sampling and analysis. With the exception of Coastal Frontiers, which is based in Moorpark, California, our entire team consists of Alaskans who live and work in Alaska, based in Anchorage.

PND Senior Vice President & Principal Engineer Dempsey Thieman, PE, SE, will serve as contract manager. Dempsey will have overall responsibility of the contract, responsible for negotiating contract terms and guiding contract compliance. PND Vice President & Principal Engineer Chip Courtright, PE, SE, will serve as project manager. Chip will be the single point of contact for the City of Kotzebue and have direct responsibility of our team's specific disciplines. The lines of authority will flow through Chip, as illustrated in our organizational chart pictured at right. Chip will lead and supervise all aspects of the planning and engineering design to ensure accuracy, safety, and adherence to the project's schedule. PND Principal Engineer Bryan Hudson, PE, SE, will serve as quality assurance/quality control (QA/QC) manager and be responsible for ensuring all deliverables meet appropriate standards.

PND Contract Manager Dempsey Thieman has nearly 30 years of professional management experience on waterfront engineering projects for both private and public clients throughout Alaska. Dempsey is intimately familiar with the challenges of waterfront development throughout Alaska, including Kotzebue.

PND Project Manager Chip Courtright has nearly 20 years of professional engineering experience in civil/structural design, inspection, cost estimation, and administrative services. Chip has experience managing every stage of project processes, from concept design and permitting through construction-phase services. He often designs for harsh environmental conditions and has a history of innovative and practical design solutions to complete complex projects on schedule and under budget.

PND Quality Control Manager Bryan Hudson has 20 years of civil/structural experience performing and managing all types of coastal planning and waterfront engineering projects, including extensive experience in Northwest Alaska. Bryan is currently managing design for the Port of Nome Modification Project in conjunction with USACE, as well as planning for the Port of Nome Strategic Development Plan, showcasing his unique skillset for providing planning, design, and administrative support services in the geographic region.

**CITY OF KOTZEBUE**

**CBRPC**

**Contract Manager**  
Dempsey Thieman, PE, SE\* | **PND**  
AK-PE-9974  
AK-SE-14420

**Quality Control Manager**  
Bryan Hudson, PE, SE\* | **PND**  
AK-PE-12004  
AK-SE-14290



**PROJECT MANAGER**  
Chip Courtright, PE, SE\* | **PND**  
AK-PE-12820  
AK-SE-126438

\*IN RESPONSIBLE CHARGE

- Civil Engineering Lead**  
Josh Gray, PE\* | **PND** (AK-PE-119541)
- Structural Engineering Lead**  
Corey Roche, PE, SE\* | **PND** (AK-PE-106463; AK-SE-126432)
- Geotechnical Engineering Lead**  
Torsten Mayrberger, PE, PhD\* | **PND** (AK-PE-14702)
- Coastal Engineering Lead**  
Michael Ulmgren\* | **PND** (AK-PE-145780)
- Metocean Science Lead**  
Alexander Khokhlov | **PND**
- Environmental Science Lead**  
Brenna Hughes | **PND**
- Land Surveying Lead**  
Iain Brown, PLS\* | **PND** (AK-PLS-107707)

**SUBCONSULTANTS**

**Fuel Systems Engineering**  
Dave Shumway, PE\* | **AMC**  
AK-PE-8815

**Coastal Engineering**  
Craig B. Leidersdorf | **COASTAL FRONTIERS**

**Port Planning & Stakeholder Engagement**  
Peter Briggs, PLA | **CORVUS**

**Electrical Engineering**  
Tim Hall, PE\* | **RSA**  
AK-PE-9131

**Mechanical Engineering**  
Mark Frischkorn, PE\* | **RSA**  
AK-PE-8975

**Dredge Material Characterization**  
Lucus E. Gamble | **RSE**





*Dempsey Thieman, PE, SE | Contract Manager*

PND Senior Vice President & Principal Engineer Dempsey Thieman will serve as our team’s contract manager and principal-in-charge of the Cape Blossom Port Planning & Design Project. Dempsey will be responsible for negotiating contract terms and guiding contract compliance; he will have overall responsibility of the contract. Dempsey has nearly 30 years of professional management experience on waterfront engineering projects for both private and public clients throughout Alaska. He is intimately familiar with the challenges of waterfront development in Northwest Alaska, having successfully managed and designed a wide range of marine infrastructure projects in the region. Dempsey recently served as PND’s principal-in-charge of the Crowley Dock Repairs & Replacement Project in Kotzebue, Alaska.

**TITLE**

- » PND Senior Vice President & Principal Engineer VII

**ROLE**

- » Contract Manager & PND Principal-in-Charge

**EDUCATION**

- » B.S., Civil Engineering, California Polytechnic State University

**REGISTRATION**

- » Professional Civil Engineer: AK-PE-9974
- » Professional Structural Engineer: AK-SE-14220

**REFERENCES**

- » Jed Dixon, Project Manager, Crowley Fuels, 907.777.5598
- » Peggy McLaughlin, Ports & Harbors Director, International Port of Dutch Harbor, 907.581.1254
- » Nathan Hill, Manager, Lake & Peninsula Borough, 907.246.3421

**CROWLEY DOCK REPAIRS & REPLACEMENT | Kotzebue, AK. Principal-in-Charge.**

Corrosion and scour were undermining the existing tied-back sheet-pile bulkhead at the fuels dock. Dempsey served as PND’s principal-in-charge of this project, which assessed conditions, determined erosion mechanisms, and implemented an emergency temporary repair that allowed Crowley to continue using the bulkhead and complete the short season with minimal interruption to operations. For the permanent repair, PND developed an alternatives analysis for repairing or replacing the existing bulkhead. The project included other improvements such as potable water, shore power, dock lighting, and fendering/mooring.

**KING COVE HARBOR MASTER PLAN | King Cove, AK. Principal-in-Charge.** Dempsey managed and oversaw development of a 20-year master plan for King Cove’s harbor facilities to ensure continued operations of the community’s existing facilities while evaluating demand for new harbor infrastructure. The plan incorporated information gathered from planning sessions with city and harbor staff, on-site inspections, research, and public engagement with the community. The plan addressed the condition of existing facilities, identified repairs and maintenance, and recommended new facilities and improvements to existing ones, including identifying potential funding sources, rough order of magnitude (ROM) cost estimates, and estimated timeframes for completion to guide the city in identifying and prioritizing projects.

**UNALASKA MARINE CENTER EXPANSION | Unalaska, AK. Principal-in-Charge.** Dempsey was responsible for this project’s master plan, which replaced the existing Unalaska Marine Center dock at positions III and IV with a new high-capacity bulkhead dock facility with expanded container crane capabilities. He performed several site assessments to identify required repairs and facility upgrades, developed design alternatives, led public involvement meetings, and presented project updates to the city council. Dempsey oversaw survey, bathymetry, permitting, a geotechnical investigation, detailed design, and public involvement. The project provided 610 feet of new dock face with a minimum water depth of approximately 45 feet. Dempsey is currently working on dredging and further expansion plans at the facility.

**CHIGNIK PUBLIC DOCK & SMALL BOAT HARBOR EXPANSION | Chignik, AK. Principal-in-Charge.** Dempsey oversaw planning and design for two projects at this remote harbor on the Alaska Peninsula. The first procured a new float system through a design-build delivery system. PND was responsible for permitting, design criteria, performance specifications, bidding support, design review, and construction administration. The second project expanded the timber float system and added a transient float, inner harbor OPEN CELL SHEET PILE™ dock, and boatlift with washdown system. Float units were designed as prefabricated modules, and special connections allowed for displacement and energy absorption as necessary. On-float utilities included water, fire water, and electrical service.





## Chip Courtright, PE, SE | Project Manager

PND Vice President & Principal Engineer Chip Courtright will serve as our team’s project manager for the Cape Blossom Port Planning & Design Project. Chip will be the single point of contact for the City of Kotzebue and have direct responsibility of our team’s specific disciplines. Chip has nearly 20 years of professional engineering experience in civil/structural design, inspection, cost estimation, and administrative services. Chip has experience managing every stage of project processes, from concept design and permitting through construction-phase services. He often designs for harsh environmental conditions and has a history of innovative and practical design solutions to complete complex projects on schedule and under budget, such as the recent Crowley Dock Repairs & Replacement Project in Kotzebue, Alaska.

### TITLE

- » PND Vice President & Principal Engineer VII

### ROLE

- » Project Manager

### EDUCATION

- » B.S., Civil Engineering, University of Alaska Anchorage

### REGISTRATION

- » Professional Civil Engineer: AK-PE-12820
- » Professional Structural Engineer: AK-SE-126438

### CERTIFICATIONS

- » AWS: Welding Inspection

### REFERENCES

- » Jed Dixon, Project Manager, Crowley Fuels, 907.777.5598
- » Jeremy Talbott, Ports & Harbors Director, City of Valdez, 907.835.4564
- » Nathan Hill, Manager, Lake & Peninsula Borough, 907.246.3421

### CROWLEY DOCK REPAIRS & REPLACEMENT | Kotzebue, AK. Project Manager.

Chip served as project manager and lead design engineer for this dock rehabilitation and replacement project. PND assessed conditions, determined erosion mechanisms, and implemented emergency temporary repairs at the fuel dock. For the permanent repair, PND developed an alternatives analysis and ultimately designed a new OPEN CELL SHEET PILE™ (OCSP) bulkhead system that encapsulated the existing failed sheet-pile bulkhead. PND also provided construction administration and inspection services.

### VALDEZ COMPREHENSIVE WATERFRONT MASTER PLAN | Valdez, AK. Project Manager.

Chip provided concept layouts of marine facilities for this comprehensive master planning effort. He ensured concepts were feasible from an engineering and permitting standpoint and provided construction costs for elements of the design alternatives. The goal of Chip’s planning effort was to gain support and input from city departments, residents, local businesses, and other stakeholders, while ensuring outcomes were compatible with the community culture and environmental conditions.

### CHIGNIK PUBLIC DOCK & SMALL BOAT HARBOR EXPANSION | Chignik, AK. Project Manager.

Chip managed and led design for a pair of key harbor projects in Chignik Bay. The first project consisted of a new float system, which included project permitting, design criteria, bidding support, design review, and construction support services. The second project consisted of a timber float system expansion, a new transient float, an inner harbor OCSP dock, and a boat lift with an adjacent vessel wash system. The new float units were designed as prefabricated modules, with module connections developed for displacement and energy absorption where necessary. On-float utilities included water, fire water, and electrical service. A separate washdown system was incorporated to collect, treat, and recycle water used to clean vessels that were removed using the new boatlift.

### PORT OF NOME MODIFICATION PROJECT | Nome, AK. Design Engineer & Cost Estimator.

Chip has provided waterfront engineering and cost estimating services for multiple projects at the Port of Nome, including the City of Nome’s major arctic port expansion project. He assisted with preliminary through 100% design for Phase I of the project, which went out to bid summer 2024. Marine elements included a 40-foot-draft deepwater basin and 2,200 feet of new sheet-pile dock, a 28-foot-draft outer basin, two sheet-pile docks, and mooring dolphins. Chip, together with PND Principal Engineer Bryan Hudson, PE, SE, our proposed quality control manager, also took part in the initial U.S. Army Corps of Engineers planning charrette in 2018 to guide the port’s expansion. Chip also provided design and cost estimations for the Port of Nome Middle Dock, a 240-linear-foot, seven-cell OCSP bulkhead dock that increased total dock face by more than 50% and added 30,000 square feet of uplands along the west causeway.



*Bryan Hudson, PE, SE | Quality Control Manager*

PND Principal Engineer Bryan Hudson will serve as our team's quality control manager for the Cape Blossom Port Planning & Design Project. Bryan has 20 years of civil/structural engineering experience performing and managing all types of engineering projects, including bridge and dock design, arctic port design, bridge inspection, sheet-pile bulkhead design, and construction engineering, as well as planning and administration of a variety of projects throughout Alaska. Bryan has extensive experience designing marine infrastructure in Arctic environments, including developing waterfront master plans for strategic development in Northwest Alaska communities. Bryan's recent relevant project experience in Nome, Alaska, will be an asset to our planning/design team and all project stakeholders.

**TITLE/ROLE**

- » PND Principal Engineer VII; Quality Control Manager

**EDUCATION**

- » B.S., Civil Engineering, University of Alaska Anchorage

**REGISTRATION**

- » Professional Civil Engineer: AK-PE-12004
- » Professional Structural Engineer: AK-SE-14290

**CERTIFICATIONS**

- » FHWA: National Highway Institute Program Manager for Safety Inspection of In-Service Bridges; Nonredundant Steel Tension Members Inspection

**REFERENCES**

- » Joy Baker, Port Director, City of Nome, 907.304.1905
- » Jathan Garrett, Project Manager, USACE Alaska District, 907.753.2869
- » Mike Cutler, PE, SE, Civil/Structural Technical Authority, ConocoPhillips Alaska, 907.265.6137

**PORT OF NOME MODIFICATION PROJECT | Nome, AK. Project Manager.** Bryan is currently managing PND's role on this major port expansion project for the City of Nome and its project partner, the U.S. Army Corps of Engineers. Phase I of the project, which is 100% design-complete and scheduled for construction in 2025, focuses on expanding the existing ~2,500-foot-long armor stone causeway by 3,500 feet and adding a new sheet-pile bulkhead that will provide more than 2,000 feet of new dock and an additional 10 acres of additional uplands storage for the port. Phase II will significantly deepen the port's capabilities from a 22-foot dredge depth to 40 feet. Phase III will provide additional dock facilities and staging area when the existing east breakwater is removed and replaced with an armor stone causeway.

**PORT OF NOME STRATEGIC DEVELOPMENT | Nome, AK. Project Manager.** Bryan is currently managing this project for the City of Nome, developing a comprehensive waterfront master plan at the Port of Nome. The project includes construction cost estimates, economic feasibility analyses, and action plan strategies for key areas of the Port of Nome to ensure the city and port are well equipped for future development. PND is working closely with City of Nome staff, port personnel, steering groups, and other stakeholders to ensure all parties are engaged in the process and have the opportunity to provide input during all phases of work.

**PORT OF BRISTOL BAY WATERFRONT MASTER PLAN | Naknek, AK. Project Manager.** Bryan is currently managing waterfront master planning efforts for the Bristol Bay Borough, which includes the Naknek Dock, South Naknek Dock, King Salmon Bulkhead, and a proposed Fisherman's Wharf. The purpose of the master plan is to guide the borough in developing its port and waterfront facilities to support industrial, commercial, and recreational use by identifying potential capital improvement projects. The work has involved a site investigation, SWOT (strengths, weaknesses, opportunities, threats) analysis, and developing conceptual designs and cost estimates for proposed port improvements.

**ARRC SEWARD/WHITTIER MARINE TERMINAL MASTER PLANS | Seward/Whittier, AK. Design Engineer.** Bryan developed drawing and design concepts, performed structural calculations, and assisted with the report for the Alaska Railroad Corporation (ARRC) Seward Master Plan, which presents concepts for how the ARRC port facilities can support freight and cruise ship passenger activities. The master plan addresses potential profitable uses of real estate and coordinates freight and passenger traffic. This effort required substantial stakeholder engagement and environmental analysis. Bryan also provided calculations, drawing/design review, and cost estimating services for a transportation study at the Port of Whittier to assess existing ARRC facilities, trends in usage, and the ability to support future freight operations. Bryan recently provided concept development and assisted with permit applications and early design development for the ARRC Seward Freight Dock expansion.





*Josh Gray, PE | Civil Engineer*

PND Senior Engineer Josh Gray will serve as our civil engineering lead for this project. Josh has more than 10 years of professional experience in site-civil design, roadway/drainage design, marine infrastructure development, and on-site inspection. He has performed planning, permitting, conceptual design, detailed design to support alternatives analysis development, and specification development. Josh is well versed in the civil design principles required to develop resilient and long-lasting waterfront infrastructure in Alaska. Josh performed civil design for the Unalaska Light Cargo Dock and Unalaska Marine Center expansion projects, developing utility, drainage, and site grading plans for the facilities while working with construction and material suppliers to ensure their requirements were met.

**TITLE**

- » PND Senior Engineer IV

**ROLE**

- » Civil Engineering Lead

**EDUCATION**

- » B.S., Civil Engineering, Montana State University

**REGISTRATION**

- » Professional Civil Engineer: AK-PE-11908

**CERTIFICATIONS**

- » ACI: Grade I Concrete Field Testing Technician

**REFERENCES**

- » Peggy McLaughlin, Ports & Harbors Director, International Port of Dutch Harbor, 907.581.1254
- » Ed Lightwood, Project Lead, ConocoPhillips Alaska, 907.440.6741
- » Aaron Huey, Project Manager, ConocoPhillips Alaska, 907.263.4675

**UNALASKA MARINE CENTER EXPANSION | Unalaska, AK. Civil Engineer.** Josh was involved with the design of water and sewer services for this project, which replaced the Unalaska Marine Center dock at positions III and IV. Josh's design took the wide variety of vessels that use the facility into account. He also provided design of site grading and stormwater drainage, which incorporated connections to the existing drainage structures, trench drains, and oil/grit separators. Josh worked with precast concrete suppliers to design custom vaults that met the extra-heavy load requirements of this international port facility.

**UNALASKA LIGHT CARGO DOCK EXPANSION | Unalaska, AK. Civil Engineer.** PND provided design, bid assistance, fabrication, and construction support services for expanding the dock's capabilities, including the initial comprehensive planning effort and preliminary investigations to produce cost estimates and design concepts. Josh provided design for grading/drainage, water service connections, fire protection, and the concrete slab. The site conditions required optimizing construction limits and concrete surfacing to match existing drainage patterns and grading.

**JIMS' LANDING BOAT LAUNCH & PARKING AREA IMPROVEMENTS | Kenai, AK. Civil Engineer.** PND provided design for improvements to the parking area, traffic flow, signage, and riverbank stabilization, as well as an established boat ramp to access the Kenai River during various flow conditions. Josh performed civil design for the project, including site layout and traffic flow to accommodate large truck and trailer movements, site grading, and development of a long-lasting boat ramp design that could be efficiently installed during a short construction window.

**GTP CIVIL INFRASTRUCTURE | North Slope, AK. Civil Engineer.** Josh was involved with front-end engineering design for ConocoPhillips' Gas Treatment Plant (GTP) civil infrastructure, which required design alternatives analyses for determining the most feasible and cost-effective solutions to meet the client's needs. The project scope included new bulkheads, dredging, causeway expansion, alignment modifications, and the use of barge bridges to effectively offload modules required for the project. This project required a broad understanding of North Slope operations and construction practices for developing appropriate design strategies for a project of this scale.

**UAF SEWARD MARINE CENTER DREDGING | Seward, AK. Civil Engineer.** Josh was involved with design and development of construction drawings and documents for this dredging project at the University of Alaska Fairbanks (UAF) Seward Marine Center. He used 3D modeling software to calculate dredge limits and quantities. Josh provided permitting support and contract administration services, as well.



*Corey Roche, PE, SE | Structural Engineer*

PND Principal Engineer Corey Roche will serve as our structural engineering lead for this project. Corey has more than 11 years of professional experience providing design, planning, construction support, and inspection services for docks, roads, and other site-civil-related projects. Prior to working at PND, Corey worked as a certified welder and heavy equipment operator for six years in remote Alaska, giving him unique insight into project constructability. His construction experience includes installation of deep foundations, wind turbines, and bulk fuel facilities. Corey has performed comprehensive dock condition inspections, assessments, and design for several marine infrastructure projects, from the Alaska Peninsula to the North Slope of Alaska, including site inspections and design recommendations at the Port of Nome.

**TITLE**

- » PND Principal Engineer VI

**ROLE**

- » Structural Engineering Lead

**EDUCATION**

- » B.S., Civil Engineering, University of Alaska Anchorage

**REGISTRATION**

- » Professional Civil Engineer: AK-PE-106463
- » Professional Structural Engineer: AK-SE-126432

**CERTIFICATIONS**

- » ACI: Grade I Concrete Field Testing Technician
- » AWS: Welding Inspection

**REFERENCES**

- » Scott Korbe, Public Works Director, City of Whittier, 907.472.2327
- » Brenton Savikko, PE, PMP, Project Manager, Santos, 907.646.7004
- » Adam Gabrielson, Project Engineer, ConocoPhillips Alaska, 907.265.6044

**CHIGNIK SMALL BOAT HARBOR EXPANSION | Chignik, AK. Structural Engineer.** Corey provided marine structural design for this key infrastructure project within the Chignik Small Boat Harbor, which supports a commercial fishing fleet on the Alaska Peninsula. PND provided permitting, design criteria, performance specifications, bidding support, design review, and construction support services on this design-build project, which delivered a usable facility tailored to fit within the available project budget. Corey performed vertical and lateral structural analysis and designed a 50-ton boatlift structure and 360-foot-long heavy-duty steel float system.

**VALDEZ SMALL BOAT HARBOR MAJOR RECONSTRUCTION | Valdez, AK. Structural Engineer.** PND is completely replacing the floats on the H-K system for the City of Valdez, including providing new utilities and gangways, a key marine infrastructure project that was born from the Valdez Comprehensive Waterfront Master Plan. PND provided plans, specifications, and cost estimates for replacing the boat launch ramp, Travelift Dock and gangway, as well as the Tour Dock float system, including utilities and ADA access. Corey served as PND's lead marine structural designer for the float system and assisted in securing the U.S. Army Corps of Engineers Department of Army Permit and Section 408 review.

**ST. HERMAN HARBOR IMPROVEMENTS | Kodiak, AK. Structural Engineer.** Corey recently worked with the City of Kodiak in a scoping effort to assist the city in front-end engineering and planning to replace the St. Herman Harbor float system and initiate upland improvements. Corey performed condition inspections and developed concept layouts and project design criteria to be used in later design phases.

**UNISEA G1 DOCK REPLACEMENT | Unalaska, AK. Structural Engineer.** The G1 Dock at the UniSea seafood processing facility in Unalaska required replacement due to severe corrosion and damage. Corey performed existing-condition inspections and developed a condition and recommendations report, then assisted with PND's design of a new 450-foot-long OPEN CELL SHEET PILE™ (OCSP) dock for this critical vessel offload facility, providing nearly an acre of new uplands.

**AML MARINE TERMINALS | Kodiak & Unalaska, AK. Structural Engineer.** Corey provided marine structural design for Alaska Marine Lines (AML) marine terminal facilities in Womens Bay and Dutch Harbor, both of which serve barges and other vessels within the AML/ Lynden fleet. The facilities consist of two teardrop-shaped OCSP bulkheads, adjustable roll-on/roll-off access ramps, vessel mooring/berthing points, approximately 2.5 acres of uplands storage area, and overhead lighting. Corey assisted with design, bidding, and fabrication, and he served as the on-site engineer during construction.





*Torsten Mayrberger, PE, PhD | Geotechnical Engineer*

PND Principal Engineer Torsten Mayrberger will serve as our geotechnical engineering lead for this project. Torsten has more than 20 years of professional experience involving rock mass structures, deep foundation design in non-permafrost and permafrost soils, and large remote arctic and marine geotechnical investigations. Torsten has led most of PND's geotechnical investigations for the past decade. He has considerable experience with geotechnical testing, investigation, and design for marine facilities and has managed numerical, differential settlement, and slope stability analyses – as well as on- and offshore drilling programs – to aid in marine infrastructure design. Torsten supervises PND's AASHTO/ASTM-accredited soils-materials laboratory and arctic cold room facility at our Anchorage office.

**TITLE**

- » PND Principal Engineer VI

**ROLE**

- » Geotechnical Engineering Lead

**EDUCATION**

- » PhD, Civil Engineering (geotechnical emphasis), Michigan Technological University
- » M.S., Civil Engineering (geotechnical emphasis), Michigan Technological University
- » B.S., Civil Engineering, University of Alaska Anchorage

**REGISTRATION**

- » Professional Civil Engineer: AK-PE-14702

**REFERENCES**

- » Aaron Huey, Project Manager, ConocoPhillips Alaska, 907.263.4675
- » Rich Giessel, PE, Statewide Quality Assurance Engineer, Alaska DOT&PF, 907.269.6244
- » Tom DePeter, Owner, Onyx Drilling, 907.378.9837

**CHEFORNAK ENGINEERING SUPPORT | Chefnak, AK. Geotechnical Engineer.**

Torsten led PND's geotechnical efforts for the analysis and development of infrastructure to protect the Village of Chefnak from settlement issues due to erosion, flooding, and permafrost thaw. Torsten managed and performed geotechnical investigations to assess thawing along the Kinia River, evaluate permafrost conditions, and delineate subsurface conditions. PND's in-depth analysis predicted current and future permafrost conditions in an effort to help with village relocation efforts and eventual foundation design for new buildings, a subdivision, and a barge landing that improved transportation efficiency and reduced safety risks during lighterage services while loading/offloading freight.

**CHIGNIK PUBLIC DOCK | Chignik, AK. Geotechnical Engineer.** Torsten managed the geotechnical investigation and materials testing for this new bulkhead dock in Chignik Bay. On- and offshore drilling provided information for dock design and usage of an upland stockpile. Results from previous nearby drillholes were compared and integrated into the design dataset to improve the understanding of the site. All materials were tested in PND's soils laboratory at our Anchorage headquarters. The all-tide, deep-draft dock serves as the regional public dock and Alaska State Ferry terminal.

**SAND POINT DOCK/FERRY TERMINAL | Sand Point, AK. Geotechnical Engineer.**

PND replaced the city's 35-year-old steel pile-supported dock used for both cargo and Alaska Marine Highway System traffic. PND was responsible for preliminary engineering reports, permitting, topographic/bathymetric survey, metocean study, geotechnical analysis, detailed dock design and specifications, nonlinear seismic analysis, prestressed concrete design, steel and concrete seismic detailing, bid support, and construction administration. Torsten managed numerical analysis of the existing and expanded causeway to evaluate total and differential settlement and stability. He performed slope stability analysis using Ensoft LPile, Rocscience Slide, and Settle3D.

**KODIAK PIER III REPLACEMENT | Kodiak, AK. Geotechnical Engineer.** PND provided master planning services to review replacement options for this container terminal serving the Kodiak community. PND performed concept engineering, conducted geotechnical and metocean studies at the exposed site, managed and oversaw wave tank testing to examine replacement alternatives, performed detailed design, and provided construction administration and quality assurance support for the project. Torsten led the field investigation for the on- and offshore exploration of the cargo-handling dock. Eight marine- and barge-supported boreholes were advanced to 100 feet below mudline, then his geotechnical team conducted laboratory testing of recovered soil and rock samples in our Anchorage laboratory and developed a report summarizing our findings for the client.



*Michael Umgren, PE | Coastal Engineer*

PND Senior Engineer Michael Umgren will serve as our coastal engineering lead for this project. Michael has more than 10 years of coastal and water resources engineering and research experience. Michael was previously a coastal engineering research professional at the University of Alaska Anchorage, where he conducted wave and storm surge modeling, shoreline change modeling, sediment transport studies, and thermal modeling. Michael is experienced at computing wave loads on marine structures, calculating wave transmissions, and conducting mooring analyses using MIKE 21 and Optimoor modeling programs. He has extensive project experience on the North Slope of Alaska, including recent project experience on the Port of Nome Modification Project in Northwest Alaska.

**TITLE**

- » PND Senior Engineer III

**ROLE**

- » Coastal Engineering Lead

**EDUCATION**

- » M.S., Civil Engineering, University of Alaska Anchorage
- » B.S., Civil Engineering, University of Alaska Anchorage

**REGISTRATION**

- » Professional Civil Engineer: AK-PE-145780

**REFERENCES**

- » Dr. Tom Ravens, PhD, Civil Engineering Professor, University of Alaska Anchorage, 907.786.1943
- » Dr. Li Eriksson, PhD, Research Oceanographer, USGS, 832.374.6288
- » Garrett Yager, PE, Surface Water Department Manager, Michael Baker International, 907.273.1608

**CHEFORNAK ENGINEERING SUPPORT | Chefnak, AK. Coastal Engineer.** Climate change has accelerated erosion, flooding, and permafrost thawing in the Village of Chefnak, located on the south bank of the Kinia River. PND led the development of large-scale erosion- and flood-protection measures, village relocation planning, and design for buildings and marine facilities that had become unusable due to settlement issues. Michael prepared the metocean design criteria report with predicted recurrence intervals of extreme fetch-limited waves and estimated design vessel wake, as well as calculated water levels during extreme high-water conditions. Extreme currents at the berths were calculated by accounting for tides, storm surge, and peak streamflow during spring breakup.

**PORT OF NOME MODIFICATION PROJECT | Nome, AK. Coastal Engineer.** Michael provided coastal engineering services for this major port expansion project for the City of Nome and its project partner, the U.S. Army Corps of Engineers. Phase I of the project, which is 100% design-complete and scheduled for construction in 2025, focuses on expanding the existing ~2,500-foot-long armor stone causeway by 3,500 feet and adding a new sheet-pile bulkhead that will provide more than 2,000 feet of new dock and an additional 10 acres of additional uplands storage for the port. Michael performed a dynamic mooring analysis using MIKE 21 and Optimoor to predict loads in mooring components for the Norwegian Sun cruise ship. The Delft3D modeling system was used to predict the nearshore wave climate associated with a two- and five-year wave climate.

**ARRC SEWARD PASSENGER DOCK REPLACEMENT | Seward, AK. Coastal Engineer.** Michael performed a dynamic mooring analysis based on multiple concepts using MIKE 21 and Optimoor to predict loads in mooring components for the Royal Caribbean’s Quantum and Radiance of the Seas cruise ships. He designed a riprap revetment by accounting for the predicted wave climate associated with a 50-year storm event and the angle of attack at the passenger dock. He performed propwash scour calculations to predict toe scour at the sheet-pile/seabed interface.

**AMHS AUKE BAY FERRY TERMINAL REPLACEMENTS | Juneau, AK. Coastal Engineer.** PND is providing multidisciplinary services, including condition assessments of the existing Auke Bay East Berth and West Berth facilities, for upgrading the ferry terminal in stages to minimize downtime and address undetermined funding sources. Michael performed a static mooring analysis and a berthing analysis at the highly trafficked Auke Bay facility along the Alaska Marine Highway System. The analysis involved assessments of existing marine fenders and mooring bollards, as well as a report summarizing the findings and providing suggestions to the Alaska Department of Transportation & Public Facilities for improvements to the facilities.





## Alexander Khokhlov | Metrocean Scientist

PND Senior Metrocean Scientist Alexander Khokhlov will provide metrocean analysis and coastal engineering services on this project. Alexander has more than 22 years of professional experience in metrocean data collection, coastal processes analysis, and numerical wave modeling for port and harbor engineering, shore protection, and other coastal and marine facility projects across Alaska. He is proficient with computer numerical wave models such as MIKE 21, SWAN, and STWAVE and is experienced with surface hydrology, geotechnical investigations, and planning for numerous metrocean and hydrological investigations and design projects. Alexander has extensive project experience on the North Slope and Northwest Alaska, including recent project experience at the Port of Nome.

### TITLE

- » PND Senior Metrocean Scientist IV

### ROLE

- » Coastal Engineering & Metrocean Analysis

### EDUCATION

- » M.S., Coastal Engineering, University of Alaska Anchorage
- » M.S., Mechanical Engineering, Moscow Institute of Technology

### REFERENCES

- » Joy Baker, Port Director, City of Nome, 907.304.1905
- » Cody Emmett, Operations, ExxonMobil, 907.230.9327
- » Chris Wrobel, Environmental Permitting Supervisor, ConocoPhillips Alaska, 907.868.1185

**CHEFORNAK ENGINEERING SUPPORT | Chefnak, AK. Metrocean Scientist.** Alexander was the lead field engineer for hydrology studies conducted for the Village of Chefnak, a project that included a new barge landing to support the community in loading/off-loading freight. The hydrologic reconnaissance included field surveys, metrocean data collection, and assessment of erosion processes along the river affecting the village and causing floods and riverbank erosion. He performed water-level analyses and return-period calculations to estimate the magnitude of potential storm surges and the rate of shoreline erosion.

**PORT OF NOME ARCTIC DEEPWATER PORT FEASIBILITY STUDY | Nome, AK. Metrocean Scientist.** Alexander evaluated alternatives for a deepwater port in Nome, including expansion of the existing harbor versus construction of a new port. His work involved field measurements of waves, currents, and ice, as well as sediment transport, dredging, and downtown port analyses due to wind, waves, and ice. PND is now managing the Port of Nome Modification Project, a multiphased effort that will ultimately position the Port of Nome as the northernmost deep-draft arctic port in North America, greatly enhancing the Nome community's capacity for accommodating the growing maritime demands in the region.

**SAND POINT DOCK/FERRY TERMINAL | Sand Point, AK. Metrocean Scientist.** PND provided design engineering services to replace the city's 35-year-old steel pile-supported dock used for both cargo and Alaska Marine Highway System traffic. Alexander forecasted metrocean criteria and extremal events for calculating loads and design of key dimensions on the proposed marine infrastructure. His work included desktop calculations; he applied SWAN and MIKE 21 numerical models to estimate the design wave conditions at the project site.

**KODIAK PIER III REPLACEMENT | Kodiak, AK. Metrocean Scientist.** PND provided master planning services to review replacement options for this container terminal serving the Kodiak community, including metrocean studies at the exposed site and wave tank testing to examine the replacement alternatives. Alexander analyzed winds and waves for replacing the aging cargo-handling dock. The analysis focused on wave effects on ship motions at the dock and the operational limits of sea conditions. He also measured waves and currents at the site and applied numerical models to investigate wave penetration and ship motions at the dock.

**NOAA FAIRWEATHER HOMEPORT RECAPITALIZATION | Ketchikan, AK. Metrocean Scientist.** Alexander analyzed winds, waves, and currents and prepared a coastal engineering assessment for replacing the NOAA Fairweather Homeport marine facilities in Ketchikan. He used desktop calculations and MIKE 21 numerical modeling to estimate the design of wave conditions at the project site and around the proposed marine infrastructure. He used Optimoor Plus to perform numerical mooring and berthing modeling.



## Brenna Hughes | Environmental Scientist

PND Senior Environmental Scientist Brenna Hughes will lead project permitting and provide regulatory support services. Brenna has more than 15 years of professional experience in project management and execution in Alaska. She joined PND in 2016 to manage regulatory processes requiring environmental planning, permit applications, consultation documents, wetland investigations, environmental sampling, pollution prevention planning, and research/documentation for project NEPA review. Brenna's projects include port and harbor construction, dredge management, community planning, federal lands management, and linear transportation projects. She routinely performs environmental/physical site surveys, prepares biological/environmental assessments, and coordinates with multiple state/federal agencies.

### TITLE

- » PND Senior Environmental Scientist V

### ROLE

- » Project Permitting & Regulatory Processes Lead

### EDUCATION

- » M.S., Science Management, University of Alaska Anchorage
- » B.S., Geology, University of Alaska Fairbanks

### CERTIFICATIONS

- » AK-CESCL: Erosion & Sediment Control Lead
- » NSPS: Hydrographer
- » USACE: Wetland Delineation

### REFERENCES

- » Jed Dixon, Project Manager, Crowley Fuels, 907.777.5598
- » Joy Baker, Port Director, City of Nome, 907.304.1905
- » Norm Regis, Harbormaster, City of Seward, 907.224.3138

**CROWLEY DOCK REPAIRS & REPLACEMENT | Kotzebue, AK. Project Permits.** This project required preparation of an Incidental Harassment Authorization (IHA) application, a Subsistence Plan of Cooperation, and a combined Biological Assessment (BA) and Essential Fish Habitat (EFH) assessment. Brenna coordinated early engagement of agency reviewers to expedite final permit receipt. The project required extensive modeling of underwater construction sounds and marine mammal occurrence and activities to assess construction impacts. Brenna assisted during the construction phase as a Protected Species Observer advisor and prepared final observation reports to permitting agencies after project completion.

**PORT OF NOME MODIFICATION PROJECT | Nome, AK. Environmental Review Support.** PND is currently providing engineering services for this joint City of Nome and USACE deepwater port project. Although responsibility for environmental review of the federal action remains with USACE, PND is coordinating Endangered Species Act (ESA) consultation and Marine Mammal Protection Act (MMPA) compliance in order to expedite permitting. Brenna fills an advisory and quality control role for this task.

**UNALASKA MARINE CENTER EXPANSION | Unalaska, AK. Project Permits.** Brenna supported spatial analysis and reporting on a pre-construction observer program to update marine mammal occurrence data in Dutch Harbor for incidental take requests. Following program completion, she prepared the project's BA and IHA application for in-water construction. This project was one of the first to adopt NOAA's modern guidance for assessing underwater sound effects and has been used as a model for subsequent project implementation.

**VALDEZ SMALL BOAT HARBOR MAJOR RECONSTRUCTION | Valdez, AK. Project Permits.** PND designed replacement floats on the H-K system for the City of Valdez, including new utilities and gangways. PND provided design and contracting support for replacing the boat launch ramp, Travelift Dock and gangway, as well as the Tour Dock float system. Brenna provided support and management for the environmental team's acquisition of project permits, and she is providing ongoing advisement to the city regarding environmental commitments.

**ARRC SEWARD FREIGHT DOCK EXPANSION | Seward, AK. Project Permits.** PND designed the ARRC Freight Dock in the late 1990s to separate freight traffic from what is now the Passenger Dock. ARRC is now seeking to expand and improve the freight dock and associated transportation corridor to accommodate increasing demand and vessel size. PND's environmental team prepared a draft EA and are now acquiring the necessary IHA and ESA consultation to finalize the EA. Brenna prepared the draft permit documents and is currently managing completion of the environmental permitting process.





*Iain Brown, PLS | Land Surveyor*

PND Senior Surveyor Iain Brown will serve as our team's land surveying lead for this project. Iain has more than 12 years of professional experience in Alaska, including specialized land- and water-based survey experience executing complex field programs in remote and rural locations. Iain has led PND's survey services for several waterfront infrastructure development projects, including the Crowley Dock Repairs & Replacement Project in Kotzebue. His work encompasses control, topographic, and hydrographic surveys, as well as establishing and resolving boundaries, right-of-way (ROW) research and staking, ROW agreements, construction, as-builts, and platting. Iain and his team feature an array of modern surveying technology, software, and skills, including FAA-certified drone pilots for aerial photography.

**TITLE**

- » PND Senior Surveyor III

**ROLE**

- » Land Surveying Lead

**EDUCATION**

- » B.S., Geomatics, University of Alaska Anchorage

**REGISTRATION**

- » Professional Land Surveyor: AK-PLS-107707

**CERTIFICATIONS**

- » FAA: 14 CRF Part 107 Unmanned Aerial System Pilot

**REFERENCES**

- » James Wilson, Manager, Bristol Bay Borough, 907.246.4224
- » Stan Brown, Survey Unit Manager, Alaska Department of Natural Resources, 907.269.8521
- » Steve Miller, Deputy Refuge Manager, Kenai National Wildlife Refuge, 907.260.2805

**CROWLEY DOCK REPAIRS & REPLACEMENT | Kotzebue, AK. Land Surveyor.** Iain managed PND's survey program for this project, which included implementing an emergency temporary bulkhead as well as permanent bulkhead replacement repairs. Iain performed upland and bathymetry survey of the main dock area and shipping channel, then processed a replat of multiple lots and prepared legal descriptions and exhibits for several new easements.

**CHEFORNAK ENGINEERING SUPPORT | Chefnak, AK. Land Surveyor.** Iain assisted PND's village relocation and shore protection services for the Village of Chefnak and the Chefnak Traditional Council. He provided survey for the geotechnical investigation, relocation site investigation and selection, new subdivision design, and temporary and permanent barge landing design. The replacement barge landing consists of an access ramp developed from gravel and locally available armor rock to extend the landing into the Kinia River, back to its original footprint.

**STEBBINS SHORE PROTECTION | Stebbins, AK. Land Surveyor.** Located on the Bering Sea coast, Stebbins is vulnerable to flooding and shoreline erosion from coastal storm surge. PND assessed the shoreline revetment west of the community, analyzed flood and erosion risk, and developed shoreline and flood protection concepts with cost estimates for future planning and grant funding acquisition. Iain's team performed large-scale topographic and bathymetric surveys to support the effort, including a topographic survey of approximately 200 acres and a bathymetric survey encompassing more than 800 acres. Iain also performed a control survey and boundary retracement.

**VALDEZ SMALL BOAT HARBOR MAJOR RECONSTRUCTION | Valdez, AK. Land Surveyor.** Iain coordinated and scheduled all survey fieldwork, performing research for control and boundary issues and coordinating utility locates for this float replacement project identified as a key marine infrastructure improvements project from the Valdez Comprehensive Waterfront Master Plan. He performed an uplands survey along the existing harbor, a detailed as-built of all relevant aboveground features and the existing floats, topographic survey sufficient for 1-foot contour intervals, and isolated bathymetric survey at areas of interest.

**YAKUTAT SMALL BOAT HARBOR IMPROVEMENTS | Yakutat, AK. Land Surveyor.** PND is designing harbor improvements for the existing gangway, moorage floats, utility systems, and piling on floats A-E for the City & Borough of Yakutat on this MARAD-funded Port Infrastructure Development Program project. Iain performed an existing conditions as-built topographic and bathymetric survey. He as-built the harbor infrastructure, adjacent uplands, and utilities to develop a basemap for design, as well as developed a comprehensive boundary retracement for the associated Alaska Tideland Surveys.



## Dave Shumway, PE | Fuel Systems Engineer

AMC Vice President & Principal Engineer Dave Shumway has more than 30 years of extensive mechanical systems design, commissioning, and troubleshooting experience for both commercial and institutional facilities, covering all levels of complexity. Dave has successfully designed numerous fuel oil storage and transfer systems throughout Alaska. His experience ranges from simple fuel oil storage tank one-for-one replacements to the complete design and commissioning of a new 90,000-gallon fuel storage system supporting an 8 megawatt diesel generator emergency power plant serving an area hospital. He is very familiar with the current code surrounding fuel systems design and has been involved with detailed expert witness cases involving fuel systems and related fuel oil soil contamination.

### TITLE

- » AMC Vice President & Principal Engineer

### ROLE

- » Mechanical Engineering & Fuel Systems Design

### EDUCATION

- » M.S., Nuclear Engineering, U.S. Naval Nuclear Power School
- » B.S., Mechanical Engineering, University of Massachusetts Lowell

### REGISTRATION

- » Professional Mechanical Engineer: AK-PE-8815

### CERTIFICATIONS

- » ASHRAE: Building Commissioning Professional (BCxP)

### REFERENCES

- » Chris McConnell, Director of Facilities, UAA, 907.786.6764
- » Anna Harrison, Director of Facilities, Alaska Court System, 907.903.9615
- » Larry Embley, Project Manager, Circle Plumbing & Heating, 907.830.5787

**EGEGIK DOCK & FUEL LINE | Egegik, AK. Mechanical Engineer.** Dave assessed the mechanical design of a new fuel transfer system as part of this dock rejuvenation project. The fuel pipeline system included a dock-mounted fuel delivery manifold and both above- and below-ground fuel transfer piping connecting to a nearby (shore-based) fuel storage facility. The fuel delivery manifold includes cam-lock hose connections, isolation valves, back-flow preventers, and small spill containment inside a weather enclosure to minimize the potential of dockside fuel spills. The pipeline includes full thermal relief protection and conveniently located "taps" for periodic hydrostatic pressure testing and system drainage. The pipeline is protected from corrosion damage using an extruded exterior pipe coating with an engineered passive (sacrificial anode) cathode protection system. The dock's active cathodic protection system (pad mounted transformer, branch circuit panel, system rectifier) was coordinated with a corrosion protection consultant. All equipment materials were specified for continuous operation in a harsh outdoor marine environment.

**ANCHORAGE AIRPORT RUNWAY MAINTENANCE VEHICLE FUELING STATION | Anchorage, AK. Mechanical Engineer.** Dave designed this custom 30,000-gallon fleet refueling system for the ANC Quick Turn-Around Facility (QTF). High-output specialty fueling stations top off large runway maintenance vehicles and auxiliary equipment in minutes. An innovative remote underground fuel storage tank refill station allows tanker trucks to refill the fueling station storage tanks while staying well clear of runway maintenance vehicle refueling operations. A fully automated fuel measurement and leak detection monitoring system safety manages the facilities' fuel inventory. A specialized fleet vehicle card reader system with vehicle ID and proximately sensors prevent fuel theft.

**FUEL SYSTEM FAILURES | Anchorage, AK. Expert Witness.** Dave served as an expert witness for fuel storage and dispensing-related cases. He was responsible for the impartial technical review of design documents, physical system installation, and owner operation/maintenance practices to determine the root cause of fuel containment system failure. This experience allowed Dave to develop a strong understanding of the subtle nature of fuel system design.

**FLEET FUELING STATION | Anchorage, AK. Expert Witness.** Dave evaluated the design and installation of a fleet fueling station at a local area fire station. The fueling station dispensing pump was unable to dependably deliver fuel due to chronic vapor locking. Dave determined that the fuel transfer piping system design would not allow for proper net positive suction head (NPSH) at the fuel transfer pump suction. The problem was determined to be design rather than installation/operation-related.





*Craig B. Leidersdorf | Coastal Engineer*

Coastal Frontiers Founder & Principal Engineer Craig Leidersdorf has more than 40 years of professional experience encompassing research and practical applications in the disciplines of coastal and harbor engineering, oceanography, and Arctic sea ice. His areas of particular emphasis include sediment transport, coastal processes, shore protection, nearshore oceanography, field data acquisition, and construction supervision. Craig manages both focused engineering studies and general multidisciplinary programs. His representative projects include project route selection for module delivery in the Willow Development, sediment transport assessment for Point Thomson, and an analysis of potential harbor sites on northeast Sakhalin Island in Russia.

**TITLE**

- » Coastal Frontiers Founder & Principal Engineer

**ROLE**

- » Coastal Engineering & Sediment Transportation

**EDUCATION**

- » M.S., Coastal & Ocean Engineering, University of California, Berkeley
- » B.S., Civil Engineering, Stanford University

**REFERENCES**

- » Thomas Barter, Production Lead, ConocoPhillips, 907.360.1757
- » John McCall, Petroleum Engineer, Bureau of Safety & Environmental Enforcement, U.S. Department of the Interior, 907.334.5308
- » Chuck Mesa, Engineering Technical Lead, USACE L.A. District, 213.452.3678

**COASTAL EROSION STUDIES FOR FACILITIES SITING | North Slope, AK. Coastal Engineer.**

The Beaufort Sea coast is subject to wave-induced and thermal erosion. Wave-induced erosion is most pronounced during westerly storms due to the rise in sea level (storm surge) that accompanies such events. The uniquely Arctic phenomenon of thermal bluff erosion can result not only from sea water thawing the base of the bluff but also from elevated air temperatures thawing ice lenses embedded in the bluff face. The rate of coastal retreat is governed by a combination of wave and thermal erosion at many Arctic coastal locations, with thawed sediments augmenting the beach before being carried away by waves. Craig investigated coastal erosion and the potential for ice encroachment at numerous Arctic sites to determine appropriate setback distances for coastal facilities over their intended service lives. The facilities have included coastal production pads as well as shore-crossing sites for subsea pipelines. In those instances where the natural erosion rate is unacceptably high, facilities can be protected by methods that include armoring the shoreline or insulating the bluff face with granular fill material.

**NORTHSTAR DEVELOPMENT | North Slope, AK. Coastal Engineer.**

Coastal Frontiers was selected to serve as a member of the Northstar Development Alliance in 1995. The group designed and constructed the first free-standing Arctic offshore production facility requiring a subsea pipeline. Northwest of Prudhoe Bay, the Northstar Development includes an armored production island, designed by PND, in a water depth of 38 feet and a buried pipeline that extends 6 miles from the island to a shore crossing the mainland coast. Craig provided engineering support for the design and construction of the project facilities and continues to provide post-construction monitoring and maintenance advisory services.

**WEST DOCK EROSION CONTROL & SLOPE PROTECTION STRATEGY | North Slope, AK. Coastal Engineer.**

The West Dock Causeway is the marine transportation center for petroleum activities on Alaska's North Slope. The initial segment was constructed as a dock in 1974-75, followed by extensions in 1976-77 and 1981, the addition of a seawater intake structure in 1983, and the installation of an oil production facility in 1991. Much of the causeway is protected by sacrificial beaches, but revetments and groins have been added in areas susceptible to accelerated erosion or containing topside facilities of high value. During the early years, Craig provided inspections and maintenance recommendations, as well as coastal engineering design support, for the Point McIntyre oil production pad. In 2004, Coastal Frontiers was selected to develop and implement a comprehensive plan for inspection, maintenance, and improvement of the various slope protection systems.



## Peter Briggs. PLA | Waterfront Planning & Engagement

Corvus President & Principal Landscape Architect Peter Briggs has more than 25 years of experience as a landscape architect and planner, and he has managed over 500 projects since he founded the company in 2006. Relevant to waterfront planning, Peter's expertise is developing stakeholder and public engagement strategies, quantitative planning related to spatial layouts and user experiences, and incorporating communication tools and reports that convey the project effectively to their target audiences. Peter has a close relationship with PND and its staff, both as a prime consultant and subconsultant. Our firms regularly support one another in waterfront planning projects and have effectively collaborated on more than 30 past performances, including our ongoing efforts at the Port of Nome.

### TITLE

- » Corvus President & Principal Landscape Architect

### ROLE

- » Waterfront Planning & Stakeholder Engagement

### EDUCATION

- » MLA, University of Guelph
- » B.S., Environmental Protection, University of Guelph

### REGISTRATION

- » Professional Landscape Architect: AK-PLA-10737

### REFERENCES

- » Bryan Hawkins, Port & Harbor Director, City of Homer, 907.235.3160
- » Jeremy Talbott, Ports & Harbors Director, City of Valdez, 907.835.4564
- » Joy Baker, Port Director, City of Nome, 907.304.1905

### PORT OF NOME MODIFICATION PROJECT & STRATEGIC DEVELOPMENT PLAN | Nome, AK. Waterfront Planner & Engagement.

Peter has vast experience with developing visual simulations and exhibits that range from conveying the intent of a project to visual impact assessments that require high levels of accuracy. For the ongoing Port of Nome Modification Project and Port of Nome Strategic Development Plan, Peter assisted PND with public engagement, exhibit and report development, and computer-based visual simulations to realistically convey conceptual port planning. The first phase of the Port of Nome Modification Project is 100% design-complete, with construction scheduled for 2025. Corvus and PND are currently in Phase II of the Port of Nome Strategic Development Plan.

### PORT OF BRISTOL BAY WATERFRONT MASTER PLAN | Naknek, AK. Waterfront Planner & Engagement.

Peter assisted PND with developing graphics and illustrations to communicate various projects to its clients and the public. For this effort, Peter assisted PND with developing illustrative exhibits to communicate waterfront and harbor facility improvement options, evolving into final preferred designs.

### VALDEZ COMPREHENSIVE WATERFRONT MASTER PLAN | Valdez, AK. Waterfront Planner & Engagement.

Peter assisted PND with the planning effort for this comprehensive waterfront master plan, with a focus on engagement activities and graphics/narrative communication products. The master plan targeted harbor and dock improvements, cruise ship berth improvements, new business and housing development, marine service yard expansion, transportation and parking improvements, freight handling, parks, trails, and open space.

### MENDENHALL GLACIER RECREATION AREA MASTER PLAN | Juneau, AK. Waterfront Planner & Engagement.

Peter led the planning, public involvement, and NEPA effort while managing over a dozen subconsultants, including PND. The planning work quantified current and future demand and recommended the development of facilities while minimizing negative impacts. Corvus developed an interactive planning exercise that was a key component for creating community-centric solutions.

### LARGE VESSEL HARBOR CONCEPTUAL PLANNING | Homer, AK. Waterfront Planner & Engagement.

Corvus was hired to provide harbor layouts and illustrative plans to communicate conceptual-level options for harbor improvements. Peter led a public workshop and worked closely with harbor staff before and after to document the needed and desired improvements. The information was used to develop two conceptual alternatives: an expansion adjacent to existing harbor facilities, and a new jetty-accessed harbor area. The intent was to check back in with the community for this ongoing effort and to update communication tools for funders and partners.





*Tim Hall, PE | Electrical Engineer*

RSA Principal Engineer Tim Hall has more than 30 years of electrical engineering and design expertise. Tim honed his skills in the field as a journeyman electrician while pursuing his engineering degree, gaining invaluable insight into the intricacies of construction. Tim's proficiency spans all project phases, from initial pre-design consultations with clients to overseeing final construction. Tim has a specialized background in marine, dock, harbor and infrastructure projects. His comprehensive skillset encompasses planning, design, specification writing, construction administration, and troubleshooting. Tim's project portfolio extends across Alaska, encompassing both urban and rural regions of Alaska. He has an adept understanding of regulatory requirements, ensuring successful project outcomes for his clients.

**TITLE**

» RSA Principal Engineer

**ROLE**

» Electrical Engineer

**EDUCATION**

» B.S., Electrical Engineering, University of Alaska Fairbanks

**REGISTRATION**

» Professional Electrical Engineer: AK-PE-9131

**REFERENCES**

- » Luke Bowland, PE, Preconstruction Engineer, DOT&PF, 907.269.0891
- » Scott Benda, Senior Project Manager, City of Valdez, 907.835.5478
- » Chris Wolpert, Project Manager, UAA, 907.786.1275

**CROWLEY DOCK REPAIRS & REPLACEMENT | Kotzebue, AK. Electrical Engineer.**

In this collaboration with PND, Tim provided engineering management for RSA's design for upgrades to the bulkhead dock replacement. The design included dock lighting, extending new service to the dock, and shore power connections for vessels moored at the dock.

**KING COVE HARBOR MASTER PLAN | King Cove, AK. Electrical Engineer.**

In this collaboration with PND, Tim provided engineering management for RSA's assistance in developing master plan documents for various renovations at King Cove Harbor. The planning documents included T-dock repairs, warehouse building repairs, harbormaster building repairs and upgrades, small boat harbor H-float installation, small boat harbor electrical utilities analysis, harbor lighting upgrades, and harbor crane upgrades.

**VALDEZ SMALL BOAT HARBOR MAJOR RECONSTRUCTION | Valdez, AK. Electrical Engineer.**

In this collaboration with PND, Tim provided electrical engineering and consulting services for the concept study and review for the small boat harbor major upgrade project, which included replacing and reconfiguring floats and associated utilities for the H-K floats and the Tour Dock. The project also extended the launch ramp and replaced the utility systems on the A-J floats. Tim also provided engineering management for the design and construction of the harbor upgrades.

**ST. GEORGE PORT WELLHOUSE UPGRADES | St. George, AK. Electrical Engineer.**

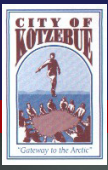
In this collaboration with PND, Tim provided electrical design for adding a water fill station at the existing port wellhouse. The electrical design included new power service and distribution, distribution panel, light fixtures, and circuits.

**PORT OF OUZINKIE BOAT HARBOR BULKHEAD | Ouzinkie, AK. Electrical Engineer.**

In this collaboration with PND, Tim provided electrical design services for this project, which included a load center for the connection of a new crane and generator. The overhead lines were removed from existing utility poles, and the project also included removal of buried wood electrical service poles, meter and service equipment, and motor control equipment for the existing crane.

**SEWARD MARINE INDUSTRIAL CENTER EXPANSION | Seward, AK. Electrical Engineer.**

Tim designed the electrical systems for harbor expansion at the existing Seward Marine Industrial Center, which included design of a wave barrier/breakwater system and harbor dock and float system for accommodating moorage and dockside support/maintenance for fishing vessels of various sizes. The design included existing utilities and infrastructure to support the expansion. The electrical systems included power, lighting, telecommunications, electronic security systems, utility extensions, and dock infrastructure.



*Mark Frischkorn, PE | Mechanical Engineer*

RSA Vice President & Principal Engineer Mark Frischkorn has nearly 35 years of mechanical engineering and design expertise. Mark's technical responsibilities are comprehensive, covering system conception, layout, code compliance, design analysis, technical specifications, equipment sizing and selection, and construction administration services. Mark excels in management, including fostering client relations, ensuring project expectations are met, and providing expert design guidance. His diverse portfolio encompasses a wide range of projects, from educational facilities and office complexes to power plants and industrial buildings, including challenging projects in rural and arctic regions of Alaska for private industries, state and federal governments, and non-profit organizations.

**TITLE**

- » RSA Vice President & Principal Engineer

**ROLE**

- » Mechanical Engineer

**EDUCATION**

- » B.S., Mechanical Engineering, University of Colorado

**REGISTRATION**

- » Professional Mechanical Engineer: AK-PE-8975

**REFERENCES**

- » Dena D. Strait, Capital Improvements Project Manager, DD Strait Consulting, 907.440.9443
- » Mark Fineman, PE, Vice President of Development, Cook Inlet Housing Authority, 907.793.3036
- » Shay Throop, Maintenance & Operations Director, Municipality of Anchorage, 907.343.8104

**NPS WEAR CORNER HOUSE FIRE SUPPRESSION | Kotzebue, AK. Mechanical Engineer.**

Mark provided mechanical engineering services to the National Park Service (NPS) for installing a new National Fire Protection Association 13D wet-pipe fire suppression system to the Corner House at Western Arctic National Parklands in Kotzebue. The building is an approximately 425-square-foot single-family residence and is unoccupied by tenants.

**ALASKA AIRLINES TERMINAL CONDITION SURVEY | Prudhoe Bay, AK. Mechanical Engineer.**

Mark provided design narratives for the mechanical and electrical work necessary for two optional upgrades at the airline terminal. RSA provided a written report that included a description of the systems, the condition and remaining useful life of the existing equipment, code and life safety issues, as well as recommendation for repairs with rough order of magnitude costs to implement the recommended improvements.

**ANCHORAGE REGIONAL LANDFILL HAZARDOUS WASTE STORAGE BUILDING & ADMINISTRATION BUILDING CONTROLS REPLACEMENT | Anchorage, AK. Mechanical Engineer.**

Mark provided staff oversight and quality control for this Municipality of Anchorage project. Mark provided performance specifications for direct digital controls of all equipment throughout the hazardous waste disposal facility, including room exhaust fans, makeup air handlers, heating system pumps, and boilers.

**ANCHORAGE WATER & WASTEWATER TREATMENT FACILITY | Anchorage, AK. Mechanical Engineer.**

Mark provided mechanical design review and oversight for heating upgrades to the scum concentration system serving the entire 11,000-square-foot Anchorage Water & Wastewater Treatment Plant. The design requirements of the project included components for the scum concentrator, boxes, and collection hoppers, as well as heat exchangers for scum transfer piping. New circulator pumps were provided to serve each group of terminal units, which were located at each of the six clarifier tanks on campus.

**QUICK CARGO CENTER STORAGE FACILITY | Anchorage, AK. Mechanical Engineer.**

Mark provided design oversight for a new 200,000-square-foot Quick Cargo Center transfer facility at the Ted Stevens Anchorage International Airport. The facility includes seven aircraft hardstands, employee parking, taxiway connection to the runway, 11,400-square-foot office with mezzanine, 7,000 square feet of cold storage, utility areas, and a warehouse.





*Lucas E. Gamble | Environmental Scientist*

RSE Environmental Sciences Manager Lucas Gamble is a born-and-raised Alaskan with nearly 25 years of project management experience in the environmental sciences, including subsurface geoenvironmental investigations, hydrologic reconnaissance, groundwater studies, contaminant fate/transport, regulatory compliance, and sampling/analysis of environmental contaminants in marine and freshwater sediments. His project management experience provides program/technical support for a wide range of geologic and environmental science projects. Lucas regularly works with PND on various waterfront engineering projects, and he routinely shares his geological, hydrologic, and environmental knowledge to support various watershed groups and community action groups.

**TITLE**

- » RSE Environmental Sciences Manager

**ROLE**

- » Dredge Material Characterization

**EDUCATION**

- » M.S., Engineering Management, Montana State University
- » B.S., Environmental Science, University of Alaska Southeast

**CERTIFICATIONS**

- » ADEC: Qualified Environmental Professional

**REFERENCES**

- » Tyler Bones, HSSE Director, Alaska West Express, 907.328.4332
- » Shane Blanchard, PE, CRW Engineering, 907.562.2352
- » Brian Goodman, Environmental Engineering, Chugach Electric Association, 907.762.4562

**CASCADE POINT FERRY TERMINAL TIER I EVALUATION | Juneau, AK.**

**Environmental Scientist.** PND is providing comprehensive marine and uplands design, including a feasibility analysis, for a new ferry terminal facility on private Goldbelt property at Cascade Point in Juneau. The location requires significant marine and uplands development, as well as coordination with Goldbelt, to meet DOT&PF standards and provide the needed access and utilities for the waterfront facility. As a subconsultant to PND, Lucas performed a Tier I evaluation according to the 2021 Dredged Material Evaluation and Disposal Procedures User Manual per the USACE Dredged Material Management Program (DMMP). The evaluation established a “very low” ranking, excluding the project from Tier II testing.

**ILLIAMNA-NEWHALEN COMMUNITY DOCK | Iliamna, AK. Environmental**

**Scientist.** PND is providing complete design services for a new dock servicing the Iliamna and Newhalen communities in the Lake & Peninsula Borough. As a subconsultant to PND, Lucas prepared a sample analysis plan (SAP) using the recently released Alaska Dredged Material Evaluation Framework guidance for Alaska Department of Environmental Conservation, Environmental Protection Agency, and USACE approval. Lucas is presently overseeing a team of field scientists collecting lake bottom sediments in Lake Iliamna to support the offshore disposal of the dredge material.

**APL TERMINAL ONE DOCK DREDGING | Dutch Harbor, AK. Environmental**

**Scientist.** PND performed site and bathymetric survey, geotechnical investigation (including dredge material characterization), permitting, design, and construction administration/inspection for ship berthing/mooring upgrades, repairs, and dredging at the American President Lines (APL) Terminal One Dock in Dutch Harbor. As a subconsultant to PND, Lucas and his field team implemented a PND-prepared SAP to collect marine sediment samples in Makushin Bay for DMMP offshore disposal evaluation. Lucas was responsible for field management, sample QA/QC, and final project reporting.

**COOPER LAKE POWER PLANT TAILRACE DREDGE SAMPLING | Dutch Harbor, AK.**

**Environmental Scientist.** Lucas prepared a SAP for multiagency review and approval to collect freshwater sediment samples suspected of polychlorinated biphenyls (PCB) contamination from Kenai Lake to evaluate dredging methods and sediment disposal options for the Chugach Electric Association. Lucas provided environmental oversight of the freshwater sediment sampling, dredging program, and final disposition of PCB-contaminated lake-bottom sediments.

# PROJECT APPROACH

&

**methodology**





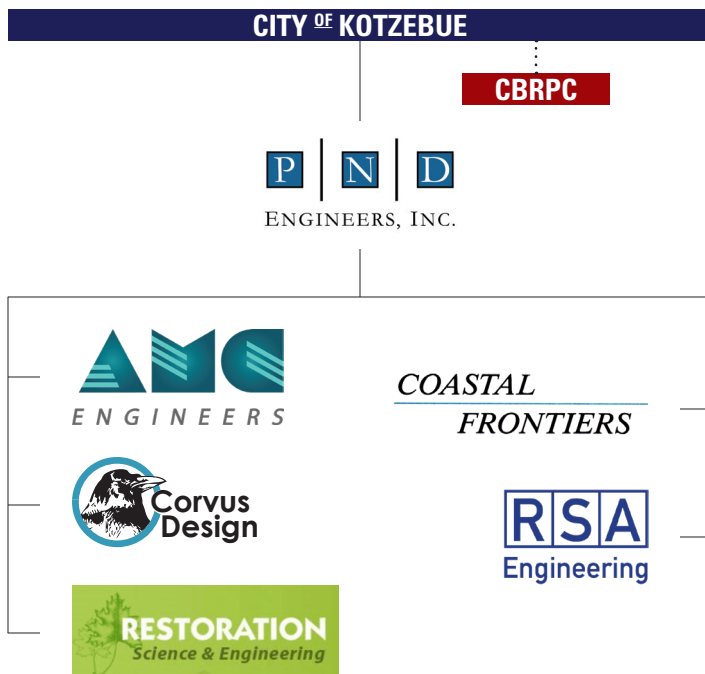


**PND** Engineers, Inc. (PND) understands the City of Kotzebue is seeking the services of an experienced marine/waterfront engineering team to work with the city, Northwest Arctic Borough (NAB), NANA Regional Corporation (NANA), U.S. Maritime Administration (MARAD), U.S. Army Corps of Engineers (USACE), and stakeholders to develop and implement the design of a new port facility located in Cape Blossom, Alaska.

The Cape Blossom port facility has long been envisioned as a key infrastructure asset to support regional maritime transportation and economic development. A new port facility would improve maritime transportation capabilities throughout the borough and would likely facilitate the import/export of resources and support local economies. The vision for Cape Blossom Port began in the early 1970s. The City of Kotzebue, in conjunction with the Alaska Department of Transportation & Public Facilities (DOT&PF) and USACE, evaluated a potential Kotzebue Small Boat Harbor and later an industrial park/port facility. The original studies revealed insufficient economic justification to advance the project but recommended reevaluation as the regional community grows. Additional studies were performed in the 1980s, producing similar results.

USACE conducted a feasibility study and environmental analysis in the 2010s to support the proposed Cape Blossom Port facility. The draft navigation improvements study in 2019 initially focused on siting the port at a Bureau of Land Management (BLM) plot located east of Cape Blossom. The recommended plan for the port facility included a 4,700-foot dredged channel to -26 mean lower low water (MLLW), with a dock located at the existing -12 MLLW elevation to be dredged to -26 MLLW; a 1,600-foot trestle was recommended for connecting the dock to shore. In 2020, following issuance of the draft plan, USACE terminated the project due to additional analysis that indicated likelihood for advanced coastal erosion at the proposed project site. In 2021, USACE developed an additional report – Site Conditions in the Vicinity of Cape Blossom – that identified three alternative port sites recommended for further study.

The project scope included in this proposal will further assess the three alternative port sites and develop a comprehensive plan and preliminary design for developing Cape Blossom Port. Additionally, our project team will evaluate the feasibility of long-term protection of the originally envisioned project site from thermal and mechanical erosion, if the original site is comparatively advantageous. Funding for this effort is being provided through a federal grant administered by MARAD. PND is uniquely qualified for providing engineering services for this project; we have current experience working with MARAD on Port Infrastructure Development Program (PIDP)-funded design projects, including the Yakutat Small Boat Harbor and Alaska Railroad Corporation (ARRC) Seward Freight Dock, each of



which PND provided complete permitting and regulatory support in addition to design services. PND has unmatched arctic port design and arctic coastal erosion expertise, including recent relevant experience in Kotzebue.

PND is currently the design engineer of record for the Port of Nome Modification Project, a collaborative effort with the City of Nome and USACE that is building the northernmost deepwater port in North America. PND also designed the Milne Inlet Ore Dock on Baffin Island in Nunavut, Canada, the northernmost deepwater vessel berth in the world. PND has designed several large-scale dock facilities on the North Slope of Alaska, as well, projects such as the Liberty and Northstar offshore islands in the Beaufort Sea, Point Thomson Development waterfront infrastructure, West Dock Causeway, and multiple facilities at Oliktok Point. PND, featuring several members of our proposed project team, recently provided planning, permitting, design, and construction support services for the Crowley Dock Repairs & Replacement Project in Kotzebue.

We understand the primary objective for this project is to develop a comprehensive plan and preliminary design for the proposed Cape Blossom Port. To meet this objective, PND and our team of subconsultants will provide the following services required to successfully deliver this project to the City of Kotzebue and its project partners:

- ◆ **Contract Management:** Ensure all contractual obligations with the City of Kotzebue are met.
- ◆ **Project Management:** Work closely with city staff to



maintain open and direct lines of communication; duties include managing subconsultants, providing quality assurance & quality control (QA/QC) for deliverables, and coordinating meetings, correspondence, scope, schedule, and budget with the City of Kotzebue.

- ◇ **Stakeholder Engagement & Public Involvement:** Coordinate design reviews and input from project stakeholders, including the City of Kotzebue, MARAD, USACE, tribes, native corporations, barge operators, vessel captains, community members, and other parties; develop and implement public involvement plan for community engagement.
- ◇ **Site Survey:** Provide additional survey data, including uplands and bathymetry as needed to supplement existing data. (Survey activities may also include planning for Alaska Tideland Lease acquisition for the project area, if needed.)
- ◇ **Permitting Support:** Provide all necessary regulatory applications/approvals for field investigations; provide overview of regulatory constraints and compliance requirements likely to affect design.
- ◇ **Geotechnical Engineering:** Examine existing geotechnical information, determine the need for further fieldwork, and develop designs for foundation systems. (PND believes sufficient historical geotechnical data are available to support conceptual design efforts at the project sites; however, additional investigation is recommended to support final design efforts.)
- ◇ **Dredge Material Characterization:** Provide characterization of dredge material and support environmental sampling for dredge disposal (if required).
- ◇ **Metocean Analysis:** Perform site-specific metocean analysis (wind, wave, current) to determine environmental criteria; perform site data acquisition (if required to confirm numerical modeling) using acoustic wave and current (AWAC) profiler wave gauges.
- ◇ **Coastal & Waterfront Engineering:** Perform coastal erosion assessments and sediment transport analyses to support site location assessment; perform vessel navigation, berthing and mooring analysis, and examine other aspects of vessel interfaces; design of revetment and other coastal protection components.
- ◇ **Structural Engineering:** Perform structural analysis and design for all facility structures according to current applicable codes, standards, and recommended practices to meet design objectives.
- ◇ **Electrical Engineering:** Provide planning and design for lighting and miscellaneous electrical needs to support general operations.
- ◇ **Mechanical Engineering:** Provide planning and design for fuel offload systems, storage, and miscellaneous mechanical needs to support general operations.

**PND** consistently delivers projects on schedule, within established budgets, and subject to various financial, physical, environmental, and regulatory constraints. We will facilitate accelerated project delivery by first reviewing City of Kotzebue goals and objectives, then determining the necessary resources to accomplish them. We will develop and commit to key milestones, review schedules, consistently communicate project progress, and work closely with the city when decisions must be made so that work can continue on schedule. Each team member will be accountable for meeting internal deadlines. PND will be supported on the Cape Blossom Port Planning & Design contract by the following subconsultants:

- ◇ **AMC Engineering:** AMC will provide design services related to the project's mechanical fuel system elements.
- ◇ **Coastal Frontiers:** Coastal Frontiers will provide metocean/coastal design support and sediment transport analyses.
- ◇ **Corvus Design:** Corvus will provide port planning support and stakeholder engagement services, including a public involvement plan.
- ◇ **Restoration Science & Engineering:** RSE will provide support for dredge characterization and environmental sampling.
- ◇ **RSA Engineering:** RSA will provide design services related to the project's electrical elements and mechanical systems.

PND has worked well with our select team of subconsultants on past projects and has firsthand knowledge of each other's abilities and resources. Together, we bring a wealth of experience and hard-earned success performing on projects that entail aggressive schedules with multiple project elements progressing concurrently. PND proposes a two-phase approach to the Cape Blossom Port Project: Phase I will review existing project data, scoping, development, and assessment of preliminary project concepts, which will allow our team to better define the overall scope and identify requirements for costly field investigations and advanced analyses; Phase II will include any necessary field investigations – such as site survey, field metocean studies, geotechnical investigations, etc. – and preliminary design advancement. The scope of Phase II services will be highly dependent on the selected location; preferred alternative, which will be identified in Phase I; and applicability of historical/background engineering efforts to the selected project alternative. Throughout the design process, PND will coordinate and attend routine project meetings to keep the city, project personnel, and stakeholders apprised of design progression. We will maintain a running action item list and comment register that will be covered at each meeting to ensure documentation of key decisions as the design progresses.





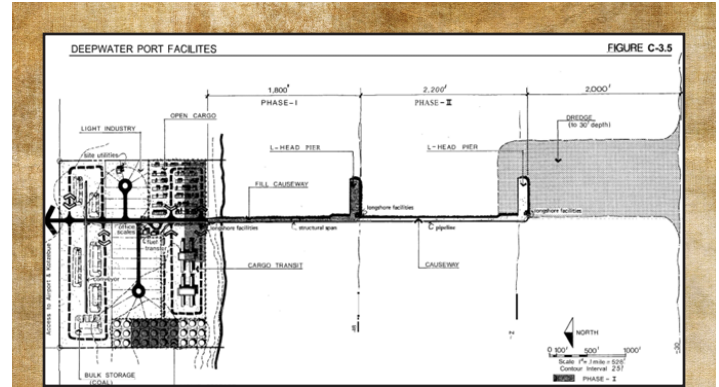
### PHASE I: Preliminary Concept Development

#### Task 1: Existing Data Review & Project Kickoff

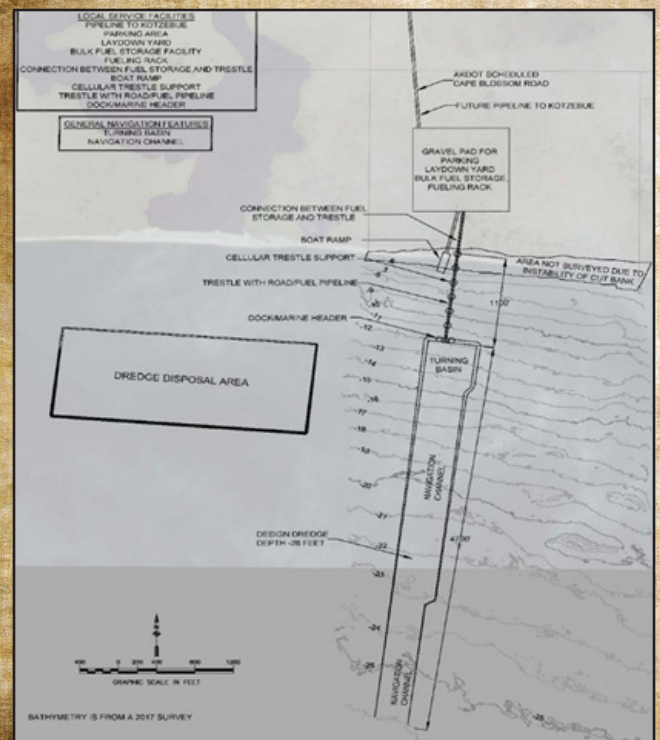
Led by our team's proposed project manager, PND Vice President & Principal Engineer Chip Courtright, PE, SE, PND and the City of Kotzebue will hold an initial kickoff meeting to introduce key team members, establish lines of communication, and discuss overall project scope, goals, and objectives. Based on the remoteness of the site, we propose performing the kickoff meeting and all coordination meetings virtually or by teleconference to reduce project costs. We will review the project's scope of work, discuss a prepared draft project schedule, and identify any gaps or additional considerations that could influence the schedule. We will discuss key milestones and identify tentative dates for work. We will review our planned approach to the work and establish document review stages and review periods by the city. PND will develop a written summary report of the kickoff meeting and distribute it to the city following the meeting.

PND will research, collect, and synthesize existing background data prior to proceeding into concept design or making recommendations for additional data collection. Existing data review will include assembling project basemaps, acquiring previous concept drawings, reviewing previous studies and environmental documentation, and collecting existing available site, geotechnical, and metocean data. In support of our proposal response, PND received and reviewed all previous studies we could obtain, extending back to the early 1980s port feasibility study. Based on our current understanding, a wealth of information exists for the originally studied port site; we anticipate most of this data will be translatable to the currently proposed efforts and sites under consideration.

USACE performed a detailed metocean and hydrology/hydraulics evaluation to support its feasibility assessment in the mid-2000s, including bathymetry survey and sub-bottom profiling of the proposed project area and deployment of an acoustic wave and current profiler (AWAC) to measure site-specific metocean data such as waves, currents, and water levels. DOT&PF performed an offshore geotechnical investigation in 2010, which consisted of 25 boreholes. To avoid duplicating efforts, reduce project costs, and streamline the schedule, we believe a complete understanding of the available existing background data and their applicability to this project will be of utmost importance. Our team will thoroughly evaluate the previous studies to determine where data gaps exist and what is applicable to the proposed project. We will leverage our strong working relationships with DOT&PF and USACE to obtain all available information in support of our efforts. Based on our current understanding, we believe sufficient background data exist that would allow our project team to progress concept evaluations ahead of additional field investigations and advanced studies. We intend to use the historical data available to the maximum extent possible.

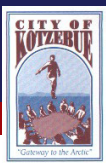


Deepwater Port Facilities Drawing (1983)



USACE Local Service Facilities Drawing (2019)

PND will evaluate the three proposed site locations and the originally envisioned project site, which we understand USACE previously raised as a significant concern. In order to fully understand the concerns at the original site and make comparisons to the three currently proposed sites, our team of arctic, coastal, and waterfront engineering specialists would like to confirm the mitigation methods are impractical and removal of the original site from consideration is warranted. PND and Coastal Frontiers has substantial experience with thermal and traditional coastal erosion protection in the arctic and can provide a fresh evaluation.



During data review, our team will perform stakeholders outreach, including individual meetings with City of Kotzebue personnel, subject communities, MARAD, NANA, USACE, and potential dock users to review previously developed concepts, solicit input on the designs, and assist with criteria development. Our targeted stakeholders outreach will help further define project needs and overall scoping. We will interview regional transporters (cargo, freight, fuel) to determine current and projected needs, including likely design-vessel parameters and uplands infrastructure requirements. The discussions will be documented in minutes from each meeting that summarize the findings.

PND will compile publicly available topography and bathymetric data into a preliminary project basemap that will be used for initial concept evaluation. The results of PND's data collection will be summarized in a data-gap memorandum and will include recommendations for additional data collection and/or studies to be performed under Phase II of the project.

### Task 2: Criteria Development & Desktop Evaluations

Before commencing significant design work, it is essential to establish well-defined criteria and thoroughly scope the project to prevent major modifications during the design process. We believe the following criteria will need to be established: projected dock usage needs; vessel criteria; required draft, design life, uplands staging areas, and associated infrastructure; metocean criteria; geotechnical considerations; seismic criteria; environmental loads; utility requirements, including mechanical and electrical systems; and any project development concerns. Much of this information was developed by others during previous feasibility studies and will be confirmed and expanded for this project. PND will develop a comprehensive design criteria document that will serve as the basis of design and be updated as the project progresses. By having a clear understanding of the project goals and requirements, we can streamline the design process and ensure that the resulting project meets the needs of stakeholders. We will perform additional metocean and coastal analyses for the proposed project sites, as described below, to support establishing project design criteria.

**Metocean & Coastal Analysis:** Led by PND Senior Engineer Michael Ulmgren, PE, and Senior Metocean Scientist Alexander Khokhlov, PND will build upon previous efforts and perform desktop evaluations for each of the sites under consideration. We will perform a site-specific wind and wave (metocean) design study for each of the proposed project sites. PND will gather available site weather data and perform statistical analysis to determine the design-level wind conditions. We will use wave numerical modeling program MIKE 21 for desktop analysis to determine design waves conditions, including MIKE 21 Spectral Wave models to determine locally generated wind waves and their transformation to the project site

through refraction, diffraction, and shoaling. We will develop a MIKE 21 Boussinesq Waves model to efficiently predict waves that penetrate into the project area. PND will also perform an initial mooring analysis for design vessels using MIKE 21 Mooring Analysis or Optimoor as part of our metocean study. This effort will inform our team of the anticipated mooring/berthing loads to be considered in design and will be updated as the project advances.

The metocean analysis will include establishing ice design criteria such as sea ice thickness, breakup/freezup dates, and evaluating the size and distance of ice ride-up and pile-up events at the port sites being studied. The ice information will be used to develop recommended setback distances for critical shoreside facilities, ice forces, and pressures applied to structures, as well as ice management plans and port downtime during the winter season. Based on the results of the desktop analysis, PND may recommend additional metocean data collection at the site to support calibrating metocean modeling efforts, which would be performed in Phase II of the project. A metocean field study would consist of data collection during ice-free conditions using a field-deployed AWAC wave gauge to measure waves, currents, and water levels near the project site. The field data will be analyzed and compared with predicted wave conditions for model calibration purposes.

PND, supported by Coastal Frontiers, will conduct a preliminary coastal engineering analysis for the proposed sites, focusing primarily on reviewing previous studies and underlying data. Our evaluation will include assessing shoreline erosion, longshore sediment transport, and sedimentation in proposed dredged channels. Understanding sediment transport will significantly impact project costs due to the need for ongoing maintenance dredging. Additionally, the rate of shoreline erosion and retreat will play a crucial role in determining the suitability of locations for waterfront facilities in the region. We will use historic aerial photography, as well as topographic and bathymetric data, to estimate shoreline retreat and sediment transport. This information will help us calculate longshore and cross-shore sediment transport rates, which are vital for developing a comprehensive sediment budget for the area. The budget will identify key sources and sinks of sediment in the nearshore environment. Moreover, we will incorporate sediment contributions from local rivers and streams into our analysis to ensure a thorough evaluation of sediment dynamics. Due to the high degree of variability in sediment transport analyses, our team will likely recommend additional sediment transportation numerical modeling of the proposed dredge basin as part of our Phase II services.





Findings from the metocean and coastal analyses will be documented in a report that summarizes the findings. The report will be appended to the alternatives analysis, further described under Task 3 below.

### Task 3: Concept Development & Alternatives Analysis

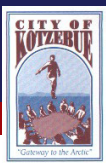
PND will develop multiple design options for consideration by the City of Kotzebue and project stakeholders during this critical phase of the project. We anticipate several alternatives will be developed and considered for each of the three proposed sites. The concepts will be evaluated to determine which is the most feasible and effective, while considering factors such as usability, cost, safety, maintenance requirements, durability, and environmental impact. We will develop alternatives for each of the major design elements such as causeway design (fill-based, pile-supported structures, superstructure types) and dock structure type (sheet-pile, pile-supported). Evaluating the extents of any proposed dredged basin versus the extents of causeway connecting the dock to the uplands will be critically important. Our evaluation will include cost analysis of initial capital cost versus projected routine costs for maintaining the dredged channel and basin. The design at this stage will consist of proof-of-concept-level calculations/analysis for approximate sizing of major project components and developing concept-level drawings (plan, elevation, section) for each alternative considered. We will prepare rough order of magnitude (ROM) cost estimates and a matrix of pros and cons to help evaluate the alternatives.

PND will evaluate the feasibility of long-term protection of the originally envisioned project site from thermal and mechanical shoreline erosion, as aforementioned, in addition to the three proposed port site locations. PND and Coastal Frontiers has substantial experience with thermal and traditional coastal erosion protection in the arctic, protection methods which could be considered if the original site is comparatively advantageous to the other sites under consideration.

PND understands that accurate cost estimating is critically important for our clients' financial planning and budgets for projects. PND uses InEight (formerly HardDollar), a construction cost estimate program and database developed for construction contractor planning, scheduling, and bidding. Along with our historical site-specific cost data and metrics, PND develops highly accurate and detailed bottom-up construction cost estimates for elements such as equipment usage, fuel usage, and manpower curves. The InEight program is integrally linked with our scheduling program, Primavera P6, and produces a detailed schedule based upon the construction logic input used in the cost estimate. PND has received high praise from clients, contractors, and owners for the detailed accuracy of our cost estimating services using this system.

### DISTINCT & SUBSTANTIVE QUALIFICATIONS

- ◇ **Geographic Experience:** The Arctic is an unforgiving place where experience and knowledge are critical. PND provides site-specific design to our clients in order to solve complicated issues in remote locations and harsh weather conditions, such as evaluating and optimizing Red Dog Port & Mine operations in Northwest Alaska. PND has been providing professional engineering services at Red Dog since the early 1980s. In 1982, PND developed conceptual plans for alternate Port of Red Dog facilities and preliminary cost estimates for several ore concentrate offloading systems. In 1985, PND was the prime engineering consultant for the 60-mile-long access road from Red Dog Mine to the Port of Red Dog; the cost-saving design by PND pioneered how arctic roads are built in Alaska. PND has worked over 75 projects in the Red Dog Operations area, including triennial bridge inspections on Red Dog Port Road since 1987.
- ◇ **MARAD Experience:** PND routinely provides design through construction-phase services for complex marine infrastructure projects and has worked with a variety of clients, including DOT&PF, FHWA, and MARAD, to ensure environmental compliance and successful installations of our designs. PND is currently working with MARAD on PIDP-funded projects in Seward and Yakutat.
- ◇ **USACE Experience:** PND is the design-engineer-of-record for the multiphased Port of Nome Modification Project in conjunction with USACE, whose comprehensive feasibility study with the City of Nome led to the largest-valued civil works project in USACE Alaska District history. Spanning three distinct phases, the ambitious \$600-million-plus collaboration will make the Port of Nome the northernmost deepwater port in North America and enhance its capacity for accommodating the growing maritime demands in Northwest Alaska.
- ◇ **Management Experience:** Our management team features nearly 70 years of combined project experience, including the perfect blend of regionally specific waterfront engineering experience and extensive port planning and design experience. They will be supported on the Cape Blossom Port Project by our firm's deep resources and in-house capacity for providing multidisciplinary services.



PND will develop an alternatives analysis report that outlines our process for developing alternatives and assessing site suitability. Our report will contain a summary of the project scope, design criteria, alternatives considered, ROM capital/operations/maintenance costs, selection criteria, technical evaluation, permitting constraints, and risk assessment. The alternatives analysis report will be submitted to the City of Kotzebue for review and consideration during selection of the preferred alternative. At the conclusion of this task, our intent is to identify a preferred alternative for advancement under Phase II of the project.

#### Task 4: Public Involvement

Rural Alaska communities have unique cultural, environmental, and economic considerations that can affect the design, construction, and operation of new projects. Public involvement meetings can provide an opportunity for local residents, indigenous groups, and other stakeholders to share their knowledge and concerns with the design team. Our team, led by PND subconsultant Corvus Design, will work with the City of Kotzebue to establish a public outreach and engagement plan that is in line with community expectations. During Phase I, we anticipate three community meetings will be held to solicit input and inform the public on the status of the design. The first meeting will be planned at the beginning of the project to allow interaction between the planning team and local users, stakeholders, and community members. The community meeting will consist of a multiday open house session that introduces the project to the public, outlines objectives for the planned project, and solicits public input. The second community meeting will be held following development of the site evaluation and initial concept designs, where our team will present the planned project alternatives and collect public feedback. During the multiday open workshop, our team will collect additional public input and develop modifications to the concept designs. The final community meeting will be a virtual presentation of the preferred location and design alternative. We will document the entirety of the public involvement process in a report submitted after each meeting.

#### PHASE II: Preliminary Design of Selected Alternative & Field Investigations

The scope of engineering services proposed to be performed during Phase II will be dependent on the project location and preferred alternative selected during Phase I. Based on the scope of services requested in the RFP, PND does not feel there is adequate definition to fully develop the site investigations, engineering services, and associated cost necessary to complete the proposed Phase II services until Phase I services are completed. Our proposed multiphased approach ensures that existing and previously collected site data

are fully examined, eliminating duplication and maximizing use of project funding for the benefit of the City of Kotzebue, MARAD, and project stakeholders. The following approach provides a general summary of anticipated tasks that PND will perform during Phase II; the specific scope of services will be further evaluated and defined during initial implementation of the project. Some of the presented tasks below are elective, such as dredge characterization, dredging field study (test trench), and Alaska Tidelands Lease application, and could be incorporated into the final scope of services if desired by the City of Kotzebue.

#### Task 5: Preliminary Design & Preliminary Engineering Report

PND will advance the design of the selected site and preferred concept to a preliminary (approximately 15%) design level. The design will be informed by input received during public involvement meetings, stakeholder engagement, and Phase I planning efforts. Design at this stage will include advanced analysis and evaluation to further develop the comprehensive scope of the project.

Led by PND Project Manager Chip Courtright and our civil and structural engineering leads – PND Senior Engineer Josh Gray, PE, and PND Principal Engineer Corey Roche, PE, SE, respectively – PND will develop preliminary design documents illustrating general facility layout and preliminary design of all project elements. We will advance the dock analysis to define major components of the project and confirm project construction planning and cost estimates. Our team uses a suite of engineering software such as RISA-3D, LPILE, Slide, SAP2000, and ENERCALC to support our structural analyses. The dock will be designed in accordance with accepted engineering standards, including AASHTO LRFD Bridge Design Specifications (9th Edition/2020) with interim updates; the DOT&PF-developed Alaska Bridges and Structures Manual (2023); ASCE Seismic Design of Piers and Wharves (61-14); and the AASHTO Guide Specifications for LRFD Seismic Bridge Design.

During this phase of the project, we will advance our structural modeling/analysis using a combination of finite element analysis programs such as RISA-3D, LPILE, and SAP2000. PND's geotechnical and coastal/metocean leads – PND Principal Engineer Torsten Mayrberger, PE, PhD and PND Senior Engineer Michael Ulmgren, PE, and PND Senior Scientist Alexander Khokhlov, respectively – will coordinate closely for design of the dredged basin. Our geotechnical team will collaborate with our structural engineers to refine the soil-structure interaction and advance the design of all foundation elements.

PND's electrical and mechanical subconsultants (RSA and AMC/RSA, respectively) will advance their concept designs to include





layout plans, line-diagrams, and the additional details necessary to fully define the project scope. PND and Coastal Frontiers will further evaluate sediment transport using numerical modeling program MIKE 21/3 Sand Transport (ST). This software enables precise assessments of erosion and sedimentation impacts on infrastructure by accurately calculating sand transport from both currents and waves, employing a sophisticated wave boundary layer approach for detailed simulations.

PND will produce a preliminary engineering report (PER) based on our Task 5 findings that will summarize the alternatives considered and present the preferred alternative. The PER will detail the resulting proposed scope of work, present estimated costs for the project (by component), and incorporate findings from additional field studies performed under Phase II, further described below.

### Task 6: Site Survey

Led by PND Senior Surveyor Iain Brown, PLS, PND will research existing record information for the identified project site, including subdivision plats, easements, as-built surveys, survey control, and existing utility as-builts. We will coordinate travel arrangements and prepare survey computations prior to arrival at the project sites. We will verify existing survey control monuments or establish new survey control via static GNSS observations; static files will be processed through the NOAA's Online Positioning User Service (OPUS) and network-adjusted in Trimble Business Center as required. The existing conditions survey will include, at a minimum:

- » Existing property corners, property lines, right-of-way, and recorded easements
- » Site topography and drainage
- » Subsurface bathymetry to contour seafloor
- » Tidal/water-level observations and measurements
- » As-built of site improvements and existing infrastructure
- » Locating aboveground utilities and underground utility markings by others
- » Terrestrial LiDAR of critical site features
- » Autonomous vehicle LiDAR and orthomosaic aerial imagery of project sites (providing no flight restrictions exist)

PND will implement a combination of conventional ground-based GNSS and total station survey techniques supplemented by terrestrial and aerial remote sensing (LiDAR) technologies to complete the project scope. We will use conventional ground-based survey techniques to capture nearly all items required of the project scope. We will collect terrestrial and aerial LiDAR at each project site to develop a comprehensive 3D point cloud model to ensure all critical site data are captured in a single site visit. We will use conventional survey data



**Pebble Mine Port Metrocean Field Study**

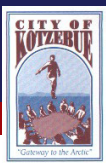
### Acoustic Wave & Current Profiler

The AWAC profiler is mounted on a gimbaled tripod system and lowered from a vessel davit. The tripod is weighted to sit directly on the seafloor without additional anchoring or surface buoy. A pop-up buoy system activated by a handheld acoustic modem allows the vessel to retrieve the profiler.

and aerial ground targets to confirm relative accuracy of all LiDAR data collected in the field. We will capture single-beam sonar data using a Seafloor Systems Sonarmite integrated with Trimble GNSS receiver. PND will process all collected survey data and provide quality control using the latest version of Trimble Business Center.

### Task 7: Metrocean Field Study

If necessary, PND will plan, coordinate, and implement field metrocean data collection at the identified preferred alternative site. We will deploy an underwater oceanographic platform offshore of the existing dock. An upward-facing standalone Nortek AWAC profiler will measure directional waves, currents, and tide. The instrument, detailed in the callout above, measures pressure, wave orbital velocities, and surface position to determine directional wave height, wave period, current velocity, and direction. We will use the data to evaluate metrocean conditions, providing greater confidence in environmental wave conditions estimates by correlating field measurements to historical events. The wave height, peak period, mean direction, and relative spreading derived from these measurements are important for verifying and calibrating numerical models to actual project site data.



### Task 8: Geotechnical Investigation

An on-site geotechnical investigation will likely be required to determine the characterization of the soil, stratigraphy, and other site-specific geotechnical data necessary for design of the dock and uplands infrastructure at any of the three proposed project sites. The geotechnical investigation will include boreholes at the proposed dock, foundation locations along the proposed causeway, and uplands area proposed for development. The quantity and locations of the boreholes will be determined during Phase I scoping efforts. We will analyze material samples to determine laboratory characterization (moisture content, grain size analysis, plasticity characterization, density characterization). We will produce a comprehensive geotechnical data report that includes geotechnical site characteristics, boring logs, material test results, supporting data and conclusions, and recommendations based on our findings.

PND's permitting group, led by PND Senior Environmental Scientist Brenna Hughes, will apply for and obtain all regulatory approvals necessary for implementing the geotechnical investigation, including the NEPA assessments which will likely be required by MARAD.

### Task 9: Dredge Material Characterization & Environmental Sampling

Material characterization and environmental sampling will be required for design of the dredged basin and regulatory approval of dredge material disposal. PND recommends this effort be performed in conjunction with the site geotechnical investigation to reduce duplication of efforts and overall project costs. If desired by the City of Kotzebue, PND will develop and implement a dredge material characterization and environmental sampling program for the project. PND will produce a purpose and need statement and provide all engineering support – with the help of our subconsultant RSE – for developing the Tier 1 evaluation for agency review. The Tier 1 evaluation will provide environmental findings from comprehensive research that will factor into the project ranking, which will determine the dredge material management units, number of sampling units, and laboratory sampling requirements.

PND and RSE will develop a sampling analysis plan (SAP) per USACE guidelines of the Alaska Dredged Material Evaluation Framework. We will submit the SAP for agency review and approval, a required step necessary for establishing the sampling requirements for dredged material disposal. PND and RSE will respond to agency comments and ultimately obtain approvals to begin the sampling program. PND and RSE will perform field sampling, based on the agreed upon sample intensity and required number of sampling sites, following SAP approval.

### Task 10: Tidelands Conveyance

Municipal conveyance of tidelands will be required for the project footprint prior to construction of the proposed dock facility. PND recommends the City of Kotzebue apply for conveyance as soon as the preferred site is identified due to the long durations required by the Alaska Department of Natural Resources (ADNR) for completing this process. PND will prepare the applications needed for tideland conveyance to incorporate the proposed project footprint and vessel layup area. We will coordinate directly with ADNR throughout the approval process. After receipt of a complete application, ADNR will conduct a public interest review of the application, provide notice to other state agencies, issue a preliminary finding under public notice (30 days), then issue a final finding (under public notice with a 30-day appeal and reconsideration period). This process typically requires six months to one year, after which the applicant can construct, occupy, and operate the project while completing the lease process. Once the final finding is official, entry authorization is typically issued to perform required pre-construction surveys, construct the project, and perform any required post-construction survey, appraisals, insurance, and bonding. Following receipt of final required deliverables and fees, ADNR will issue the lease. PND currently estimates the post-entry authorization phase can take up to three to five years to complete, depending on construction timelines and ADNR capacity.

### Task 11: Public Involvement

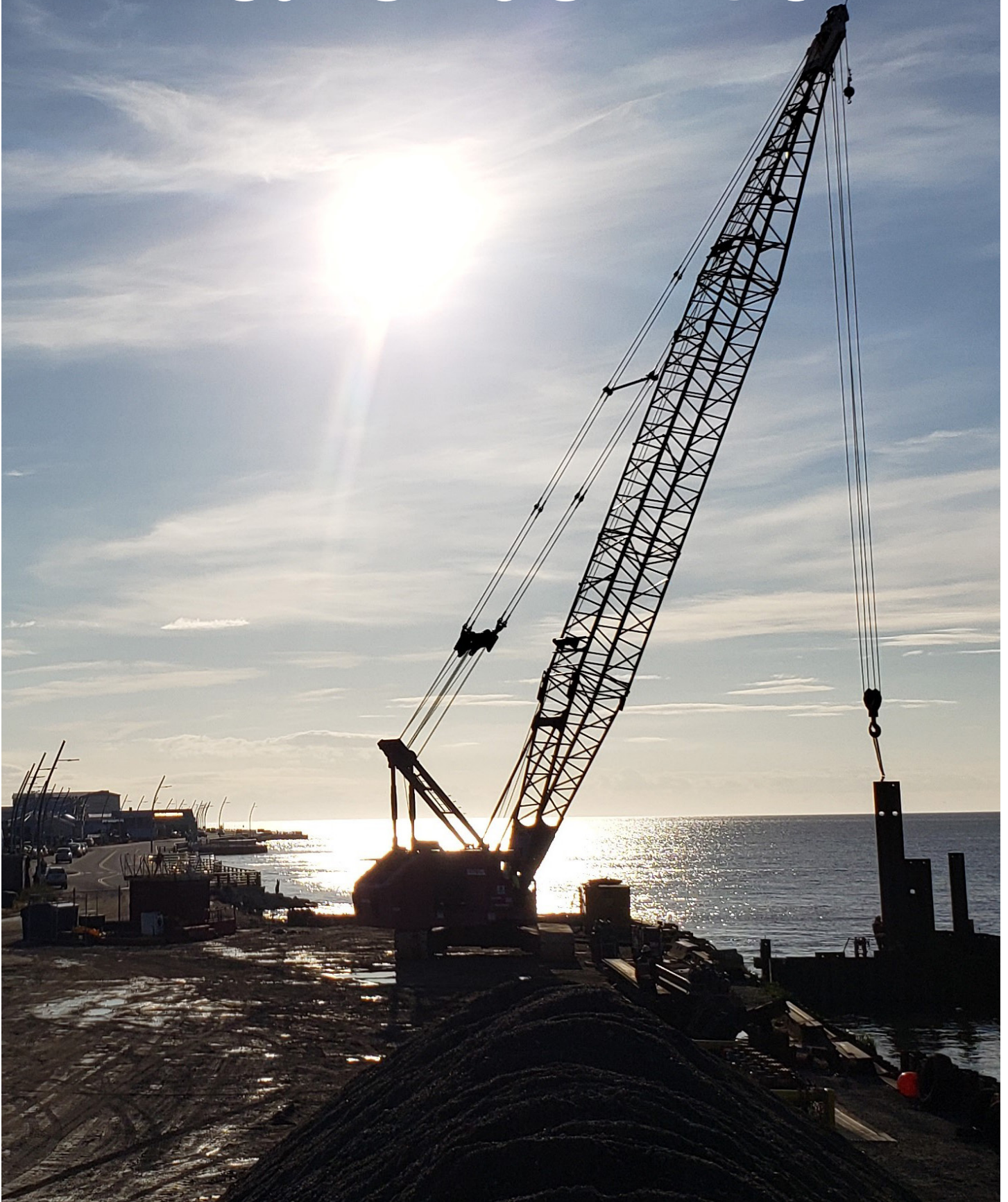
PND recommends continued public engagement throughout Phase II services to keep the public and stakeholders informed of project progress. The scope of public involvement, including the number and frequency of meetings, will be determined during development of the public involvement plan under Phase I.

PND and Corvus have efficiently and effectively collaborated on other similar port planning and design projects across Alaska in communities such as Craig, Juneau, Kenai, Naknek, Nome, Saxman, Seward, Sitka, Unalaska, Valdez, Whittier, and Wrangell. We understand the importance of community engagement; our team is committed to involving the public throughout the planning process, ensuring that valuable community input helps shape the Cape Blossom Port Project.

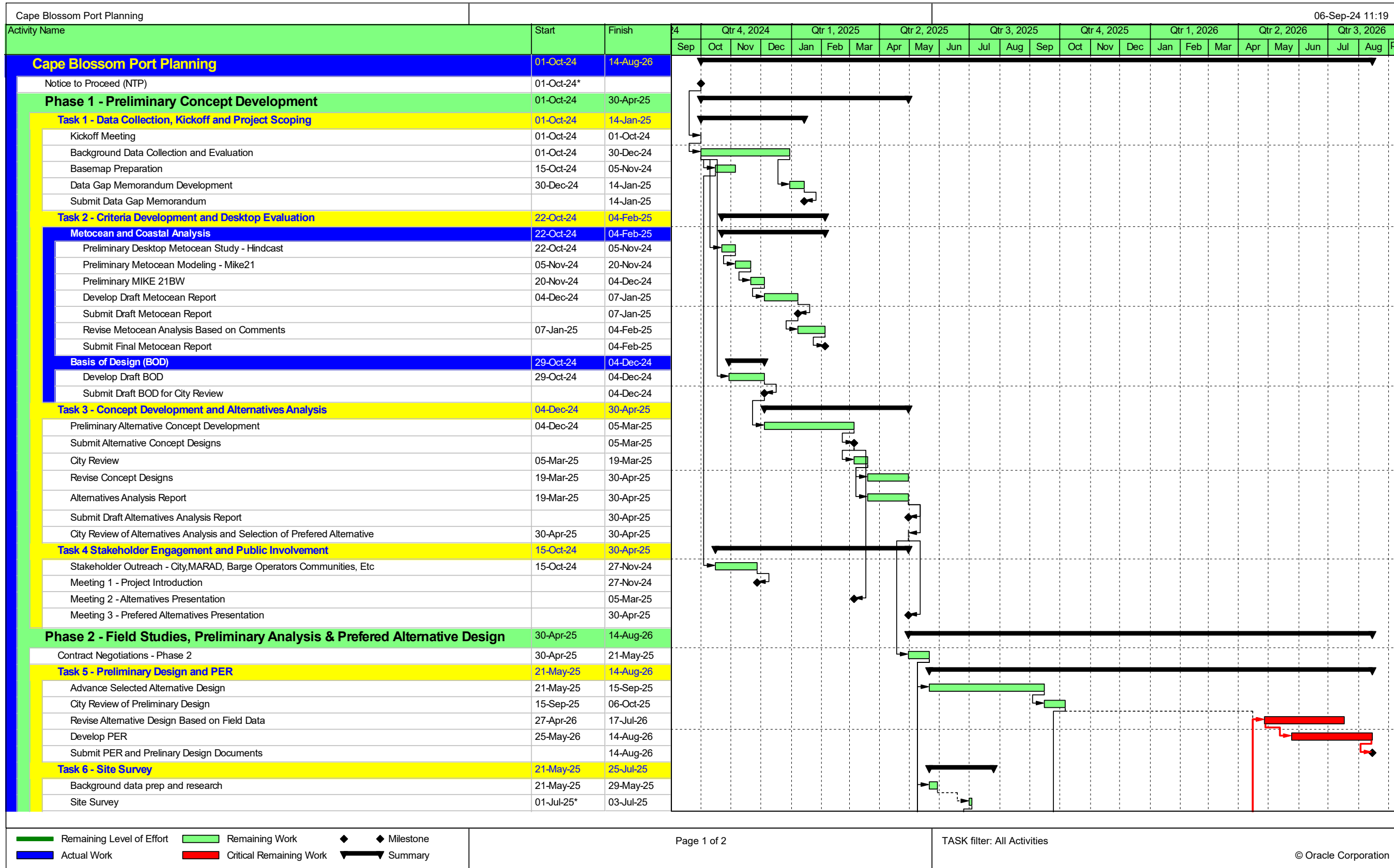
“Corvus Design has won over a community of wary citizens that were tired of planning and projects that were not implemented. With their innovative approach and teamwork, I feel confident that we have a plan that is backed by our community, council, and stakeholders. Their unique approach to public engagement and planning actually changed the way our community feels about the planning process.” ~Jeremy Talbott, Ports & Harbors Director, City of Valdez



# PROJECT SCHEDULE







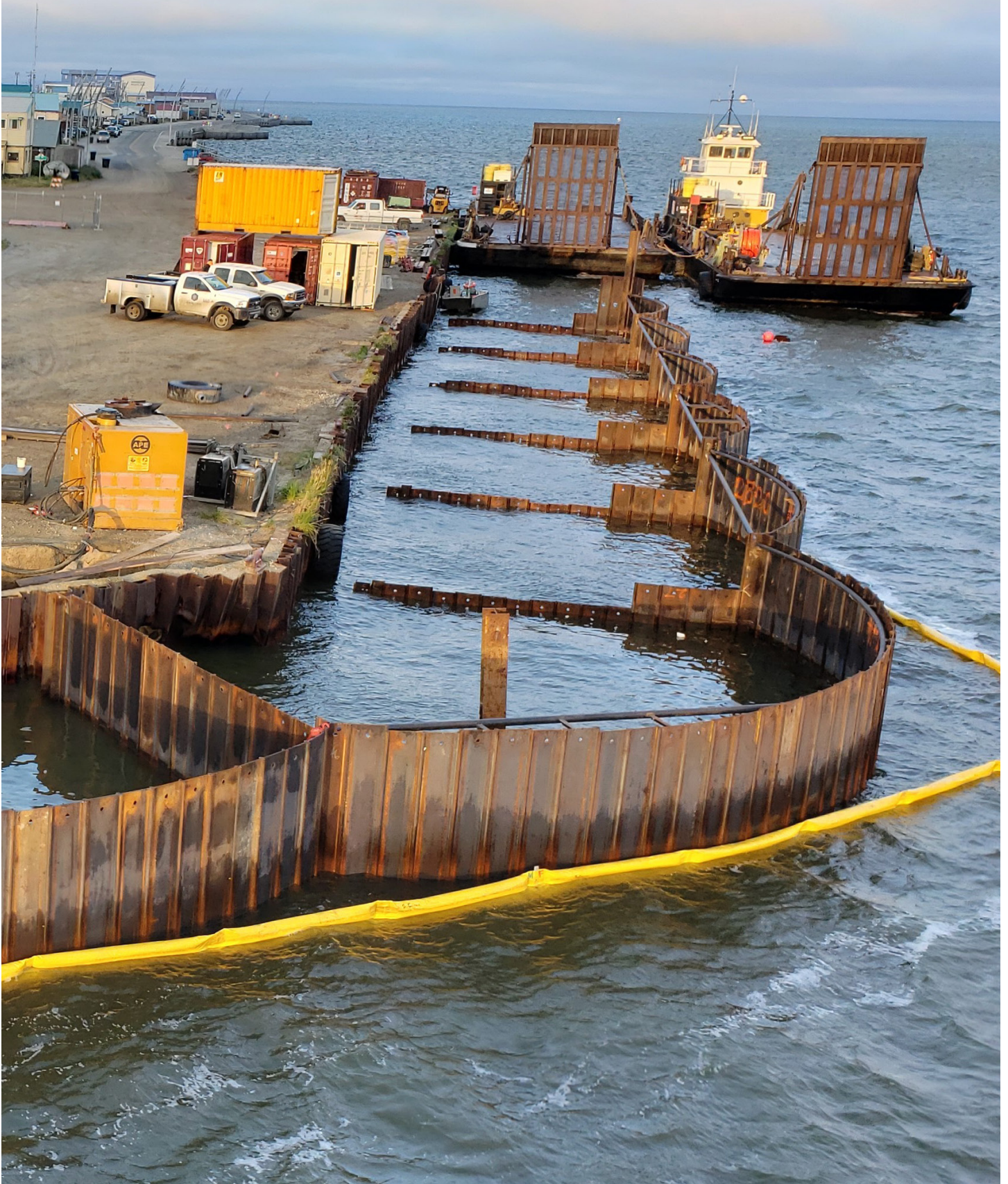


Cape Blossom Port Planning			06-Sep-24 11:19																									
Activity Name	Start	Finish	2024				Qtr 1, 2025			Qtr 2, 2025			Qtr 3, 2025			Qtr 4, 2025			Qtr 1, 2026			Qtr 2, 2026			Qtr 3, 2026			
			Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
Basemap Preparation	07-Jul-25	25-Jul-25																										
<b>Task 7 - Metocean/AWAC Filed Study</b>	<b>21-May-25</b>	<b>02-Dec-25</b>																										
Planning and Preparation	21-May-25	05-Jun-25																										
AWAC Deployment	01-Jul-25*	09-Jul-25																										
Field Measurement and Data Collection	09-Jul-25	29-Aug-25																										
AWAC Retrieval	02-Sep-25	08-Sep-25																										
Field Data Analysis and Reporting	09-Sep-25	02-Dec-25																										
<b>Task 8 - Geotechnical Field Investigation</b>	<b>21-May-25</b>	<b>24-Apr-26</b>																										
Develop Permit Application Documents for Field Investigation	21-May-25	19-Jun-25																										
Regulatory Agency Review and Approval	19-Jun-25	15-Sep-25																										
Planning and Preparation	15-Sep-25	10-Nov-25																										
Site Geotechnical Investigation	05-Jan-26*	30-Jan-26																										
Sample Testing and Report Development	02-Feb-26	24-Apr-26																										
<b>Task 9 - Dredge Characterization and Environmental Sampling</b>	<b>21-May-25</b>	<b>24-Apr-26</b>																										
Tier 1 Evaluation	21-May-25	12-Jun-25																										
Develop Sampling Analysis Plan (SAP)	12-Jun-25	03-Jul-25																										
Agency Reivew of SAP	03-Jul-25	01-Aug-25																										
Develop Permit Application Documents for Field Investigation	01-Aug-25	29-Aug-25																										
Regulatory Agency Review	29-Aug-25	25-Nov-25																										
Field Environmental Sampling	05-Jan-26	30-Jan-26																										
Sample Testing and Report Development	02-Feb-26	24-Apr-26																										
<b>Task 10 - Tidelands Conveyance</b>	<b>06-Oct-25</b>	<b>03-Nov-25</b>																										
Develop ATS Application Documents	06-Oct-25	03-Nov-25																										
Submit Application Documents to ADNR for Review, Agency Coordination, Adjudication and Public Comment		03-Nov-25																										

█ Remaining Level of Effort   
 █ Remaining Work   
 ◆ ◆ Milestone  
█ Actual Work   
 █ Critical Remaining Work   
 ⇨ Summary



# COST PROPOSAL







**PND** and our team of subconsultants have prepared the following detailed cost proposal for our proposed Phase I services. As the scope of Phase II services will be highly dependent on work and project scoping performed in Phase I, we do not feel we can provide an accurate fee proposal for Phase II services at this time. We have provided an anticipated range of cost for these services based on our current understanding of the project. If selected, PND proposes to negotiate Phase II services with the City of Kotzebue based on the defined project scope.

**PHASE I: Preliminary Concept Development** **\$591,466**

- » **Task 1: Data Collection, Scoping, & Criteria Development**
- » **Task 2: Criteria Development & Desktop Site Evaluation**
- » **Task 3: Concept Development & Alternatives Analysis**
- » **Task 4: Public Involvement**

- » **\$99,214**
- » **\$140,287**
- » **\$191,951**
- » **\$160,014**

**PHASE II: Field Studies, Preliminary Analysis, & Preferred Alternative Design (ROM)** **\$1,340,000-1,670,000**

- » **Task 5: Preliminary Design & PER**
- » **Task 6: Site Survey**
- » **Task 7: Metrocean Field Study**
- » **Task 8: Geotechnical Investigation**
- » **Task 9: Dredge Characterization & Environmental Sampling**
- » **Task 10: Tidelands Conveyance**
- » **Task 11: Public Involvement**

- » **\$450,000-\$550,000**
- » **\$55,000-\$65,000**
- » **\$70,000-\$85,000**
- » **\$500,000-\$650,000**
- » **\$185,000-\$225,000**
- » **\$25,000-\$30,000**
- » **\$55,000-\$65,000**

PND provided consulting, engineering/design, and execution support for the repair and reconstruction of Crowley’s dock in Kotzebue over two phases and a three-year period. The primary team I interfaced with at PND was Dempsey Thieman and Chip Courtright, who were assisted by several others within the company to carry out the various tasks required. From the start, the company’s services and support were excellent, timely, and responsive. PND helped facilitate the decision-making process with timely answers to our technical questions, revising drawings, and providing cost-benefit analyses as needed. Throughout, they presented their professional opinions with clear understanding of the logistical and environmental challenges of the project location, without undue biases, and with respect for the complexities of making business decisions in a remote native community with high stakeholder interest and involvement. The work required civil, structural, geotechnical, and environmental engineering skillsets, with particular knowledge of the federal permitting processes. Their combined depth of knowledge and in-house construction management talent resulted in the successful construction of the new dock facility within the expected cost and timeline, and with no injuries or lost time. I would gladly work with the PND team again and recommend them without reservation.”

**~Jed Dixon, Project Manager, Crowley Maritime Corporation**



KOTZEBUE CAPE BLOSSOM PORT PLANNING  
 ENGINEERING FEE PROPOSAL REV0  
 PND ENGINEERS, INC.

	Senior Eng. VII	Senior Eng. IV	Senior Eng. III	Senior Eng. II	Senior Eng. I	Senior Land Surv. III	Technician VI	CAD Designer VI	Labor	Subs	Expenses	Markup 10%	
<b>Phase 1 - Preliminary Concept Development</b>													
<b>Task 1 - Data Collection, Scoping and Criteria Development</b>													
Admin, Management, Coordination and Meetings	16	24							\$9,152			\$0	\$9,152
Kickoff Meeting	2	2		2					\$1,276			\$0	\$1,276
Background Data Collection - USACE and ADOT	4	6		16		8			\$6,256			\$0	\$6,256
Background Data Review and Evaluation	8	16		20					\$8,892			\$0	\$8,892
Base Drawing Development	2	4		14		16		30	\$10,500			\$0	\$10,500
Data Gap Memorandum	2	4		16		6			\$5,026			\$0	\$5,026
Stakeholder Outreach	4	12		20					\$7,032			\$0	\$7,032
Sub - Mechanical	2								\$502	\$7,320		\$732	\$8,554
Sub - Electrical	2								\$502	\$7,980		\$798	\$9,280
Sub - Coastal	2								\$502	\$18,980		\$1,898	\$21,380
Sub - Public Involvement (Corvus)	2								\$502	\$8,640		\$864	\$10,006
Internal QC Reviews	4	4							\$1,860			\$0	\$1,860
<b>Subtotal Hrs</b>	<b>50</b>	<b>72</b>	<b>0</b>	<b>88</b>	<b>0</b>	<b>30</b>	<b>0</b>	<b>30</b>	<b>\$52,002</b>	<b>\$42,920</b>	<b>\$0</b>	<b>\$4,292</b>	<b>\$99,214</b>
<b>Task 2 - Criteria Development and Desktop Site Evaluation</b>													
Admin, Management, Coordination and Meetings	4	8	2		2				\$3,410			\$0	\$3,410
Preliminary Design Criteria Assessment and Draft Basis of Designs	6	12	28		60			6	\$19,870			\$0	\$19,870
Wind, Wave and Storm Surge Analysis		6	10	20			20		\$9,884			\$0	\$9,884
MIKE21 Spectral Model		2		20			40		\$10,488			\$0	\$10,488
MIKE21 BW Wave Model		2		20			60		\$13,788			\$0	\$13,788
Hydrodynamic Analysis				20			4		\$4,120			\$0	\$4,120
Preliminary MetOcean Report	4	8		30			30		\$12,856			\$0	\$12,856
Sedimentation Analysis	2	2		20					\$4,390			\$0	\$4,390
Sub - Electrical	2								\$502	\$8,700		\$870	\$10,072
Sub - Mechanical	2								\$502	\$6,740		\$674	\$7,916
Sub - Coastal	2								\$502	\$32,430		\$3,243	\$36,175
Sub - Public Involvement (Corvus)	2								\$502	\$2,460		\$246	\$3,208
Internal QC Reviews	6	6					8		\$4,110			\$0	\$4,110
<b>Subtotal Hrs</b>	<b>30</b>	<b>46</b>	<b>40</b>	<b>130</b>	<b>62</b>	<b>0</b>	<b>162</b>	<b>6</b>	<b>\$84,924</b>	<b>\$50,330</b>	<b>\$0</b>	<b>\$5,033</b>	<b>\$140,287</b>
<b>Task 3 - Concept Development and Alternatives Analysis</b>													
Admin, Management, Coordination and Meetings	16	30							\$10,436			\$0	\$10,436
Concept Plan Development - 4 Sites	20	40		80				120	\$44,700			\$0	\$44,700
Concept Level Geotechnical /Pile Analysis	4			18	24				\$8,030			\$0	\$8,030
Concept Level Metocean and Hydrodynamic Anlysis		6		12			30		\$8,310			\$0	\$8,310
Concept Level Structural Analysis		8		30					\$6,902			\$0	\$6,902
Concept Level Mooring and Berthing Analysis	2	3		24					\$5,296			\$0	\$5,296
Concept Level Site Civil Design	2	6	40						\$9,146			\$0	\$9,146
Cost Estimates	6	12	60						\$15,114			\$0	\$15,114
Alternatives Analysis Report	4			60					\$11,384			\$0	\$11,384
Sub - Mechanical	2								\$502	\$18,900		\$1,890	\$21,292
Sub - Electrical	2								\$502	\$16,500		\$1,650	\$18,652
Sub - Coastal	2								\$502	\$11,940		\$1,194	\$13,636
Sub - Public Involvement (Corvus)	2								\$502	\$10,870		\$1,087	\$12,459
Internal QC Reviews	6	6		12				12	\$6,594			\$0	\$6,594
<b>Subtotal Hrs</b>	<b>68</b>	<b>111</b>	<b>100</b>	<b>236</b>	<b>24</b>	<b>0</b>	<b>30</b>	<b>132</b>	<b>\$127,920</b>	<b>\$58,210</b>	<b>\$0</b>	<b>\$5,821</b>	<b>\$191,951</b>
<b>Task 4 - Public Involvement</b>													
Admin and Management	4	8							\$2,716			\$0	\$2,716
Public Involvement Plan Development	4	6	12						\$4,496	\$14,270		\$1,427	\$20,193
Stakeholder Outreach	8	8	8						\$5,192	\$6,850		\$685	\$12,727
Meeting 1	24	24							\$11,160	\$19,120	\$4,008	\$2,313	\$36,601
Planning Report	6	8	16						\$6,162	\$5,160		\$516	\$11,838
Meeting 2	24	24							\$11,160	\$8,920	\$4,008	\$1,293	\$25,381
Draft Master Plan Report	6	8	16						\$6,162	\$19,920		\$1,992	\$28,074
Meeting 3	6	6							\$2,790	\$5,120		\$512	\$8,422
Final Master Plan Report	20								\$5,020	\$8,220		\$822	\$14,062
<b>Subtotal Hrs</b>	<b>102</b>	<b>92</b>	<b>52</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>\$54,858</b>	<b>\$87,580</b>	<b>\$8,016</b>	<b>\$9,560</b>	<b>\$160,014</b>

<b>Total Hours</b>	<b>250</b>	<b>321</b>	<b>192</b>	<b>454</b>	<b>86</b>	<b>30</b>	<b>192</b>	<b>168</b>					<b>1693</b>
<b>Total \$</b>	<b>\$62,750</b>	<b>\$68,694</b>	<b>\$35,328</b>	<b>\$78,542</b>	<b>\$14,018</b>	<b>\$4,500</b>	<b>\$31,680</b>	<b>\$24,192</b>	<b>\$319,704</b>	<b>\$239,040</b>	<b>\$8,016</b>	<b>\$24,706</b>	<b>\$591,466</b>

PND Direct Labor	\$319,704
Subconsultants	\$239,040
Expenses	\$8,016
Markup on Subs and Exp.	\$24,706
<b>Total Cost</b>	<b>\$591,466</b>





# PND Standard Rate Sheet:

## PRINCIPAL & SENIOR ENGINEERS

VII	\$235
VI	\$220
V	\$200
IV	\$185
III	\$175
II	\$165
I	\$155

## STAFF ENGINEERS

VI	\$160
V	\$142.50
IV	\$137.50
III	\$130
II	\$120
I	\$105

## ENVIRONMENTAL SCIENTISTS

VI	\$190
V	\$180
IV	\$160
III	\$145
II	\$130
I	\$110

## LAND SURVEYORS

III	\$142.50
II	\$130
I	\$120

## TECHNICIANS

VI	\$157.50
V	\$137.50
IV	\$110
III	\$100
II	\$90
I	\$62.50

## CAD DESIGNERS

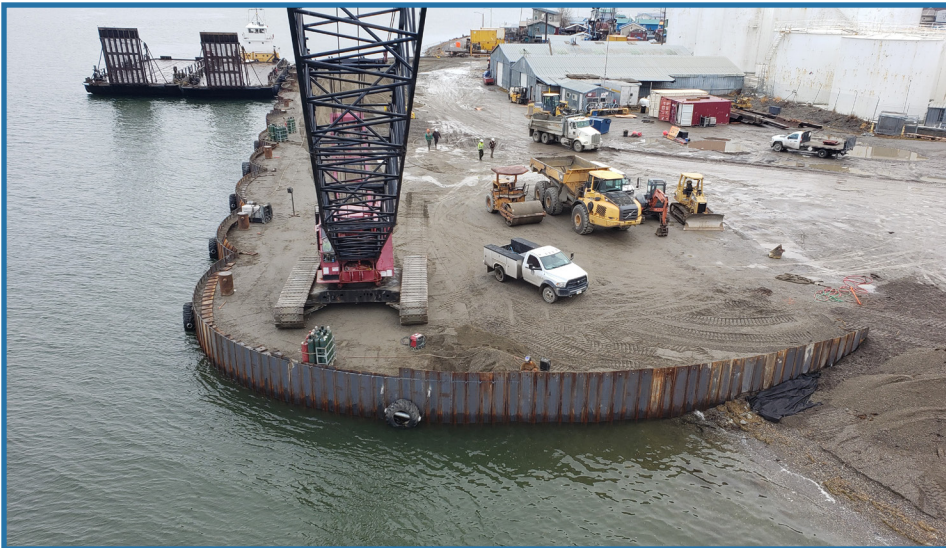
VI	\$137.50
V	\$125
IV	\$105
III	\$90

- ◇ **Contract Manager:**  
Dempsey Thieman, PE, SE  
Principal Engineer VII (\$235)
- ◇ **Project Manager:**  
Chip Courtright, PE, SE  
Principal Engineer VII (\$235)
- ◇ **QA/QC Manager:**  
Bryan Hudson, PE, SE  
Principal Engineer VII (\$235)
- ◇ **Civil Engineer:**  
Josh Gray, PE  
Senior Engineer IV (\$185)
- ◇ **Structural Engineer:**  
Corey Roche, PE, SE  
Principal Engineer VI (\$220)
- ◇ **Geotechnical Engineer:**  
Torsten Mayrberger, PE, PhD  
Principal Engineer VI (\$220)
- ◇ **Coastal Engineer:**  
Michael Ulmgren, PE  
Senior Engineer III (\$175)
- ◇ **Metocean Scientist:**  
Alexander Khokhlov  
Senior Scientist IV (\$160)
- ◇ **Environmental Scientist:**  
Brenna Hughes  
Senior Scientist V (\$180)
- ◇ **Land Surveyor:**  
Iain Brown, PLS  
Senior Surveyor III (\$142.50)

# REFERENCES







# 1.

**Jed Dixon**

Project Manager  
Crowley Maritime Corporation  
907.777.5598

- » **Crowley Dock Repairs & Replacement Project**



# 2.

**Joy Baker**

Port Director  
City of Nome  
907.304.1905

- » **Port of Nome Modification Project**
- » **Port of Nome Strategic Development Plan**



# 3.

**Jeremy Talbott**

Ports & Harbors Director  
City of Valdez  
907.835.4564

- » **Valdez Waterfront Comprehensive Master Plan**