

HAINES BOROUGH

Request for Proposals

Lutak Dock Design and Development Concepts



Innovating Today For Alaska's Tomorrow

proposal submitted by:

R&M CONSULTANTS, INC.

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September 2, 2016 | 5:00 pm



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APPENDIX A: Resumes



September 2, 2016

R&M No. 0001.00 (16-52)

Haines Borough
Attn: Office of the Borough Clerk
PO Box 1209
Haines, AK 99827

RE: Luktak Dock Design and Development Concepts

Dear Selection Committee Members:

This Haines Borough is seeking a design firm to provide conceptual options for replacing or refurbishing the Lutak Dock in Haines. The original Lutak Dock was constructed in about 1953 and has had minimal repairs since that time. The Borough wishes to replace the dock and bring it up-to-date and address potential expansion needs of the dock, as well as accommodate the needs of other users and stakeholders.

To successfully develop design concepts for the Lutak Dock that meet the needs of the Borough, **R&M CONSULTANTS INC.** (R&M) has compiled an integrated team of waterfront, structural and geotechnical engineers, and public involvement specialists. To complement our talented in-house resources, R&M has enlisted the services of Haight and Associates, Inc. (H&A), who will perform electrical engineering.

R&M has provided planning, design and construction administration services related to waterfront projects in Alaska for 47 years. Our key project team members have a breadth of experience providing port and harbor engineering services across the state, including commercial ports, harbor float systems, ramps, docks, bulkhead wharfs, barge facilities, breakwaters and other coastal protection, and master planning projects. Our successful project history has earned the firm a reputation for quality, reliability and professional excellence. This is demonstrated by our repeat business with clients such as DOT&PF, Port of Anchorage, Alaska Railroad Corporation and numerous municipalities. R&M has held an engineering services term agreement with the Port of Anchorage continuously since 1989. In addition, R&M has a three-year term agreement with the City of Homer for port and harbor engineering services and we are currently working on significant port and harbor projects in Seward and Valdez.

R&M is confident that after reviewing this proposal, the Borough will agree we are the right team for this project. Please consider the following:

- **Experienced Project Manager. John Daley, PE** has significant experience designing waterfront facilities in Alaska. His experience includes various types of docks and wharves (sheetpile bulkheads, pile supported docks, fender systems, floating docks), breakwaters, harbors, float systems, bridges, flood control projects, erosion control projects, and bridge, dock and harbor inspections. He has participated in or managed waterfront engineering for dock design and renovation projects located throughout Alaska and has worked with other small communities, such as Seward, Kodiak, Sitka, Skagway and Old Harbor, to replace and upgrade aging port and harbor facilities. This includes the Homer Deep Water Dock Feasibility Study, which, in addition to evaluating existing conditions at the dock and identifying potential opportunities/user needs, included conceptual designs, and associated cost and economic benefits.
- **Experienced in waterfront facility design. John Daley, PE** - our Senior Waterfront Engineer - and **Kim Nielsen, PE** - our Project Manager and Group Manager of Waterfront Engineering - have worked together for more than a decade on dozens of port and harbor development projects across the state. Together they, along with **Duane Anderson, PE**, our Senior Structural Engineer, bring nearly 100 years of combined waterfront facility design experience to the project. We are familiar with multiple types and styles of dock and jetty construction and are not tied to any one design style project delivery method. We take the time to evaluate site-specific needs and options, and provide our clients with detailed cost estimates to help them make decisions that are best for their community.
- **Experience at the Lutak Dock and in Haines.** R&M has previous experience at the Lutak Dock. We performed diving inspection and underwater steel sampling services for assessing structural integrity of the dock, as well as recently evaluated alternatives for the DOT&PF portion of the recent Haines Ferry Terminal project. R&M also provided structural and geotechnical review for an independent review of a complex retaining wall design at the Haines Ferry Terminal. In addition, H&A has previously evaluated the electrical systems at the Lutak Dock as part of an overall condition survey in 2012.



R&M CONSULTANTS, INC.

9101 Vanguard Drive
Anchorage, Alaska 99507

phone: 907.522.1707

fax: 907.522.3403

- **Quality and Integrity.** R&M has built its reputation on sound engineering practice, affordable and sustainable solutions, and honesty in communications with our clients to aid them in making well-informed decisions.
- **Alaskan-Owned and Readily Available.** Unlike many of our competitors with offices in the Lower 48, R&M is truly 100% committed to Alaska, with our entire staff located in-state. With many projects funded with State and local money, this helps our State economy by keeping these dollars local. Over the past 47 years, R&M has grown from a sole proprietorship focused on geotechnical engineering to a multi-discipline firm of more than 120 staff members. R&M provides quality professional services focused on improving the infrastructure that makes a real difference in the lives of Alaskans – roads, water and wastewater systems, ports and harbors, airports and schools.

The R&M team has a clear understanding of the project's goals. We are committed to providing high quality professional services for the Lutak Dock Design and Development Concepts project on time and within budget. If you have questions with regard to R&M's experience or qualifications, as R&M's Principal Engineer, I am fully authorized to make representations on behalf of the firm. I can be reached at the address and telephone numbers on this letterhead or by e-mail at danderson@rmconsult.com.

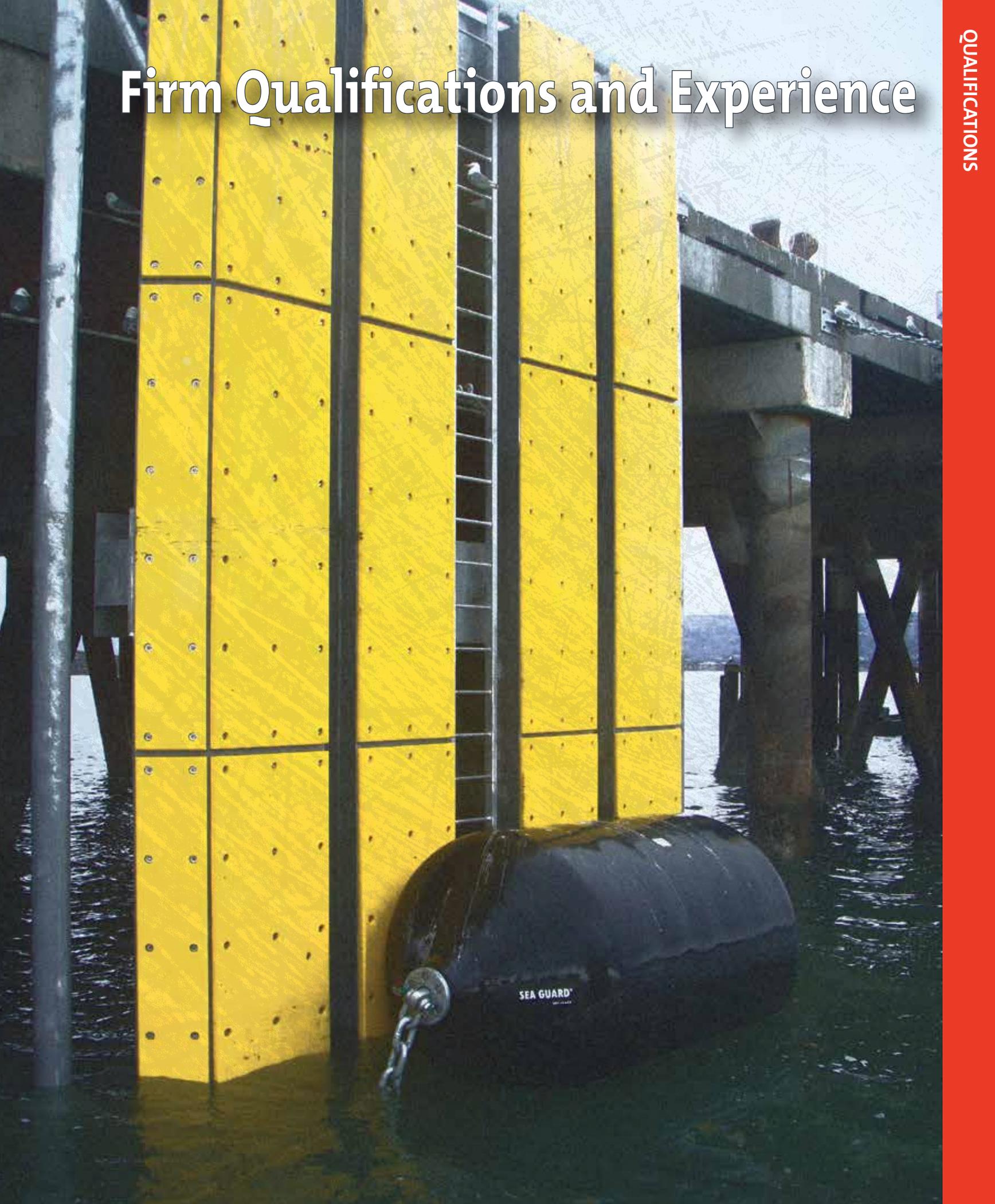
Sincerely,

R&M CONSULTANTS, INC.



Duane H. Anderson, PE
Group Manager, Structural Engineering
DHA: caw

Firm Qualifications and Experience



1. FIRM QUALIFICATIONS AND EXPERIENCE

Consultant Experience and Qualifications

R&M CONSULTANTS, INC. (R&M) is an Alaskan consulting firm with a long and successful history on a variety of projects throughout the state. Founded in 1969, on the cusp of our young state's infrastructure boom, R&M has been involved in some of Alaska's most significant projects. The firm possesses an Alaska Business License and Professional Registration Certificate, shown to the right.

Unlike many of our competitors with offices in the Lower 48, R&M is truly 100% committed to Alaska, with our entire staff located in the state. Over the past 47 years, R&M has grown from a sole proprietorship focused on geotechnical engineering to a multi-discipline firm of more than 120 staff members. R&M provides quality professional services focused on improving the infrastructure that makes a real difference in the day-to-day lives of Alaskans – roads, water and wastewater systems, health care facilities, airports, schools, and ports and harbors.

From offices in Anchorage and Fairbanks, R&M provides:

- Waterfront Engineering
- Civil Engineering
- Structural Engineering
- Environmental Services
- Geotechnical Engineering
- Geology
- Hydrology
- Surveying and Mapping
- Right of Way Services
- GIS Services
- Community Planning
- Transportation Planning
- Land Use Planning
- Public Involvement
- Construction Administration
- Special Inspections
- Materials Testing

R&M has provided planning, design, permitting and construction administration services related to waterfront facilities for ports and harbors for more than 43 years and covering every region of Alaska. Ports and harbor facilities in Alaska are unique in that designs must consider the often remote locations, unique geologic and seismic conditions, and cold, harsh climate. Such considerations may include robust, low maintenance facilities and easy-to-repair components, as well as design considerations for snow and ice loads; icing within port and harbor facilities; and related problems with slipping hazards, bonding ice interfaces, etc.; consideration of snow loads and removal activities; and cold temperature effects on utility design and seasonal versus all-season services to waterfront facilities. R&M is experienced with designing for these challenges, as is exemplified by our staff's wide range of waterfront engineering project experience.



R&M's experience encompasses all of the following marine project types:

- Docks/Wharfs/Bulkheads/Piers
- Harbor Moorage Float Systems
- Breakwater Design
- Waterfront Facilities Maintenance and Master Plan
- Boat Launch Ramps
- Fender Systems
- Condition Assessments
- Shoreline Erosion Protection
- Port and Harbor Master Plans

To complement R&M's in-house services, we have teamed with Juneau-based **Haight & Associates, Inc. (H&A)** for electrical engineering. H&A has a long history of involvement with docks and harbor projects. These projects include large and small docks/wharfs for large vessel moorage, marinas for small vessel moorage, fueling facilities and upland terminals. The electrical engineering services provided by the firm have involved voltage power distribution, shore power pedestals, lighting, communications, fuel pumps and controls, cranes, sewage pump stations and security cameras. H&A has experience with the electrical systems on many of the docks, wharfs, freight yards and bulk fuel facilities constructed in Southeast Alaska over the past 30 years. These facilities have included electrical engineering support for lighting systems, 480 and 208 volt power distribution, bulk fuel pumps and dispensers, and refrigerated van power pedestals.



Personnel Experience and Qualifications

To successfully design feasible concepts for replacing or refurbishing the Lutak Dock that meet the Borough’s needs for the facility, R&M has compiled an integrated team of waterfront, structural and geotechnical engineers, all of whom have extensive dock design experience. The chart to the right illustrates the organization of our team and lists the personnel R&M will assign to work on this project.

Our key project team members have a breadth of experience providing port and harbor engineering services across the state, including commercial ports, harbor float systems, ramps, docks, bulkhead wharves, barge facilities, breakwaters and other coastal protection, and master planning projects. Their experience and qualifications are highlighted in the following paragraphs. More detailed Resumes can be found in *Appendix A: Resumes*.



PROJECT MANAGER

John Daley, PE (CE9579; SE14151) | R&M

John will be the Project Manager and day-to-day contact for this project. He will oversee and direct all project tasks. John is a Senior Waterfront and Structural Engineer with 23 years of engineering experience, including a broad range of project management and waterfront, coastal and civil engineering experience. His design experience includes various types of docks and wharves (sheetpile bulkheads, pile supported docks, fender systems, floating docks), breakwaters, harbors, float systems, bridges, flood control projects, erosion control projects, and bridge, dock and harbor inspections. John is an experienced corrosion engineer and has designed cathodic protection systems for underground and submerged structures. He is currently involved in two (American Society of Civil Engineers (ASCE) committees (Coasts, Oceans, Ports and Rivers Institute: 1) for the development of seismic design standards for piers and wharves, and 2) for developing waterfront infrastructure inspection standards).

John has significant experience in dock design and renovation and specific experience with the Lutak Dock in Haines. He was the Project Manager for the Haines Ferry Terminal Improvements project where he was responsible for independent review of a complex retaining wall design. John is also the Project Manger for the Homer Deep Water Dock (DWD) Expansion Feasibility and Planning Study, which evaluated existing conditions at the dock and identified potential opportunities/user needs for expansion of the dock. R&M also provided alternative engineering solutions, including conceptual designs, and associated cost and economic benefits.

John’s other experience designing waterfront facilities include the Kodiak Ferry Terminal Pier 1 Replacement, Cold Bay Dock Renovation, Biorka Island (Sitka) Dock Replacement, Homer Ferry Terminal Improvements, McMurdo Station Pier Study, Seward Travelift Dock and Seward I&T Dock

HAINES BOROUGH

Contract Manager

Duane Anderson, PE | CE4774, SE14155 | R&M

Project Manager

John Daley, PE | CE9579, SE14151 | R&M

Design Team

Waterfront Engineer/QC

Kim Nielsen, PE | CE11142 | R&M*

Structural Engineer

Duane Anderson, PE | CE4774, SE14155 | R&M

Waterfront Engineer

Steven Lewis, PE | CE12814 | R&M

Geotechnical Engineer

Bob Pinter, PE | CE8525 | R&M

Electrical Engineer

Ben Haight, PE | EE4800 | H&A

Public Involvement

Van Le, AICP | R&M

Rehabilitation. He has also provided design for a new fender system for the TESORO KPL Petroleum Dock in Nikiski; design and CA for the renovation of a timber dock in Tatitlek; inspection, design and construction support for renovations to the Cordova City Dock; and load rating and upgrade analysis for the existing City Dock and Travelift dock for Valdez. John’s experience in Southeast Alaska includes projects at the Skagway, Hydaburg and Wrangell Harbors.



CONTRACT MANAGER/STRUCTURAL ENGINEER

Duane Anderson, PE (CE4774; SE14155) | R&M

Duane will manage the administrative aspects of the project, and ensure qualified and adequate resources are provided. He will also provide structural engineering support. Duane is R&M’s Principal Structural Engineer and has 40 years of Alaskan structural/marine engineering experience. He is responsible for developing civil/structural designs for buildings, foundations and marine facilities, including bridges, sheet pile bulkhead wharves and seawalls, and pile supported docks in many areas of Alaska. Duane has extensive experience performing projects in Southeast Alaska, and fully understands remote locale and arctic climate design considerations. He was responsible for the Kotzebue sheetpile bulkhead design, which consisted of more than 3000 lf of sheet pile wall along Shore Avenue.

Duane has been responsible for the planning/design of individual facilities valued in excess of \$75 million and has completed numerous significant marine design projects for clients such as the U.S. Navy, U.S. Army Corps of Engineers



(USACE), Alaska Department of Transportation & Public Facilities (DOT&PF) and municipalities throughout Alaska. He has been the Project Manager and participated directly in most work tasks under R&M's Annual Engineering Term Agreement with the Port of Anchorage since 1989 (competitively renewed through RFP process every three years). R&M's scope at the Port is limited to operational and maintenance aspects of existing Port facilities. **R&M has NOT been involved in the troubled and highly publicized Port Expansion effort.** His experience in Southeast Alaska includes the Biorka Island Dock Replacement in Sitka, Skagway Ore Terminal Feasibility Study and several projects at the Ketchikan Shipyard

Duane's experience also includes numerous recent dock design projects, including the Kodiak Ferry Terminal Pier 1 Replacement, Homer Ferry Terminal Improvements, ARRC Seward Marine Terminal Expansion, Valdez Drive Down Float, Homer DWD Fender Replacement, SMIC Breakwater and Port Expansion, and Palmer Station Pier Replacement.



SENIOR WATERFRONT ENGINEER/QC

Kim Nielsen, PE (CE11142) | R&M

Kim is a Senior Engineer and R&M's Group Manager for Waterfront Engineering. She is responsible for overseeing and developing designs for port and harbor facilities and upland support facilities. Kim has a B.S. in Ocean Engineering and 23 years of engineering experience, including significant roles on waterfront engineering projects throughout Alaska, including projects at Anchorage, Barrow, Big Delta, Chenega Bay, Cold Bay, Cordova, False Pass, Golovin, Homer, Juneau/Douglas, Kenai/Nikiski, Kaktovik, Ketchikan, King Cove, Kodiak, Nome, Sand Point, Seward, Sitka, Skagway, Tatitlek, Old Harbor, Unalaska/Dutch Harbor, Valdez, Whittier, Wrangell and Yakutat

Kim specializes in the design considerations particular to coastal Alaska, such as wind, waves, currents, ice, vessel berthing and loading/unloading requirements, shoreline erosion, cold climate, material availability and remote site work. She also has significant experience with environmental permitting for waterfront projects ranging from offshore fill, dredging, rock blasting/removal, offshore material disposal and noise impacts to protected marine wildlife species associated with various pile installation methods.

Kim has significant experience designing waterfront facilities. She is the Project Manager for the Palmer Station Pier Replacement, which includes preliminary design and development of basis of design documents for a design-build contract to replace the pier, and the City of Valdez New Harbor Development, where R&M is designing port and harbor facilities for a new harbor being constructed by the USACE. Kim is also the Project Manager for the SMIC Breakwater and Harbor Development and ARRC's Seward Marine Terminal Expansion project. Her other experience includes serving as project

manager for replacement of the Kodiak Ferry Terminal Pier 1, and serving as the QC Manager and Pier reviewer for the Biorka Island Dock Replacement and McMurdo Station Pier Study in Antarctica.



WATERFRONT ENGINEER

Steven Lewis, PE (CE12814) | R&M

Steven has more than 10 years of experience in civil and waterfront engineering. He has worked on port and coastal design projects throughout Alaska, including projects in Seward, Homer, Ouzinkie, Kodiak, Port Lions, Ketchikan, Valdez, Yakutat, Chignik and Cordova. He is experienced in planning, designing, assessing and overseeing construction, and maintenance of port and coastal structures and facilities. He has extensive experience in the design of waterfront structures, including bulkheads, sheet pile docks, pile docks, earthwork and breakwaters. He is also a committee member with the ASCE/COPRI Seismic Design of Bulkheads Committee, which is working on developing a new standard.

Steven was the Project Engineer for the Homer Ferry Terminal Improvements. This project consisted of upgrading the fender system at the State Ferry Terminal berth in Homer and also included a new covered pedestrian walkway and renovations to mooring bollards. Steven also provided civil engineering for the Valdez New Harbor Design. He designed upland facilities, as well as vessel mooring floats and launch ramp. Other projects Steven has been involved in include the Palmer Station Pier Replacement, ARRC Seward Freight Dock Widening, SMIC Harbor Improvements, Cold Bay Dock Improvements, Biorka Island Dock Replacement, and Homer DWD Expansion Feasibility and Planning Study.

In addition, Steven has provided sheet pile design for various marine facilities. He was involved in the design and construction administration of Ouzinkie Municipal Dock replacement, which included design of a 335 foot-long modified diaphragm (aka open cell) sheet pile bulkhead for ferry and fuel barge service; the Port Lions Ferry Terminal, which included design of a 210 foot-long modified diaphragm sheet pile bulkhead; and the Pebble Limited Partnership Port Design, which included design of a 700 foot-long sheet pile bulkhead with a combination of modified diaphragm and circular cells for supply barges and bulk carrier ships; and the construction of the Chignik Public Dock, which includes 282 foot-long modified diaphragm sheet pile bulkhead, for ferry service.



GEOTECHNICAL ENGINEER

Bob Pintner, PE (CE8525) | R&M

Bob will provide geotechnical engineering for the facility design. He has 26 years of experience in geotechnical engineering, environmental engineering and engineering geology.



His responsibilities have included field, laboratory and office aspects of geotechnical investigations. Bob's experience includes analysis of deep and shallow foundation systems, including analysis of lateral loading using various computer programs, evaluation of slope stability and assessment of earthquake hazard.

Bob has previous experience at the Lutak Dock. He was the project geotechnical engineer for the peer-review of the retaining wall design for the support of an aging cellular cofferdam structure at the ferry terminal in Haines. The review included the analysis of lateral earth pressures for tied-back and cantilever walls. His other experience in Southeast Alaska includes the Biorka Island Dock Replacement, Haines Highway Rock Slope Evaluation, Ketchikan Mill-Mission, Stedman Streets Reconstruction, Gustavus Rink Creek Bridge Replacement and Gustavus Falls Creek Hydroelectric Project.

In addition, Bob was responsible for supplemental geotechnical studies for the Valdez New Harbor Development, which included a new USACE breakwater, floating docks, boat ramp and parking areas on-shore. He was also the project geotechnical engineer responsible for geotechnical studies for a major expansion of the harbor at the SMIC, including a breakwater, dredging, docks and floats. Geologic hazards and considerations included seismically induced settlement and slope instability for the breakwater, design criteria for sheet pile bulkheads, and pile supported dock structures. Other projects include geotechnical engineering services for the Homer DWD expansion Feasibility Study, Homer Ferry Terminal and ARRC Seward Marine Terminal Expansion.



PUBLIC INVOLVEMENT

Van Le, AICP | R&M

Van will be responsible for public involvement. She has 13 years of experience managing public involvement and planning campaigns, permitting and project development processes in Alaska. She is a certified senior level planner specializing in multi-modal transportation, land use compatibility and community development.

Van is also a certified public involvement specialist with experience in effective and open communication-style workshops and open houses. She has proven leadership for guiding public outreach campaigns and communicating project objectives, capital improvement funding realities and project milestones to residents, agencies, business stakeholders, community groups, municipal staff and elected officials. She understands how to schedule public involvement activities around the unique Alaskan sport and subsistence hunting/fishing/gathering traditions, and around seasons and school calendars. Van's strength is using her communication training to work with area stakeholders, tailoring messages that respond to issues important to them. She is adept at creating and using electronic communication materials such as

Constant Contact and graphic project websites with instant feedback features. However, she also recognizes the value of one-on-one stakeholder conversations. She has experience in forming/facilitating community advisory groups and crafting graphic communication strategies for elected officials and other project champions. Van has provided support for the public involvement effort for the Valdez Harbor Development Planning project and the Homer DWD Feasibility Study. Her experience in Southeast Alaska includes the Gustavus Rink Creek Bridge Replacement, Ketchikan Water Street Viaduct, Southeast Alaska Sea Trails Plan and the Petersburg Trumpeter Swan Observatory Project.



ELECTRICAL ENGINEER

Ben Haight, PE (EE4800) | H&A

Ben will provide electrical design. He has more than 43 years of electrical engineering experience, and has been practicing in Alaska since 1975. He participates in the design and construction of electrical systems for marine facilities, including docks, industrial boat yards, marinas, freight handling facilities, ferry terminals, fuel facilities, seafood processing plants and hatcheries. The systems with these projects have involved lighting, power distribution, security cameras, metering, grounding and various shore power configurations.

Ben has previous experience at the Lutak Dock. He evaluated the electrical systems as part of an overall survey of the dock in 2012. The survey included review of the conditions, performance, and usefulness of the lighting, electrical service and power distribution. Ben was also the electrical engineer for the Port Chilkoot Dock Renovations. He designed new electrical systems for the dock, including LED lighting, power distribution, shore power for the small charter boat float and power for miscellaneous equipment.

Ben's relevant experience also includes the Homer Ferry Terminal Improvements, which included lighting for a new covered walkway from the purser's station to near the face of the dock, as well as lighting for the adjacent drive lane; and electrical improvements for the Kodiak Ferry Terminal Pier 1 Improvements, including power distribution, lighting and communications. His other experience includes designing electrical systems for Ketchikan Berth III and the Trucano Bulk Fuel Plant. He is currently working with R&M on the Palmer Station Pier Replacement



Past Performance



2. PAST PERFORMANCE

Performance on Past Haines Borough Projects

R&M has not completed any projects specifically for the Haines Borough, but we have worked on numerous projects within the Borough and have specific experience at the Lutak Dock. We previously performed diving inspection and underwater steel sampling services for assessing structural integrity of the dock, as well as recently evaluated alternatives for the DOT&PF portion of the recent Haines Ferry Terminal project. R&M also provided structural and geotechnical review for an independent review of a complex retaining wall design at the Haines Ferry Terminal, including computer modeling of the retaining wall. H&A evaluated the electrical systems as part of an overall condition survey in 2012, as well.

In addition, R&M drilled and sampled more than 200 borings along the Haines Highway between Milepost 24 and the U.S./Canada Border. We have also provide materials testing and special inspection services on several projects in Haines under our DOT&PF Inspection, Sampling, Testing and Engineering Services Term Agreement. These include Haines Ferry-Union; Haines Highway, Front Street - Union Street; Haines 2nd Avenue; Haines Beach Road Widening and Front Street intersection Improvements; Old Haines Highway Sidewalk construction; Old Haines Highway Sidewalk 3rd Avenue to Allen and Haines Ferry Terminal Improvements.

Performance with Similar Communities/Projects

SEWARD MARINE INDUSTRIAL CENTER HARBOR IMPROVEMENTS | *Seward* | *Norm Regis, City of Seward*
907.224.4352

R&M provided surveying, inspection, geotechnical analysis, coastal/waves modeling, public involvement and permitting for harbor improvements. Planning initially included developing several alternatives focused on breakwater layout, which were modeled using coastal software to optimize wave protection at the site. Then, alternative inner harbor improvements, including docks, berthing dolphins and support facilities, were included in the planning effort. This project employed a public involvement approach similar to what we propose for the Lutak Dock. R&M completed design and is assisting with construction of Phase 1, which includes a breakwater, turning dolphin and channel dredging. Phase 2 will include cargo docks, berthing dolphins and support facilities.

Deadlines/Timeliness: This project was completed on schedule. Phase 1 is predicted to be completed six months ahead of schedule. | **Budget Restrictions/Cost Control:** Design was completed within budget. Construction support is tracking under-budget, despite several contractor schedule delays. | **Quality/Customer Satisfaction:** In 2013, during design, the City completed a questionnaire that R&M sent to our clients to gauge our performance. They ranked R&M's 4-5 out of 5 on every category, including responsiveness, communications, technical ability, value for fees, quality of service, project management and ability to meet deadlines.

HOMER DWD FEASIBILITY STUDY | *Homer* | *Carey Meyer, Public Works Director* 907.235.3124

R&M provided professional engineering services, including evaluating existing conditions and identifying potential opportunities/user needs associated with DWD expansion. The work included an economics and marketing study, and quantified benefits related to existing and new infrastructure. R&M also provided alternative engineering solutions, including conceptual designs, and associated cost and economic benefits. Phase 1 included:

- Preliminary economics and marketing, including existing conditions and survey of market sectors.
- Geotechnical investigation, including field work.
- Survey, including bathymetry.
- Environmental scoping.
- Condition evaluation of existing dock, including underwater inspection, load rating, condition inspection and a tidal current study.

Phase 2 outlines alternatives for expansion, along with associated costs and economic benefits. Public involvement included public meetings and stakeholder interviews (ie. barge companies, oil, gas and mining) to gauge potential dock expansion needs. The result is a complete study of the economic feasibility and cost effective alternatives for dock expansion, presentation of advantages and disadvantages, environmental considerations and public involvement. Concept design and Evaluation of Alternatives included a No-Build Alternative, Correction of Deficiencies in the Existing Dock, Roll-On/Roll-Off Barge Berth Alternatives, Major Dock Expansion Alternatives and Uplands Expansion Alternatives.

Deadlines/Timeliness: On schedule. | **Budget Restrictions/Cost Control:** Design was completed well under budget. R&M worked with the City to maximize use of the funding in a manner that provided the most benefit to the City in the long term and stayed within the funding scope limitations. | **Quality/Customer Satisfaction:** The budget allowed for multiple reviews and regular client input as the concepts were progressed and revised until a well-flushed out, high quality product was achieved.

PALMER STATION PIER DESIGN | *Antarctica* | *Nathan Hoople, Lockheed Martin* 720-568-2368

R&M is performing an alternatives analysis, preliminary design and development of basis of design documents for a design-build contract to replace the Palmer Station Pier. Initial work includes evaluating three alternatives for the pier replacement, including a cellular diaphragm sheetpile bulkhead, a straight sheet tied-back wall, a pile supported dock, and a combination sheet pile bulkhead in the shallow area and a pile supported portion in the deeper areas. The piling will be socketed and anchored into bedrock and the pier will include concrete and gravel surfacing and energy absorbing fender systems, and dolphin mooring structures as needed to serve the two primary ice-class vessels that service the facility, namely the 230' Laurence M Gould and 308' Nathan-



iel B Palmer. The existing facility, a steel sheetpile cofferdam bulkhead backfilled with gravel and cobble, will be demolished and materials re-used as much as practicable in the new facility. Access will be improved to facilitate movement of containerized cargo. Services provided to the pier will include fuel (Antarctic Diesel), potable water, seawater, shore-power and lighting. Design challenges include the remote location and environmental conditions at Antarctica, shallow bedrock (no overburden), sheet ice, and strict environmental restrictions and costs associated with imported material and potential for introduction of invasive species to this sensitive habitat. Bi-weekly stakeholder meetings ensure the concept meets user needs. After the 15% design of Alternatives/Analysis, the owner will select an alternative to progress to 35% design and 100% design/build.

Deadlines/Timeliness: 15% design, alternatives analysis and costs are due September 6th, 2016 and is on schedule. | **Budget Restrictions/Cost Control:** The construction budget is limited due to the high cost of mobilizing equipment to this site. The alternatives analysis will consider potential impediments related to this, which will weigh heavily on selection of the preferred alternative. R&M's total estimated fee was \$420,000 and expenditures are currently tracking at \$65,000 under the estimated budget. | **Quality/Customer Satisfaction:** The client has been satisfied with R&M's performance as is demonstrated by selecting R&M for the McMurdo project (below).

MCMURDO STATION PIER STUDY | *Antarctica* | *Kellie McHugh, Lockheed Martin 720.568.2426*

R&M was recently awarded this contract to LM to provide engineering services for the McMurdo Station Pier Replacement project. R&M was selected for our expertise in remote, cold-climate pier design and is currently working on a study of alternatives to replace the existing ice pier. Each year McMurdo station is resupplied by cargo and fuel vessels in the austral summer months. The original wharf at McMurdo was an ice wall at the face of natural landfast. In the last six years changes in ice formation has required a new ice pier to be constructed four times. The study will examine the existing operations and outline concepts for improvements or replacement. Pier options include continued use of the ice pier, a floating causeway, a floating barge, a permanent pier and subcontractor proposed options. We will evaluate each pier option based on estimated capital costs, maintenance costs, anticipated life span, level of service, constructability and environmental impacts. This will allow stakeholders to make an informed decision on how to proceed with the pier facility.

Deadlines/Timeliness: N/A (project recently started). | **Budget Restrictions/Cost Control:** R&M worked with the owner to develop a project and scope of work that meets the Owner's priorities and budget of \$175,000. | **Quality/Customer Satisfaction:** N/A (project recently started).

ARRC SEWARD MARINE TERMINAL EXPANSION | *Seward* | *Jeanette Greenbaum, ARRC 907.265.2440*

R&M provided engineering, surveying, condition inspection and geotechnical investigation. This was the first phase of master planning for this facility, which will include dredging to create a new barge berth basin, widening and extending the existing freight dock by approximately 400', and replacing and extending the existing sediment containment rock groin structure, as well as replacing and extending the existing cruise ship dock. The project included an above- and below-water condition assessment of the cruise ship dock. Initial tasks included an analysis of alternatives for the dock expansion, including preliminary design and analysis of a pile supported concrete deck, a cellular sheetpile fill structure, a combination sheetpile wall bulkhead, and a combination fill and pile supported structure. We evaluated and compared the four dock expansion options for aspects associated with environmental impacts, constructability, maintenance and cost. The selected alternative, the combination fill and pile supported structure, was selected primarily based on cost.

Deadlines/Timeliness: Task were completed on time or ahead of schedule. | **Budget Restrictions/Cost Control:** R&M completed the scope of work under budget (originally \$398,000) and was given additional tasks to utilize the budget and assist with FEMA permitting, design of an upland storage pad and assistance with a TIGER grant application (which was successful). | **Quality/Customer Satisfaction:** Customer satisfaction is exemplified by the subsequent award of the ARRC's Term Contract for Marine Engineering.

ARRC FREIGHT DOCK WIDENING | *Seward* | *Paul Farnsworth, ARRC 907.265.2540*

As part of R&M's Marine Engineering Term Agreement with ARRC, R&M is working on final design of the Seward Freight Dock Widening. This is a follow-on project to the Seward Marine Terminal Expansion and involved Phase 1 of the expansion, which will widen the dock to 320' using gravel fill protected by armor stone.

Deadlines/Timeliness: 95% deadline was in August and delivered on time. | **Budget Restrictions/Cost Control:** The ARRC has a limited construction budget; therefore, R&M planned the construction in phases, which would utilize the volume of fill typically received by the ARRC each year as surplus dredge material and from flood events. Cells of rock protected fill will be constructed each year for three years to complete the dock widening project. | **Quality/Customer Satisfaction:** N/A (not yet complete).

VALDEZ MUNICIPAL HARBOR PLANNING AND DESIGN | *Valdez* | *Jeremy Talbott, City of Valdez 907.835.4981*

The USACE is constructing a new harbor in Valdez. R&M worked with the City to develop a long-term plan for system wide waterfront development that includes optimizing the old and new harbor facilities to meet current needs and long-term development opportunities. This initially involved public meetings and user group surveys to solicit input as to



the needs and priorities of the community related to waterfront improvements. R&M used this information to develop four concept plan alternatives that maximized the high-priority elements and associated cost estimates and economic analysis. These were presented to the Port and Harbor Commission and at a public meeting. This was followed up by City work sessions and several iterations of the preferred alternative, which ultimately determined the layout for the new harbor's facilities. Subsequent work has focused on design of the new harbor facilities, including a 138-slip large vessel moorage float system, a boat launch ramp, fish cleaning station, a 90' by 90' drive-down float, offshore fill/upland parking, water, sewer pumpout, shore power, high mast and dock lighting, restrooms, new harbor office/warehouse, vessel wash down pads, bilge water collection and treatment system, boardwalk and picnic areas, landscaping and other upland amenities.

Deadlines/Timeliness: This project required an accelerated schedule and flexibility with deadlines of various elements to ensure USACE project needs and deadlines were met. | **Budget Restrictions/Cost Control:** R&M completed value engineering during design to help control construction costs. Because underwater rock was found to be greater than anticipated, and the removal of this rock is very expensive, R&M evaluated ways to reduce this cost. This included reduced excavation area using rock rippers and hammers, blasting from a temporary fill pad, and noise modeling to increase the size of the blast/hole spacing while still maintaining environmental protections. | **Quality/Customer Satisfaction:** The quality of work is exemplified by the client's award of several change orders to add additional scope for the design and permitting of additional facilities/packages as the project progressed. What started out as a planning project has developed into a multi-year, multi-phase project, including design, permitting, geotechnical investigation and construction administration.

KOTZEBUE SHORE AVENUE RECONSTRUCTION | *Kotzebue* | *Ryan Anderson, DOT&PF 907.451.5129*



R&M was responsible for the design of reconstruction of a full-width roadway, cellular sheet pile bulkhead and armor rock erosion protection along the shoreline of Kotzebue. This project included hydrodynamic modules, survey/bathymetry and design of the roadway, sheetpile bulkhead, erosion protection, parking lanes, pedestrian walkways, landscape features and lighting.

The 3,400' long sheet pile seawall and 1,000' of armor stone revetment protects road and seawalk improvements from erosion. Pedestrian and local boat access to the beach was provided by including boat ramps.

Deadlines/Timeliness: The project was completed on-schedule. | **Budget Restrictions/Cost Control:** R&M's fee for this work was \$2,016,000. R&M completed all work under budget and on schedule. The final constructed value of this project was \$40 million. | **Quality/Customer Satisfaction:** This project's goal was primarily to rebuild and protect Kotzebue's coastal roadway, but the seawalk area has become a gathering place and focal point for the community, as is exemplified by President Obama's tour of the project when he visited Kotzebue earlier this year.

KODIAK FERRY TERMINAL AND DOCK IMPROVEMENTS | *Kodiak* | *David Lowell, DOT&PF 907.465.4812*



R&M provided geotechnical investigation, condition assessment, design, and bid and construction support for a replacement of the Pier 1 dock and uplands facilities used by the City of Kodiak for fuel and freight barge landings, as well as the State Ferry Tustumena. The R&M team designed the new dock using vertical steel piles and a combination of pre-fabricated, pre-cast concrete pile caps, channel beams and haunched deck panels. The structure will meet ASCE's newly drafted "Seismic Standards for Piers and Wharves". This was the first application of these standards in Alaska and a professional paper on the topic was presented at the Engineering Research Institute (EERI)'s National Conference on Earthquake Engineering Earthquake in July 2014 and the ASCE Ports conference in June 2016.

Deadlines/Timeliness: To meet funding deadlines, R&M completed the work on an accelerated schedule by re-dedicating staff resources and remaining flexible to provide multiple interim submittals to allow DOT&PF's internal review process to occur concurrently with design. | **Budget Restrictions/Cost Control:** R&M's budget for this work was \$1.7 million. The construction cost was \$12 million. All work tasks to date are under budget. | **Quality/Customer Satisfaction:** This project has been applauded for the design approach, which meets seismic standards and is a simple cost-effective construction method in remote locations due to the use of prefabricated pile caps and deck panels, thereby minimizing onsite construction time. We will evaluate a similar approach as part of the combination sheetpile bulkhead and pile supported dock alternative for the Haines Lutak Dock.



BIORKA ISLAND DOCK REPLACEMENT | *Biorka Island*
 | *Pat Anteau, Federal Aviation Administration (FAA)*
 907.271.1304

R&M is providing design and permitting for the replacement of a 1950s era dock owned by the FAA on Biorka Island, near Sitka. The work included conceptual planning and alternatives analysis; wind/wave analyses; upland and bathymetric surveys; geotechnical explorations; structural, mechanical and electrical design; and environmental permitting.

Due to remoteness of site and lack of construction resources, the pier will be a steel pile-supported structure with precast concrete deck elements. A floating dock and 80' long access gangway will be provided for personnel access via small craft. A fuel header, utility building and eight-ton pedestal crane will also be provided.

Deadlines/Timeliness: Recently submitted 95% design on time. | **Budget Restrictions/Cost Control:** The project is currently tracking under budget at 65% spent and 85% complete. | **Quality/Customer Satisfaction:** This project has undergone several reviews at 35% and 65% and received no substantial comments related to quality of work.

HYDABURG SMALL BOAT HARBOR FLOAT REPLACEMENT | *Hydaburg*

John Daley (*under former employment*) was the design engineer for a harbor renovation and float replacement project in Hydaburg. The project involved replacement of old timber floats with new modern floats. It also involved replacement and upgrade of the gangway, electrical and lighting, water and sewer utilities. Responsibilities included project management, a site inspection and condition assessment, concept design and layout of new harbor floats to ASCE standards, permitting, project management of a site survey, project management of a bedrock probe and mapping program, and design of the new pile foundation including a lateral wind load analysis. The design included a covered fish cleaning area to support the local subsistence fishing and the design of a breakwater float that doubles as a haul out float for skiffs.

SKAGWAY SMALL BOAT HARBOR SEAWALL REPLACEMENT | *Skagway*
 | *Matt O'Boyle, City of Skagway, 907.983.2628*

Kim Nielsen and John Daley (*both under former employment*) prepared design plans and specifications, bid documents, and construction administration associated with replacing an old timber seawall at the small boat harbor with a new sheet pile seawall, access trestle and gangway landing, and associated utilities work. The new wall was placed seaward of the old wall, creating about one acre of additional uplands for parking and a landscaped seawalk area. Kim managed the permitting process which included sediment sampling and analysis required by the USACE for dredging that was to be included in the project.

HAINES FERRY TERMINAL RETAINING WALL REVIEW | *Haines*
 | *Kirk Miller, DOT&PF 907465.6950*

The DOT&PF and the Haines Borough share a common property boundary which encompasses a cellular steel sheet pile bulkhead on both sides of the property. The State's project included replacing their portion of the dock with dolphin mooring structures. The original plan included reinforcing the end cells of the Borough's portion of the dock to retain as much as possible. Under contract to DOT&PF, R&M provided structural and geotechnical peer review for a complex and innovative retaining wall design DOT&PF was considering. Work included computer modeling of the retaining wall to evaluate earth forces deflections stresses and factors of safety for one of the proposed solutions. A written summary of the findings was provided to DOT&PF. Later it was determined the State's plan to retain Sheet pile Cell 5 was in conflict with Borough's plan to remove or replace the dock. As a result, DOT&PF revised their plan to include removal of the cells, and embank the remaining end cell with rock protection, as shown in *Figure 3*.

Deadlines/Timeliness: on schedule | **Budget Restrictions/Cost Control:** within budget | **Quality/Customer Satisfaction:** DOT&PF has indicated they were satisfied with R&M's analysis, although they ultimately decided against the innovative approach due to the conflict with the Borough's plans to remove the dock.

Performance with Private Industry

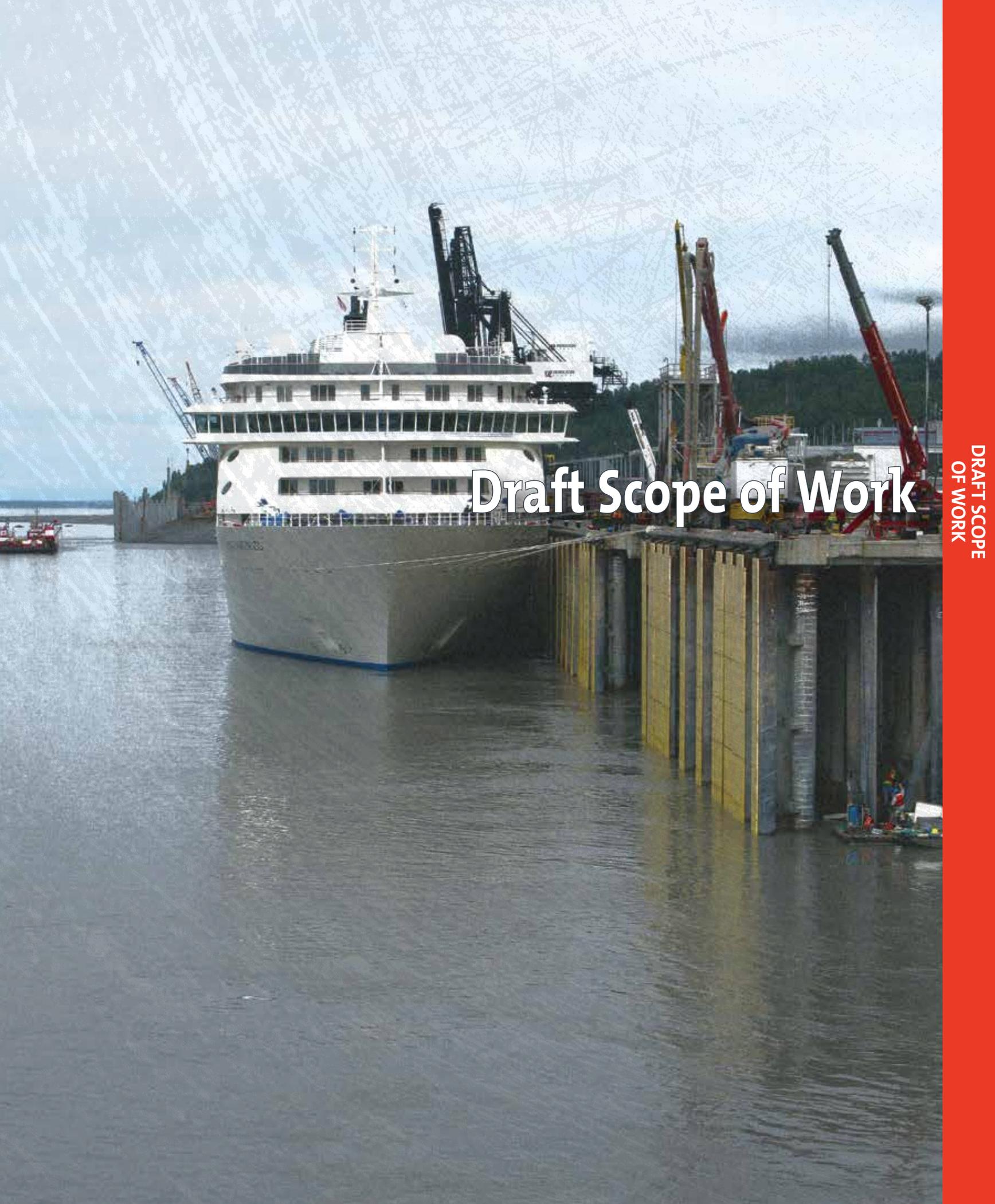
R&M often coordinates with user groups such as the Alaska Marine Highway System (AMHS), Alaska Marine Lines (AML), Delta Western, Crowley, other barge and mining companies, fishing industry groups and economic development groups to ensure their specific needs will be met when designing a new facility for their use. Examples of projects with private industry as our client on waterfront projects include Tesoro, Chevron, North Pacific Rim Housing Authority, AMLJIA, Delta Western, Major Marine Tours, American Marine and others.

References

R&M client contacts for the specific projects listed above are included with the project descriptions. Additional references include the following:

- **Sharen Walsh 907.343.6203**
Deputy Port Director, Port of Anchorage
- **Jon Erickson 907.784.3323 x103**
City and Borough Manager, City and Borough of Yakutat
- **Harvey Smith**
Statewide Coastal and Harbor Engineer, DOT&PF
907.269.6239
- **Ron Long 907.224.4049**
Assistant City Manager City of Seward
907.224.4049
- **Jason Davis 907.261.8960**
Turnagain Marine Construction



A large white and grey ship is docked at a construction site. The ship has a blue stripe along the bottom of its hull. It is positioned next to a wall of yellow sheet piling. Several cranes are visible on the construction site, including a large red crane on the right. The water is calm, and the sky is overcast. The text "Draft Scope of Work" is overlaid in the center of the image.

Draft Scope of Work

3. DRAFT SCOPE OF WORK

Lutak Dock is located in Lutak Inlet near the northern end of Chilkoot Inlet, which is in turn near the northern end of Lynn Canal. The original Lutak Dock was constructed in about 1953 by the USACE. It consists of 15 full circle sheet pile cells connected to each other by interconnecting sheet pile arcs. An L-shaped concrete cap, about 9' high sits on top of the front face of the cells. The depth along the dock is generally about -35' (as shown in *Figure 1*). There are timber fender pilings along the face. The DOT&PF AMHS previously owned four of the cells (Cell #1-4) on the east end of this dock, which is used for the Ferry Terminal. The City and Borough of Haines owns the remaining cells and the ramp to the west. The Borough's dock is currently used by AML and Delta Western for freight and fuel loading/unloading operations.

Inspections of the dock have revealed corrosion, including complete wall penetration of the thinner wall sections on the interconnecting arcs. In 2003, the Borough completed a retrofit of their portion of the dock that included installing new Z sheet piling to shore up the heavily corroded interconnecting arcs.

In October 2004, a sinkhole appeared in the pavement above Cell 4. Observations by ferry terminal personnel revealed the front of the sheet pile cell had split open and the earth fill had begun to spill into the inlet. The State took measures to stabilize the cell with additional piling and braces. DOT&PF then contracted Western Marine Construction to renovate and stabilize their end of the wharf. This project included removing all four DOT&PF-owned cells, as well as the Borough-owned Cell #5 and partially removing Cells #6 and 7. These damaged cells were replaced with a riprap slope. Also considered for this project was the encapsulation of Cell 5 with a new tied-back combi-wall installed very close to the face of the cell wall in an attempt to stabilize and retain the Borough's portion of the Dock. The recent DOT&PF improvements are shown in *Figure 3*.

Methodology

R&M developed a methodology work breakdown and schedule of events designed to take the project from Notice-to-Proceed (NTP) through public meetings, development of options and alternatives, selection of a preferred alternative and delivery of the final report.

KICK-OFF MEETING

R&M will begin the project with a kick-off meeting with the management team from the Borough. The purpose of the meeting will be to establish lines of communication and discuss the scope and schedule for the

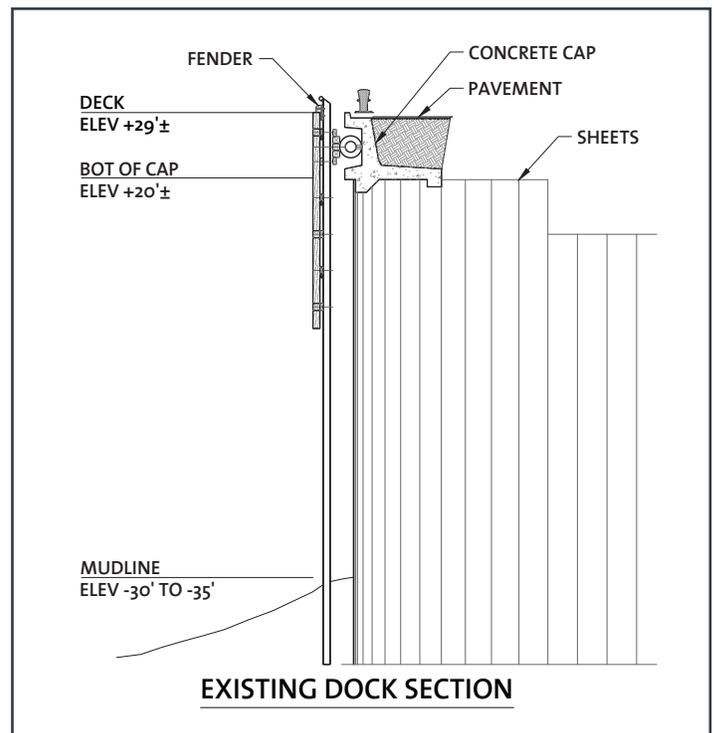


FIGURE 1: Existing Dock Section



FIGURE 2: Lutak Dock prior to recent renovations by DOT&PF.

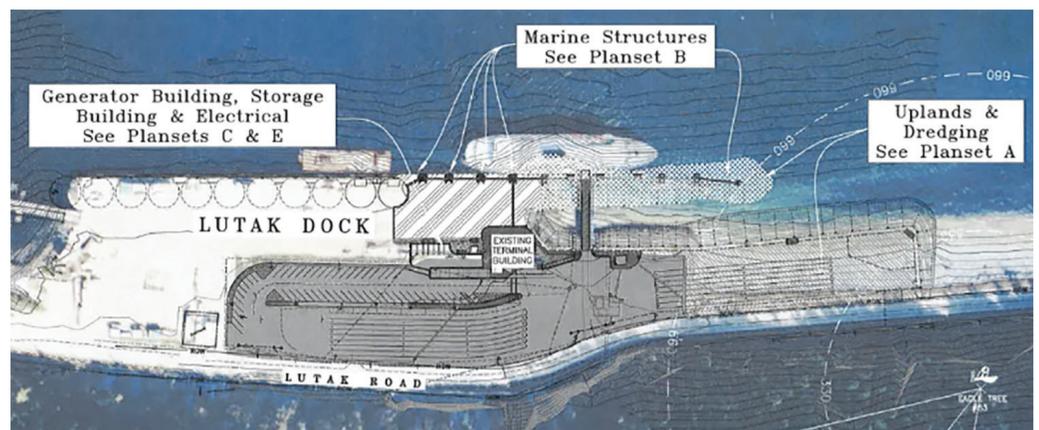


FIGURE 3: Current DOT&PF modifications occurring at the Ferry Terminal portion of the Lutak Dock and easternmost cells of the Borough's portion of the dock.



project. At this time, we will also request a list of contacts for user groups and other stakeholders who might be interested in providing input for the project. R&M will suggest bi-weekly meetings with the management team. These meetings can be brief but will help to maintain continuity. Some meetings may also include key stakeholders as needed, depending on the topics being discussed.

ESTABLISH DESIGN CRITERIA

R&M will establish design criteria for the evaluation of alternatives. The design criteria will include structural, seismic performance, loading, design vessels, operational requirements, upland usage requirements, service life and cathodic protection. We are experienced in the planning of waterfront facilities, familiar with current industry standards and have much of this information in-house.

The evaluation of alternatives will include a fair amount of geotechnical engineering. This includes items such as soil properties, including density, friction angles, susceptibility to liquefaction, etc. It also includes identifying active and passive soil pressures, evaluating slope stability and outlining seismic design parameters.

R&M's staff has direct experience at Lutak Dock. We have data from 1984, 2002, 2003, 2005 and 2007 that we will review and apply to the project. This will reduce or eliminate the need for geotechnical field investigations. These include Haines Borough and DOT&PF reports, including a Geology Data Report, test drilling data and laboratory analysis, pile logs, dynamic testing results, dredge material sampling and testing.

In addition, R&M's Waterfront and Structural Engineering Groups are experienced in designing all manner of docks and bulkheads. We are familiar with the most recent and current design standards. In fact, several members of our group are currently active in American Society of Civil Engineer (ASCE) committees tasked with creating national design standards for the seismic design of piers and wharves, as well as earth filled bulkheads. For this project, we will rely on standards such as:

- ASCE 7-05 Minimum Design Loads for Buildings and Other Structures
- UFC 4-159-03 Design: Moorings
- PIANC Guidelines for the Design of Fender Systems
- ASCE 61-14 Seismic Design of Piers and Wharves
- AISC Steel Construction Manual
- ACI 318 Building Code Requirements for Structural Concrete
- NFPA 303 Fire Protection Standards for Marinas and Boatyards
- EM 1110-2-2503 Design of Sheet Pile Cellular Structures Cofferdams

R&M will also work with the Haines Borough to establish design criteria for the operation of the facility in terms of industrial usage of the fleet and future expansion. We understand the project is primarily based on replacing the existing dock in place. That said, if one were to start with a blank sheet, the size and layout of the dock would be set to match the fleet and intended use of the uplands. This could have a dramatic effect on the size and type of facility, as well as the cost. For example, if the primary use of the dock will be to export minerals, then the dock would be sized to match the bulk cargo ships and the uplands would be configured for stockpile and mineral handling. In the absence of a specific market analysis, we recommend the dock be configured for multi-purpose uses, including general cargo, fuel and mineral export. We will identify the types of loads these usages could put on the dock, as well as the types of vessels involved. We will size the developed alternatives to accommodate the appropriate loading conditions.

R&M will establish corrosion protection criteria to foster a long service life. This will be achieved through a combination of materials selection, coatings and sacrificial anodes. For example, the use of HDPE, rubber and UHMW will be beneficial as these are naturally corrosion resistant. Concrete design will include sufficient cover over reinforcing steel to provide protection from chloride ion intrusion. We will consider certain admixtures and additives, such as silica fume, to provide a durable low permeability mix. Reinforcing steel will be galvanized or epoxy coated in most applications. Coatings may include various epoxy paints, spray metalizing or hot dip galvanizing. We anticipate that all steel piling and steel fabrications will be hot dip galvanized.

We will install sacrificial aluminum alloy and zinc anodes on components below the waterline. All steel piling will be galvanized and have a sacrificial anode systems designed for a 30-year service life. Galvanizing typically has a 20-year service life in the submerged zone. The combination of anodes and hot dip galvanizing brings the design life to 50 years. We anticipate that no significant base metal section loss will occur in this time frame. We recommended new sacrificial anodes be installed after 30 years, which will extend the service life.

INITIAL PUBLIC MEETING TO SOLICIT INPUT

The first public meeting will focus on identifying community and user needs. We will include key persons from AML, Delta Western and other stakeholders, as well as the public, and present the project scope schedule and outline the design concepts in a preliminary fashion. During the meeting we will solicit input on the following items:

- The need and scope of future expandability.
- A construction model that wouldn't interfere with AMHS, AML or Delta Western operations.
- Maintaining and expanding storage and working area at the Dock.



- Considerations for new business (potential mineral exports, large-scale construction support, etc.) and identification of associated design vessels, depths, etc.

We will hold follow-up meetings with the Borough and key stakeholders to discuss meeting results.

DOCK DEVELOPMENT CONCEPTS

R&M will then proceed with the preliminary design of at least three options as outlined in the Request for Proposals (RFP). This will be done in enough detail to validate the adequacy of the concept in terms of design criteria, fully describe the concept in terms of quantities and features, and establish a realistic cost estimate. These options may be modified depending on the results of public input.

Design Option 1

Design Option 1 includes providing a new sheet pile wall outside of the existing cells. R&M has direct experience with this. We recently provided independent review and support to DOT&PF on this concept for their portion of the Lutak Dock. For this project, the R&M team will evaluate a sheet pile “combi-wall” with narrow fill between the new wall and existing sheets as shown in *Figure 4*. The combi wall includes both soldier piling and infill sheets. The soldier piling can be heavy H pile sections or pipe piles. Typically Z sheets are used as infill between the soldier piling. Various combinations of soldier piling and Z sheets can be used in a manner that tailors the wall to the specific requirements of the project. Large pipe or H piles can be combined with heavy Z sheets to create very high load capacity structural sections. The existing concrete cap along the top of the existing cells would be removed. It is possible the combi-wall would need to be tied back to new dead men in the uplands. If this is required, the tie rods could be placed in the area above the top of the existing sheets in the space the cap now occupies. The analysis of the combi-wall option will include several scenarios, including if it were in place with no cellular structure behind it and with the cellular structure in place. We will consider the use of light-weight fill materials, such as expanded polystyrene blocks and controlled low strength material, to reduce the lateral pressures on the combi-wall.

One obvious advantage to this system is that it leaves the existing dock in place and eliminates the need for extensive earthwork and demolition. Therefore, it is possible this could be a cost-effective option

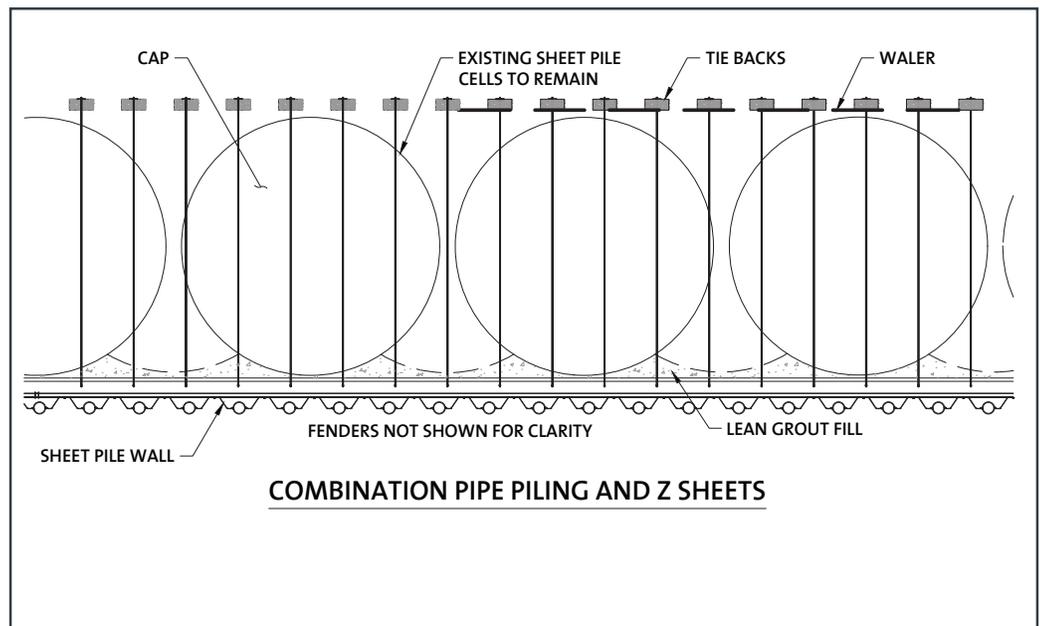


FIGURE 4: Design Option 1, Plan View

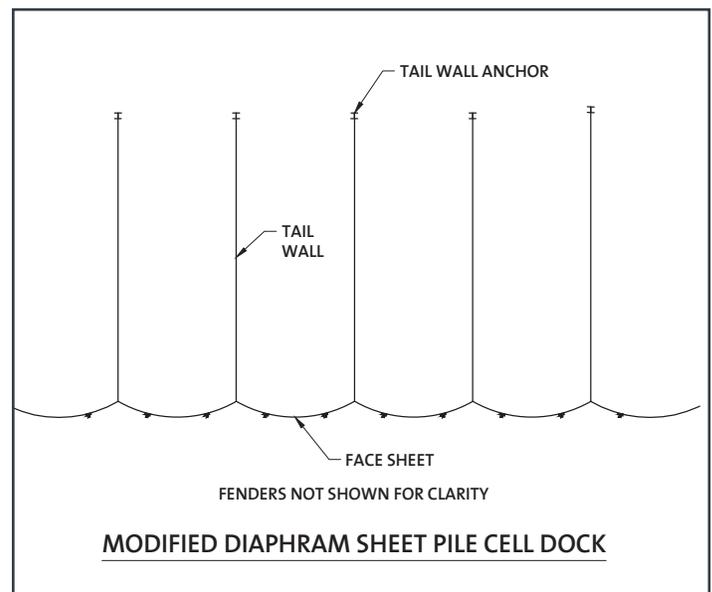


FIGURE 5: Design Option 2, Plan View

Design Option 2

Design Option 2 includes replacing the existing dock in like and kind. We will consider at least two types of cellular docks, a full circle cellular cofferdam similar to the existing dock and a U-shaped modified diaphragm dock.

A 2010 memo from DOT&PF about options at the site states: “From a geotechnical perspective, a sheet pile cellular bulkhead is an ideal structure for this site.” This is from a team of well qualified and experienced engineers. Based on this and on a preliminary examination of the site, a new sheet pile cellular structure would appear to be feasible and provide a high level of service. Obviously, we would design any new dock to current standards and include the most current

advances in technology and design, which is likely to a higher standard than the existing dock.

Note the original construction did not require driving the sheets through 40' to 60' of soil. They were probably driven into 10' to 20' of beach soils and then back-filled. We believe it would be very difficult to reconstruct the existing sheet pile structure in place due to the thickness of the soil that would need to be penetrated and the presence of cobbles and boulders in the fill material. Our investigation and the maintenance work on Cell 4 indicate that cobbles and boulders were incorporated into the cell back-fill. So any concept for a cellular structure will likely require significant demolition and excavation of the existing cells and backfill. This for extensive demolition and excavation will be an important cost consideration for this design option.

Also note the overall height of the face of the dock/wall is fairly significant, -35' at the face to more than 29' at the deck or 64' free standing. While technically possible, this is near the upper end of what is typically considered for an earth filled structure. It is our experience that achieving high levels of seismic performance can be challenging with very high earth filled structures.

Design Option 3

Design Option 3 includes consultant recommendations. For this option, R&M may outline a combined sheet pile bulkhead and pipe pile supported platform dock alternative. The concept includes driving a new sheet pile abutment wall behind the existing sheets approximately 70' back from the face of the existing dock. This would likely be a combi-wall as described in Design Option 1. The existing cells and associated fill would then be removed. An engineered and armored 2 horizontal to 1 vertical slope would be constructed from the abutment to the face of the new dock. The slope would start at about elevation 0.0 at the abutment and go to -35' at the face of the dock. A pipe pile supported platform dock would then be constructed over this engineered slope. The platform dock would include several rows of steel pipe piling, precast concrete pile caps and a high load capacity precast concrete deck.

An advantage to this system is that it provides 100% new structures while limiting the height of the earth-filled retaining structure. This could allow us to achieve a higher level of seismic performance.

R&M will outline each of the above options along with cost estimates and a discussion of pros and cons. We will also summarize the level of service that each provides, along with any limitations. We will provide clear drawings of each option, along with pertinent details.

PUBLIC INVOLVEMENT

Project Specific Public Involvement Program

Most public projects benefit from public input and collaboration. For projects such as this (affecting smaller waterfront communities), local input is vital. This project has the potential to

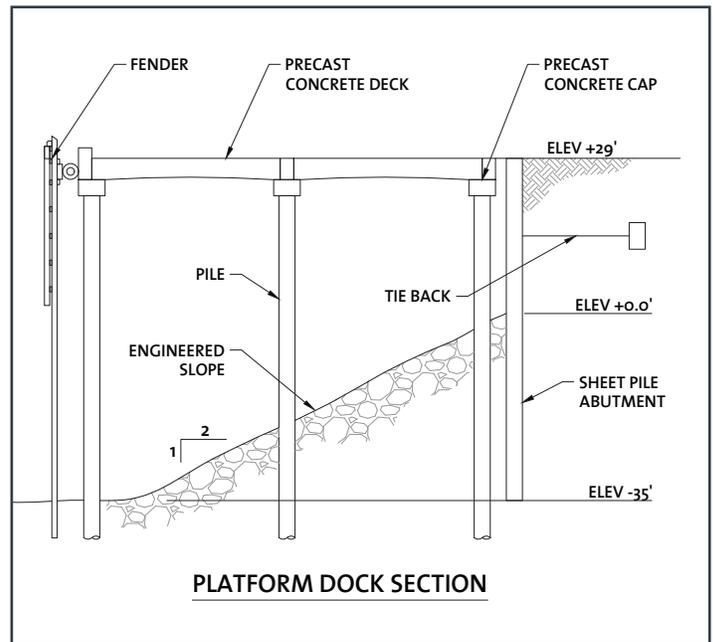


FIGURE 6: Design Option 3, Section View

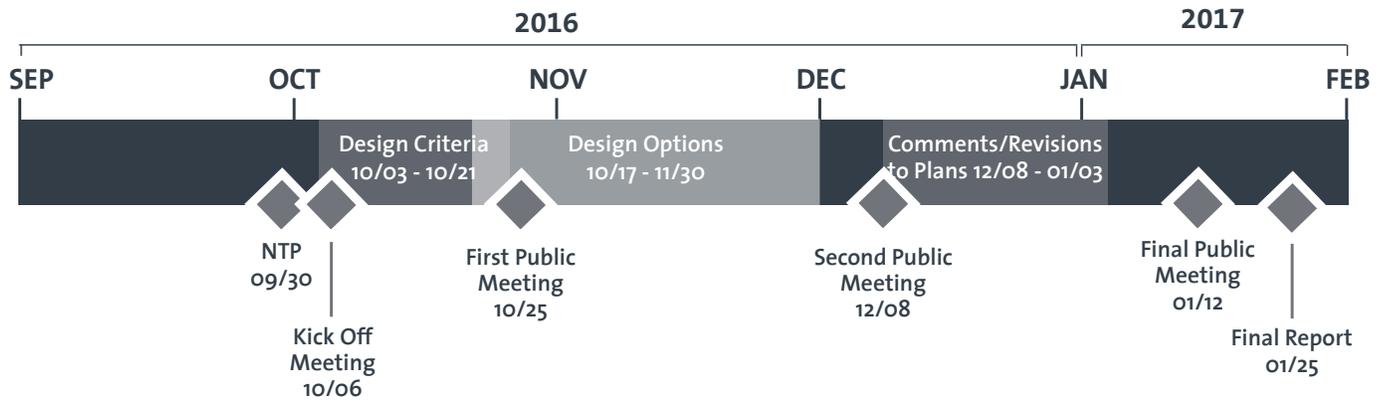
have high public interest. While we expect the public to generally support the idea of replacing the dock, the scope of the design as it pertains to the future use of the dock may be controversial (i.e., size, load capacities, etc.). We expect organized groups, such as the local Port and Harbor Advisory Committee, as well as individual businesses (AML, Delta Western, etc.) and community members, to have concerns about the nature and scope of improvements to the Lutak Dock.

Our approach to public involvement will focus on collaborating with stakeholders early during project development, working together to identify issues and implement improvements that fit with the overall project goals.

We will be up-front and honest about project parameters and how the public's input will be used to affect project decisions. This approach rightfully builds trust, genuine rapport and support among project partners, and increases the likelihood the community will support the recommendations.

The leadership of R&M's public involvement program will be a joint effort between Project Manager John Daley, PE and Public Involvement Lead Van Le, AICP. John and Van have complementary skills that will allow them to effectively develop a public involvement program that will facilitate gaining informed consent for this project. John brings excellent technical and local knowledge to the project, while Van, a Certified Community Planner and Community Outreach Facilitator, as a non-design team member brings a neutral view without the influence of the "designer's preferences". The intent of this arrangement is to ensure the design side is aware of feedback and community desires on a first-hand basis, without feedback having been filtered through a distant and possibly non-technical public involvement team.





Timeline for Lutak Dock Design and Development Concepts

How R&M will Evaluate Community and Borough Needs

R&M will evaluate community and borough needs via the kick-off meeting and public involvement program. In addition, we will conduct stakeholder meetings periodically throughout the project to ensure stakeholder/user groups are involved throughout the conceptual design and analysis process. Our goal will be to come up with a baseline dock facility that would be flexible to all of the identified future uses, possibly requiring future expansion or phases. However, if this process results in highly conflicting and controversial opposing opinions that cannot be accommodated with a reasonable-cost solution, we may later recommend and add a market analysis to this scope of work. In the past, we have worked with Northern Economics and Mercator International for this, both of whom would be qualified for this project. Such an analysis would help to quantify realistic potential markets and uses for the Lutak facility.

Overall Timeline and Completion Date

We anticipate receiving NTP on September 20, 2016 and submitting the final report on January 25, 2017. Our timeline for this project is shown in the graphic above.

Process for Background Research and Data Analysis

R&M's process for background research and data analysis to inform the conceptual designs will rely primarily on the readily available existing information, which is available on the Borough's website, as well as as-builts, property boundaries, permits and other information available from the Borough or other public sources, as well as AML, Delta Western and others who may have historical information and/or maintenance records. Initial data gathering has already begun as part of preparation of this proposal and we will present a list of desired information at the initial kick-off meeting for the Borough and other stakeholder input. Additionally, R&M has in-house resources for geotechnical engineering, surveying, right of way and utilities that can be used as needed to support the project data analysis and verify adequacy of existing data.



Capacity of the Firm

4. CAPACITY OF THE FIRM

Current Workload

R&M has ample time and resources available to accomplish the required work within the project timeframe. Our team’s current and potential time commitments and overall firm workload are illustrated in the table to the right.

Number and Type of Employees

R&M offers one of the largest and best qualified groups of professionals in Alaska. The firm’s most important resource is our excellent depth of staff and overlapping experience among team members. R&M has more than 120 Alaska-based employees – a number that includes 47 civil engineers (30 PEs, 17 EITs) – giving R&M one of the deepest teams in Alaska (see *Available Staff Resources* table on this page). The well balanced configuration of our talented staff allows the firm to accommodate multiple projects simultaneously, on either normal or accelerated schedules.

Our resources also include two planners/public involvement professionals, a graphic designer and a very deep construction services team that can easily accommodate any construction administration and inspection needs, if the Borough desires these services.

R&M provides our personnel with state-of-the-art equipment to increase work efficiency and the quality of our deliverables. We integrated AutoCAD Civil 3D into our design software library in 2007, and are currently using the 2016 version. R&M’s commitment to staying current on the latest software releases and updates results in better products for the Borough through improved design efficiencies, product quality and data sharing.

Outside Contractors

To complement R&M’s in-house experience, we have included H&A on our team to provide electrical engineering expertise.

H&A is located in Juneau and has been serving Alaskan communities for the past 35 years with design and construction services. They currently employ a full-time staff of six, including one professional engineer, two staff engineers, two drafter/designers and administrative staff.

Team Member Role	% of Time Committed	
	09/16 - 12/16	01/17 - 06/17
R&M	65%	50%
John Daley <i>Project Manager</i>	35%	25%
Duane Anderson <i>Contract Manager/Structural Engineer</i>	40%	30%
Kim Nielsen <i>Waterfront Engineer/QC</i>	40%	25%
Steven Lewis <i>Waterfront Engineer</i>	40%	25%
Bob Pintner <i>Geotechnical Engineer</i>	40%	25%
Van Le <i>Public Involvement</i>	60%	50%
H&A	40%	25%
Ben Haight <i>Electrical Engineer</i>	45%	25%

 AVAILABLE STAFF RESOURCES	
<i>Administrative Support</i>	12
<i>CADD Support</i>	2
<i>GIS</i>	3
<i>Special Inspections</i>	4
<i>Materials Testing</i>	10
<i>Construction Administration</i>	15
<i>Transportation and Land Use Planning/ Public Involvement</i>	2
<i>Hydrology</i>	3
<i>Survey and Mapping</i>	20
<i>ROW Services</i>	4
<i>Geology</i>	5
<i>Geotechnical Engineering</i>	3
<i>Environmental</i>	5
<i>Waterfront Engineering</i>	5
<i>Structural Engineering</i>	4
<i>Civil Engineering</i>	48





FIRM'S EXPERIENCE WITH PUBLIC MEETINGS AND USER GROUPS

5. FIRM'S EXPERIENCE WITH PUBLIC MEETINGS AND USER GROUPS

Meaningful public involvement is an important part of nearly every project designed by R&M. The specialized experience of our team is a compilation of many years of similar projects, including 27 continuous years on projects at the Port of Anchorage and 20 years in the City of Seward, which gives our team an excellent perspective to the types of issues typically encountered with port and harbor projects.

As an example, R&M has been working on the SMIC project, which initially included a similar public involvement methodology as proposed for this project, including public meetings and meetings with specific users of SMIC, including the shipyard, Petromarine, Coastal Villages Fishing CDQ and barge operators. This streamlined approach to public involvement has proven successful for projects where community support for the project development in general (i.e., replacing the dock) is non-controversial, which allows the public involvement to focus on public input to the design specifics of the alternatives.

R&M is also working with the City of Valdez on development of their new harbor, which is currently under construction. This initially included development of a city-wide waterfront development plan which reviewed the condition of existing facilities, and solicited input from the public as to the needs and priorities of improvements needed/desired within the community. Public input was solicited at an initial meeting and via a public survey mailout and web-based user survey. Then, R&M worked with the local Port and Harbor Commission to develop several concept alternatives and these were presented at a public meeting. Comments on the alternatives were collected and used to ultimately come up with a Preferred Alternative. The Port and Harbor Commission later worked with R&M to refine the preferred alternative to the one that is currently being used to develop the new harbor. Informational mail outs continue to occur regularly to update the public as to the project progress, along with project updates at the regular City Council meetings.

Other recent experience with public meetings and user groups includes:

- R&M interviewed barge operators, oil and gas developers, and ferry operators to understand potential future uses of the Homer DWD dock if it was expanded.
- R&M coordinated with the public and user groups during the environmental review, permitting, design and construction of a new water main crossing a major salmon stream in Girdwood. The process involved public meetings, comments and distribution of project updates.
- R&M held open houses, compiled hundreds of comments, and completed the design and permitting of the controversial, but successful C Street Extension project in Anchorage.



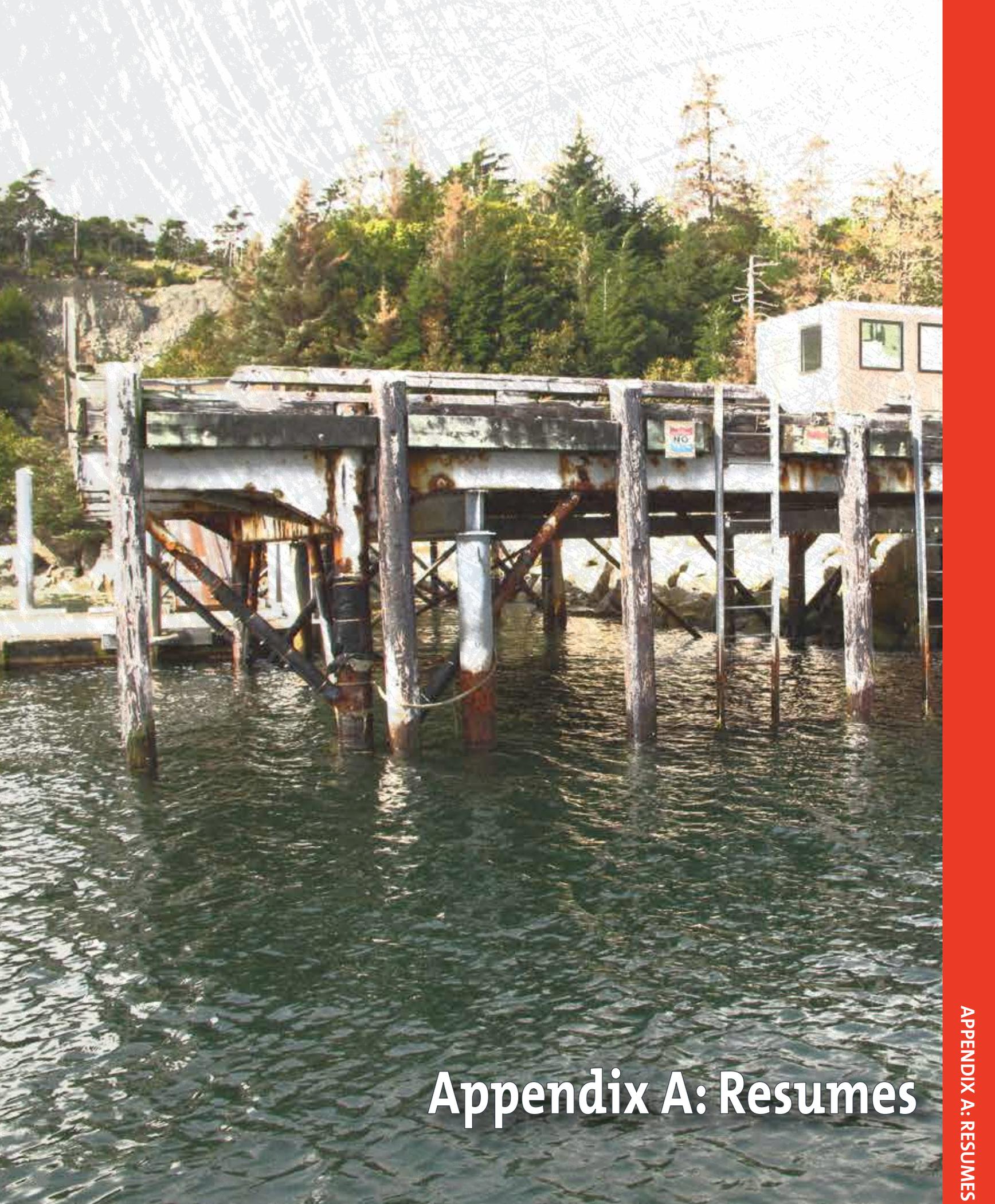
Valdez Harbor and Downtown Revitalization Plan Charrette Facilitation with Business Stakeholders, Planning Commission and City Manager's Office.



Community members and stakeholders participating in a Planning Charrette for the Muldoon Town Square Park Master Plan project.

- R&M led the development of the historically-eligible Eklutna River Bridge Replacement through the Context Sensitive Solutions in less than two years from project beginning to construction completion in 2016. R&M facilitated a robust public and agency program that reached consensus between the Native Village of Eklutna, SHPO, State of Alaska, the community and permitting agencies to advance the project.
- R&M facilitated the controversial roundabout project in West Anchorage, moving property owners, the local community council and residents from "we don't want the project" to "we can live with this" through the Systematic Development of Informed Consent (SDIC) method of Public Outreach.
- R&M recently completed a plan, design and build project for the redevelopment of a new 30-acre park on the east side of Anchorage in less than one year by facilitating a Citizen's Advisory Group, design Charrette workshops and coordinating with State legislators. The new park received unanimous approval through the local Parks Commission, Planning and Zoning Commission and Urban Design Commission to advance to construction in July 2016.





Appendix A: Resumes



John C. Daley, PE Project Manager

Mr. Daley has a wide range of engineering design, construction, inspection and project management experience. He has managed and participated in a variety of civil and waterfront projects, including roadways, water and wastewater pipelines, docks, harbors, and breakwaters. John has been involved in the inspection of many marine structures, often in remote locations. He has completed the structural design of docks, trestles, retaining walls and pile foundations, and is familiar with the design features, construction methods, common problems and materials used in these various structures. John is also a certified Corrosion Technologist. He has inspected and designed a number of cathodic protection systems for waterfront facilities, and has recently been involved in a number of condition assessment projects of marine facilities, some of which include diving inspections.

Related Project Experience

ARRC Seward Marine Terminal Expansion | Seward

John is the Project Engineer for expansion of the ARRC Seward Marine Terminal. The project includes relocating and extending the existing sediment containment rock groin structure to minimize sediment buildup in the barge berth basin and extending the existing freight dock by approximately 400'. Initial tasks include conducting a sediment transport study to identify the ideal type and alignment of the new jetty structure, as well as an analysis of alternatives for the dock expansion. The project also includes an above and below water field investigation, condition assessment and structural evaluation of the passenger dock.

Valdez Municipal Harbor Planning and Feasibility | Valdez

John is a Senior Project Engineer for this project which began initially with a very aggressive schedule to initially provide the information USACE needs to proceed with their harbor design. This included developing four concept plan alternatives, associated cost estimates and economic analysis. Subsequent work has focused on the planning effort for the new inner harbor facilities.

Kodiak Ferry Terminal and Dock Improvements | Kodiak

John was the Project Engineer for bearing and abutment design of the replacement of Pier 1 Ferry Dock for DOT&PF. R&M provided engineering design development, preparation of plans, specifications, estimates, assistance during bidding and construction. John has also published professional papers on this project.

Hydaburg Small Boat Harbor Float Replacement | Hydaburg

John was the Project Design Engineer for this project involving the replacement of old timber floats with new modern floats. His responsibilities included project management, a site inspection and condition assessment, concept design and layout of new harbor floats to ASCE standards, permitting, project management of a site survey, and the design of the new pile foundation.

Haines Ferry Terminal Retaining Wall Review | Haines

John was the Project Manager for the independent review of a complex retaining wall design. R&M provided structural and geotechnical review including computer modeling of the retaining wall. The model included earth forces deflections stresses and factors of safety. A written summary of the findings was provided to DOT&PF.

Seward Marine Industrial Center (SMIC) Corrosion Investigation | Seward

John was the Project Engineer for the corrosion assessment of the shipyard facility at the SMIC. The project included a site investigation, cathodic protection 1/2 cell readings and ultrasonic thickness readings of the sheeppile bulkhead. John inspected and evaluated the existing impressed current cathodic protection system for performance. He provided a report of the findings, and served as an expert witness for arbitration between the City and the operator of the facility.

U.S. Coast Guard Dock | Sitka

John was the Project Engineer for the inspection of the timber Coast Guard dock in Sitka, Alaska. The project involved a complete inspection of the existing wharf including both

Education

2002 M.S. Civil Engineering - Coastal and Marine, University of Alaska Anchorage

1993 B.S. Civil Engineering, University of Alaska Anchorage

Professional Registration

2014 Professional Structural Engineer, Alaska #SE14151

1995 Professional Civil Engineer, Alaska #CE9579

2008 Professional Civil Engineer, Washington #C41973

Certifications

NACE Corrosion Technologist #4872

2003 Safety Inspection of In-Service Bridges, NHI #130055A

2012 Bridge Inspection Refresher Training, NHI Course #130053

Professional Affiliations

- ★ ASCE Coasts, Oceans, Ports and Rivers Institute
- ★ ASCE COPRI Committee for Seismic Design Standards for Piers and Wharves
- ★ ASCE COPRI Committee for Waterfront Facilities Inspection Standards
- ★ National Association of Corrosion Engineers



the superstructure and the substructure. The substructure inspection included a diving inspection that was carried out using surface supplied diving equipment. Inspection also included taking cathodic protection 1/2 cell readings, and ultrasonic thickness readings at the steel dolphin piling. In-situ ultrasonic testing of the timber piling was also conducted.

Valdez Small Boat Harbor Cathodic Protection Project | Valdez

John was the Project Manager for the design of a sacrificial aluminum anode system to NACE standards for the small boat harbor. The cathodic protection system provides protection to the floating docks and sheet pile docks. Sacrificial aluminum anodes were designed to provide a 20-year service life and to NACE standards. The project included final design cost estimates and contract documents.

Homer Ferry Terminal Improvements | Homer

John is the Project Manager for the inspection, condition assessment and subsequent design of renovations to the Homer Ferry Terminal. The project includes the addition of three new primary dock fenders, a new high capacity corner fender, renovations to the existing mooring dolphins, a new covered pedestrian walkway, and other work. R&M is providing project management, field investigation, design of improvements, permit support, bid support and construction support.

Homer Deep Water Dock Expansion Feasibility Study | Homer

John is the Project Manager responsible for a feasibility study of the market-based, economically sound, expansion of the DWD to support increased cargo operations, cruise ships and industrial deep water moorage. R&M is examining the economics, market demands and local infrastructure, and outlining upgrades and development to the DWD as required to meet the long-term needs of the City, Kenai Peninsula Borough and port users. John's responsibilities have included project coordination, management, site visits and an above water and underwater dock inspection, condition assessment, environmental scoping, concept alternatives analysis, geotechnical engineering, surveying, current and wave studies, and preliminary design.

ARRC Seward Passenger Dock Inspection | Seward

John is the Project Engineer for this project to provide a detailed structural inspection of the Cruise Ship Passenger Dock in Seward. John was responsible for an above- and below-water inspection of structural and electrical components. This project also includes non-destructive testing, corrosion loss assessment and condition rating of the major components of the facility. In addition, he will define recommended repairs and upgrades and provide associated cost estimates he will define. John will prioritize repair projects to assist planners in budgeting for the work system-wide.

Seward Small Boat Harbor Travel Lift Dock Bulkhead and Timber Dock Renovation | Seward

John was the Project Manager for this project that included a new 75-ton Travelift unit and sheet pile bulkhead and pre-cast concrete girder runway. The project included a sheet pile "combination wall" consisting of H pile soldier piling with Z sheet infill. The bulkhead design included significant attention to seismic design and cathodic protection for a long service life. The project also included a high capacity pre-cast concrete box girder for one of the Travelift runways. This was found to be a highly cost-effective way to support the Travelift. Also included was the renovation of two existing timber docks. The renovation consists of new decking, fender piling, bullrails, electrical service, lighting and other features.

FAA Biorka Island Dock Replacement | Sitka

John is the Project Manager for replacement of a 1950s era dock, including conceptual planning/alternatives analysis, wind/wave analyses, upland and bathymetric surveys, geotechnical explorations, structural, mechanical and electrical design, and environmental permitting. Due to remoteness of site and lack of construction resources, pier will be a steel pile-supported structure with precast concrete deck elements. A floating dock and 80' long access gangway will be provided for personnel access via small craft. A fuel header, utility building and eight-ton pedestal crane will also be provided.

Sand Point Small Boat Harbor Renovation Project | Sand Point

John was the Project Manager for the replacement of old concrete floats with new modern timber floats specifically designed for commercial fishing vessels at the Robert E. Galovin Small Boat Harbor in Sand Point. The new heavy duty timber floating docks are designed to resist high wind loads on the large sail area of the commercial fishing vessels and have industrial tie down features and three phase power for the fleet. The pilings for this project are designed to be drilled and socketed into shallow bedrock. The project also included the replacement and upgrading of the existing grid, new gangways, electrical and lighting and fire suppression systems. John's responsibilities included project management, float and utility design, the design of the new pile foundation, including a lateral wind load analysis, and providing bid support.

Seward Z Float | Seward

John was the Project Engineer for the design of a new heavy duty floating dock for the Seward small boat harbor. The project included a detailed wind load analysis and a mooring load analysis. The dock included a heavy duty steel tie down rail and a heavy duty plywood diaphragm system to resist loads of 200 foot long vessels under long-term moorage conditions.

Duane H. Anderson, PE Contract Manager/Structural Engineer

Mr. Anderson is R&M's Group Manager of Structural Engineering and offers more than 41 years of Alaskan structural engineering experience. His experience is varied and diverse, allowing him to look at project challenges from various perspectives and develop cost effective solutions. His professional experience includes original and remedial designs involving wharves and docks, fender systems, buildings and foundations. Duane is highly knowledgeable of the port and harbor design and construction standards, administrative and operational requirements, governmental contract requirements and procedures.

Related Project Experience

Seward Marine Industrial Center (SMIC) Expansion | Seward

Duane supported R&M's Waterfront Engineering Group in a preliminary condition inspection preparatory to planning harbor improvements for planned expansion. The project has moved into the Phase 1 design, requiring limited support for design of basic harbor structures, including a turning dolphin for the existing marine lift. A future Phase 2 will involve the design of new harbor amenities, including both fixed docks and floating berths.

Palmer Pier Replacement | Antarctica

Duane is the Contract Manager and Lead Structural Engineer to provide coastal, waterfront, structural, corrosion and geotechnical engineering services to replace the pier at Palmer Station, Antarctica. R&M was selected for our expertise in remote, cold-climate pier design and is currently working on a 35% Design and Basis of Design document for a design-build RFP to construct a replacement pier and associated fender system and water, wastewater, fuel delivery, and power/lighting for the facility. R&M will provide support throughout the design and construction phases of the work.

ARRC Seward Marine Terminal Expansion | Seward

Duane is the Structural Engineer for expansion of the ARRC Seward Marine Terminal. Tasks include a sediment transport study to identify the ideal type and alignment of the new jetty structure, an above and below water field investigation, condition assessment, and structural evaluation of the passenger dock, as well as an analysis of alternatives for the dock expansion.

Kotzebue Shore Avenue Shoreline Protection | Kotzebue

Duane was responsible for design of more than 3000 lf of sheet pile wall shoreline protection constructed to protect road improvements as part of R&M's overall road improvements project for DOT&PF on Shore Avenue.

Kodiak Ferry Terminal Dock Improvements | Kodiak

Duane was lead structural engineer for design of a replacement ferry terminal dock in Kodiak. The design of the 130' x 230' concrete deck steel pile structure is based on the new ASCE Design Standard "Seismic Design of Pile Supported Piers and Wharfs" requiring an inelastic pushover analysis. This analysis is similar to that required of significant bridges per the AASHTO Guide Specification. Due to shallow bedrock at the site, piles are drilled/ socketed into bedrock.

Whittier Boat Harbor Breakwater Investigation | Whittier

Duane was the Project Engineer for evaluation of the sheet pile and floating concrete breakwater sections. He completed interim design for repairs.

Dillingham Harbor Bulkhead Extension and Floating Dock Modifications | Dillingham

Duane was responsible for design of an extension to the Small Boat Harbor fisherman's dock (sheet pile bulkhead) and modifying struts on small boat harbor floats to extend them to deeper water within the harbor.

ARRC Delong Dock Engineering Evaluation and Analysis | Whittier

Duane is the Structural Engineer on this project to provide a condition inspection of the ARRC's Delong Dock near Whittier. He is responsible for the structural analysis of the dock. The dock was built in about 1952 and includes sections of a war surplus floating pier that was secured in place with steel piling as well as a pile supported approach section that connects the dock to the uplands.



Education

1993 Masters of Business Administration, University of Alaska Anchorage

1975 B.S. Civil Engineering, University of Alaska Fairbanks

Professional Registration

2014 Professional Structural Engineer, Alaska #SE14155

1979 Professional Civil Engineer, Alaska #CE4774

Professional Affiliations

- ✦ American Institute of Steel Construction
- ✦ American Society of Civil Engineers
- ✦ Structural Engineers Association of Alaska



POA Ship Creek Boat Launch Repair | Anchorage

Duane prepared a set of construction documents for repair of deteriorated conditions on the articulated concrete mat surface. R&M proposed two repair methodologies. One approach involved salvaging the loose articulated concrete blocks for replacement. Another approach disposed of the displaced ACB and used a concrete mat to protect the surface. The repairs went well and the repair approach still appears to be in excellent condition.

POA POL Terminal No. 2 Fender Damage Repair | Anchorage

Duane was responsible for a damage assessment and repair plan for the POL Terminal No. 2 fender system, damaged during a vessel berthing. A contractor with necessary experience was selected to complete the repairs, and the POL pier was fully useable eight months after the incident.

Port of Anchorage Civil/Structural Projects (1989 to Present)

| Alaska

Duane is the Project Manager and Lead Structural Engineer responsible for performing a large variety of tasks, including the Port's annual pile enhancement projects, building structural and roof evaluations, terminal facilities, POL storage and distribution systems, and plan reviews. A representative list of projects, some of which are described more fully in following paragraphs, includes:

- ✦ Pile Enhancement Projects 2000,2004, 2007-2014
- ✦ Port Security Command and Control Building Design
- ✦ Security Checkpoint No. 1 Design
- ✦ Heavy Crane Lift Evaluations
- ✦ Trestle No. 2 Pile Renovation
- ✦ Deck Delamination Repairs Terminal 1, 2 and 3
- ✦ Fender System Design Review
- ✦ POL 1 Fender System Replacement
- ✦ POL Terminal No. 2 Structural Rehabilitation Design Review
- ✦ POL No. 1 Line Replacement
- ✦ Cement Silo Relocation Study

Seward Multi-Use Dock Facility | Seward

Duane was the Project Structural Engineer responsible for developing a plan and design for a new deepwater dock facility at the Port of Seward to accommodate increased cruise ship traffic, vessels belonging to the Alaska Marine Ferry Highway System, and vessels used by the University of Alaska's Institute of Marine Sciences.

Homer Deep Water Dock Expansion Feasibility Study | Homer

Duane is the Contract Manager and Structural Engineer responsible for a feasibility study of the market based, economically sound, expansion of the DWD to support increased cargo operations, cruise ships and industrial deep

water moorage. R&M is examining the economics, market demands and local infrastructure, and outlining upgrades and development to the DWD as required to meet the long-term needs of the City, Kenai Peninsula Borough and port users. Duane's responsibilities have included contract management, site visits and above water and underwater dock inspections.

Homer DWD Fender Replacement | Homer

Duane was responsible for design of a new fender system capable of berthing vessels ranging from Alaska Ferries to 400' ocean going barges, to Cruise Ships. The system developed is a hybrid system consisting of a more typical Alaska fender system in which floating foam-filled camel fenders are deployed for cruise ships. The project was bid and installed within a narrow environmental window and was constructed within budget.

Bethel Small Boat Harbor Improvements | Bethel

Duane was the Project Engineer responsible for designing access roads, bank stabilization and transmission lines for a small boat harbor. He also provided construction inspection and administration.

U.S. Navy Amchitka Heavy Cargo Dock Replacement |

Amchitka Island

Duane was the Project Structural Engineer responsible for designing a heavy cargo dock to replace an existing facility currently used by the U.S. Navy on Amchitka Island. The scope of work included replacing the entire structure (pilings, dolphins, cat walks and deck) and designing dock for crane loads. Civil design included all site utilities (water, power and fuel) and road access.

U.S. Navy Pier and Moorage Facility | Ketchikan

Duane was the Project Structural Engineer responsible for design of a 294' pier (precast, prestressed concrete and steel) for barge moorage with hinged gangway and access to a 30' floating dock. The design included an energy absorbing fender system precast concrete panel boat ramp, three dock cranes with up to 40-ton capacity, anchored moorage buoys, and riprap for shore protection. The floating dock was designed to be lifted out of the water during storm periods.



Kimberly A. Nielsen, PE Quality Control

Ms. Nielsen is a Senior Waterfront Engineer with more than 23 years of waterfront and environmental engineering experience in Alaska. She joined the R&M team in 2011 to manage our Waterfront Engineering Group. In this role, Kim is responsible for overseeing and developing designs for port and harbor facilities and upland support facilities. She specializes in the design considerations particular to coastal Alaska, such as wind, waves, currents, ice, shoreline erosion and sediment transport, cold climates, materials availability, and remote site work.

Related Project Experience

Seward Marine Industrial Center (SMIC) Harbor Improvements | Seward

Kim is the Project Manager for this project that includes a condition assessment and recommended repairs and upgrades to existing facilities, plus coastal wave analysis, alternatives analysis, engineering design, cost estimating, geotechnical investigation, dredge material sampling, permitting for dredging a new breakwater, two dock facilities and fender system at the SMIC. The first phase of the project will provide a 900' long rock breakwater designed to provide protection from long period swell that currently enters the site from the Gulf of Alaska and an 8' storm wave.

Palmer Pier Replacement | Antarctica

Kim is the Project Manager under this contract to provide coastal, waterfront, structural, corrosion and geotechnical engineering services for replacement of the pier at Palmer Station, Antarctica. R&M was selected for our expertise in remote, cold-climate pier design and is currently working on a 35% Design and Basis of Design document for a design-build RFP to construct a replacement pier and associated fender system and water, wastewater, fuel delivery, and power/lighting for the facility. R&M will provide support throughout the design and construction phases of the work.

ARRC Seward Marine Terminal Expansion | Seward

Kim is the Project Manager for expansion of the ARRC Seward Marine Terminal. Tasks include preliminary design, concept design and alternatives analysis in support of initial permitting efforts; topographic and bathymetric surveying; preliminary Sediment Transport Study; Freight Dock extension and barge berth; sediment containment groin; Passenger Dock condition assessment; Freight Dock widening design; Parcels 1-3 Storage Pads design; and TIGER grant assistance.

ARRC Freight Dock Widening | Seward

Kim is responsible for project oversight and quality control for revising and finalizing the Seward Marine Terminal Freight Dock Widening design plans, and developing a phasing plan to complete the work over a 5-year period. A phasing plan will be developed to complete the work over a 5-year period, and based on the current 95% design, approximately five phases is needed to complete the dock widening development. R&M is preparing a 100% design package, including revised drawings, note specifications and quantities for the phased development.

Valdez Municipal Harbor Planning and Design | Valdez

The USACE has completed design and is beginning construction of a new harbor in Valdez. As Project Manager, Kim worked with the City to evaluate feasibility and develop a long-term plan for system-wide waterfront development that includes optimizing the old and new harbor facilities to meet current needs and long-term development opportunities. This included initially conducting interviews and public involvement, surveys to identify needs and priorities, followed by development of 10 concept plan alternatives, associated cost estimates and economic analysis, which were presented to the Port and Harbor Commission and at public meetings. Once federal funding for the new harbor was announced by USACE, the project switched gears and focused on fast-track design and permitting of the new harbor facilities. The R&M team has completed design of Phase I Uplands, which created uplands to support the new harbor by excavating a hill and creating offshore fill and utilities main extensions to the new harbor area. Ongoing phases include the inner harbor moorage floats, boat launch ramp, drive down float and upland support facilities, including a harbor office/warehouse,



Education

1993 B.S. Ocean Engineering,
Florida Institute of Technology

Professional Registration

2004 Professional Civil Engineer,
Alaska #CE11142

Professional Affiliations

- ✦ American Society of Civil Engineers
- ✦ Engineers Without Borders
- ✦ Alaska Association of Harbormasters and Port Administrators
- ✦ National Association of Corrosion Engineers
- ✦ ASCE Coasts, Oceans, Ports and Rivers Institute



restrooms, bilge treatment facilities, and associated pedestrian and vehicle improvements.

Kodiak Ferry Terminal and Dock Improvements | *Kodiak*

Kim was the Project Manager for this project that provided a geotechnical investigation, condition assessment, design, bid support and construction administration for replacement of the Pier 1 dock and uplands facilities that are used by the City of Kodiak for fuel and freight barge landings. The project included providing erosion protection in the form of geotextile, filter rock and rip rap to minimize existing erosion problems adjacent to the dock that are caused by boat wakes. Follow up work included securing an incidental harassment authorization for sea lions that was required to allow pile driving. This project was the first application of the new ASCE Seismic Guidelines for Piers and Wharves in Alaska.

Skagway Small Boat Harbor Seawall Replacement | *Skagway*

As Assistant Project Manager, Kim prepared design plans, specifications, bid documents and construction administration associated with replacing an old timber seawall at the small boat harbor with a new sheet pile seawall, access trestle, gangway landing and associated utilities work. The new wall was placed seaward of the old wall, creating about one acre of additional uplands for parking and a landscaped seawalk area.

Unalaska Marine Facilities Corrosion Protection Upgrades | *Unalaska*

An underwater condition assessment found several marine facilities in Dutch Harbor/Unalaska were found to be actively corroding and with a lack of adequate corrosion protection. As Project Manager, Kim was responsible for the design and contract documents to provide sacrificial anodes on marine facilities throughout the port.

Alaska Statewide Barge Landing System Assessment and Design | *Alaska*

Kim was the Project Manager responsible for executing this Denali Commission/USACE, DOT&PF-funded project. The project involved conducting an assessment of barge mooring and fuel/freight transfer needs at more than 200 of Alaska's coastal and river communities throughout the State. The project identified infrastructure improvements needed at each community and preparation of preliminary designs for landing site improvements, including multi-use ramps that could be used for both small local vessels as well as the barges.

Southwest Small Boat Harbor Condition Assessment | *Seward*

Kim was the Project Manager for the above-water condition assessment of Floats A, B, C, D and S and the launch ramps in the southwest portion of the City of Seward Small Boat Harbor. The condition assessment documented the

condition of the existing float system, concrete ramps, gangways, access trestles, piling, water, sewer, power and lighting infrastructure. The report identified deficiencies, rated the facilities, recommended options and costs for repairing versus replacing the facilities, and prioritized the improvements based on safety and code issues and other factors.

Seward D Float Replacement | *Seward*

Kim was the Project Manager for replacement of D Float in the southwest (oldest) portion of the harbor, consisting of 13,000 SF of 1960s-era State of Alaska timber float system, 50' gangway, and timber approach trestle with a new 80' gangway and float system that will accommodate 56 40' long vessels.

Homer Deep Water Dock Fender System Replacement | *Homer*

Kim was Project Manager for this project which consisted of a condition assessment and design of an upgraded fender system at the existing Deep Water Dock. Vessels utilizing this facility included cruise ships larger than originally conceived by the dock design. The City received \$2M in cruise ship head tax funds to provide upgrades. To ensure the budget was met, the design included a base bid for replacing six fenders, providing four new foam-filled floating camels, and providing upgrades to remaining three existing fenders and an additive alternate to replace rather than upgrade the three additional fenders. The full project was bid in just under the budget and was constructed in spring 2013. R&M also provided bid support and construction administration and inspection services. Kim is now leading the Deep Water Dock Uplands planning effort.

Harbor Float System and Boat Launch Facility | *Old Harbor*

Kim was the Project Manager responsible for design and construction oversight for replacing and expanding the inner harbor facilities at the small boat harbor in Old Harbor. Prior to this work, Kim worked with the Old Harbor Native Corporation to assist the City of Old Harbor in securing grant funding from federal and state sources to cover the cost of design and construction of these facilities. The design included upland and offshore surveying, geotechnical field investigation, and the design and permitting of a new harbor vessel mooring float system and a boat launch ramp and boarding float. The design was completed on an accelerated schedule in order to meet grant funding deadlines.



Steven E. Lewis, PE, CESCL Waterfront Engineer

Mr. Lewis has more than 10 years of experience in civil and waterfront engineering. He has worked on port and coastal projects throughout Alaska, including projects in Seward, Uzinkie, Kodiak, Port Lions, Ketchikan, Valdez and Cordova. Steven is experienced in planning, designing, assessing, and overseeing construction and maintenance of port and coastal structures and facilities.

Related Project Experience

Seward Marine Industrial Center (SMIC) Harbor Improvements | Seward

Steven provided coastal engineering studies for the proposed expansion of dock facilities and mooring basins. He performed Short-Term FATE (STFATE) dredged material disposal computer simulations modeled for open ocean disposal to estimate water quality impacts from disposal operations. He evaluated rock quarry production rates for design of armor rock breakwater and the design to reflect production yield for minimization of waste rock.

Palmer Pier Replacement | Antarctica

Steven is the Waterfront/Coastal Engineer under this contract to provide coastal, waterfront, structural, corrosion and geotechnical engineering services for replacement of the pier at Palmer Station, Antarctica. R&M was selected for our expertise in remote, cold-climate pier design and is currently working on a 35% Design and Basis of Design document for a design-build RFP to construct a replacement pier and associated fender system and water, wastewater, fuel delivery, and power/lighting for the facility. R&M will provide support throughout the design and construction phases of the work.

ARRC Seward Marine Terminal Expansion | Seward

Steven provided coastal engineering studies for the proposed expansion of dock facilities and mooring basins. He performed STFATE dredged material disposal computer simulations modeled for open ocean disposal to estimate water quality impacts from disposal operations. He calculated the potential for wave runup and overtopping as part of floodplain development permitting in accordance with FEMA Conditional Letter of Map Revision (CLOMR) requirements. He performed a desktop study evaluating sediment transport by waves and/or currents. The intent of the study was to determine possible changes in sediment transport due to the proposed development.

ARRC Freight Dock Widening | Seward

Steven is a Project Engineer responsible for revising and finalizing the Seward Marine Terminal Freight Dock Widening design plans, and developing a phasing plan to complete the work over a five year period. Based on the current 95% design, approximately five phases is needed to complete the dock widening development. R&M is preparing a 100% design package, including revised drawings, note specifications and quantities for the phased development.

Valdez Municipal Harbor Facilities Planning and Design | Valdez

Steven provided civil design engineering for phased development for a new commercial harbor facility. The facility is a coordinated effort with USACE. The USACE provided design and construction for dredging and offshore breakwaters, while Steven designed upland facilities, and is working on the design of vessel mooring floats and launch ramp. Design elements included a timber boardwalk, parking facilities, pedestrian pathways and utility main extensions. Work on this project also included bid package preparation and cost estimating.

Seward Passenger Dock Pile Repair | Seward

Steven assisted on this project to provide a detailed structural inspection of the Cruise Ship Passenger Dock in Seward. The project includes a detailed underwater and above-water inspection of structural and electrical components, non-destructive testing, corrosion loss assessment and condition rating of the major components of the facility. In addition, he will define recommended repairs and upgrades and provide associated cost estimates provided. Repair projects will also be prioritized to assist planners in budgeting for the work system-wide.



Education

2015 Masters of Civil Engineering,
University of Alaska Anchorage

2006 B.S. Civil Engineering,
University of Alaska Anchorage

Professional Registration

2010 Professional Civil Engineer,
Alaska #CE12814

Certifications

Alaska Certified Erosion & Sediment
Control Lead, #AGC-13- 0069

Professional Affiliations

- † American Society of Civil Engineers
- † Coasts, Oceans, Ports and Rivers Institute



Delong Dock Engineering Evaluation and Analysis | Whittier

Steven was the civil engineer for the condition inspection and structural analysis of the Delong Dock near Whittier. The dock was built around 1952 and includes sections of a war surplus floating pier that was secured in place with steel pilings, as well as a pile supported approach section that connects the dock to the uplands. The project included above- and below-water field investigations.

4th Avenue Dock Assessment | Seward

Steven completed a structural conditions assessment and performed a Level II inspection of the above-water portion of the existing 4th Avenue Dock as part of a proposed shoreline boardwalk project for the Alaska SeaLife Center. The dock structure consisted of a concrete wharf, timber fender piles and sheet pile bulkhead. Findings from the inspection determined the structure would not support the proposed development without major reconstruction or replacement.

Valdez Old City Dock | Valdez

Steven inspected and evaluated an existing timber pile supported dock and developed a repair plan. The repair plan consisted of design drawings and specifications for a bid package.

Ouzinkie Municipal Dock | Ouzinkie

Steven was the Project Manager and Project Engineer responsible for design engineering services for this phased development of a multi-purpose dock project to replace an existing timber dock. He arranged and administered several public involvement meetings throughout the design process and corresponded with State ferry service personnel and other users. The planned development users included future state ferry service, fuel barges and the local fishing fleet. Design elements included a 335' long sheet pile bulkhead, fuel systems and sewer outfall modifications, a 1,000' long armor rock revetment, moment frame dolphins, fender systems and design of a public boat launch.

Port Lions Ferry Terminal | Port Lions

Steven was the civil engineer responsible for providing design engineering services for phased development of a multi-purpose dock project to replace an existing timber dock. Under a design-build agreement, two schematic designs, cost estimates and design study reports were completed. The replacement dock is for State ferry service, fuel barges and the local fishing fleet. Throughout the design, State ferry service captains and other users were consulted. Design elements included a 210' long sheet pile bulkhead, fuel system modification, and a 623' long armor rock revetment.

Lowell Point Storm Surge Damage Assessment | Seward

Steven completed a condition assessment and evaluation of three miles of shoreline damaged from a storm surge event. Facilities and structures damaged by the storm event included a public campground, multipurpose pathway, parking areas, and two-miles of armor rock revetment protecting the City's sewer main and access road to an isolated neighboring community. The completed evaluation was coordinated with the City of Seward and the Department of Military and Veteran Affairs Division of Homeland Security and Emergency Management staff. Additional scope included bid package preparation, bid support and construction administration in compliance with Federal Emergency Management Agency guidelines and documentation requirements.

Lake and Peninsula Borough Community Barge Landings | Alaska

Steven was the Project Engineer and provided conceptual designs and cost estimates for several potential community barge landing sites on Lake Iliamna. Consultant services provided included concept designs, site visits, community meetings, topographic and bathymetric surveys, design-build bid packages and permitting.

Wainwright Barge Dock | Wainwright

Steven was a civil engineer responsible for completing a pre-feasibility design study and cost estimate for a bulkhead dock. The intended use of this facility is for future barge service for oilfield exploration. This project utilized a sunken steel barge for the bulkhead structure. Four alternative designs were evaluated and presented in the design study report.

Pebble Limited Partnership Port Design | Iliamna Bay

Steven was the Civil Engineer who provided several pre-feasibility designs, detailed bottoms-up cost estimates, construction schedules and design study reports for the development of a future copper and gold mine. The capital cost for the marine portion of the development ranged between \$100 and \$200 million. Design elements included a 700' long sheet pile bulkhead for supply barges, deep draft concentrate load-out dock, quadrant rail ship loader, barge lightering alternative, fendering system, mooring systems, Ro/Ro ramp and conveyor support structures. The proposed port facilities were located in lower Cook Inlet and on Iliamna Lake. The design was coordinated with several international design teams to insure all elements of the facility were incorporated in designs.



Robert M. Pintner, PE Geotechnical Engineer

Mr. Pintner has more than 29 years of experience in geotechnical engineering, environmental engineering and engineering geology. His responsibilities include field, laboratory and office aspects of environmental and geotechnical investigations. Bob's experience includes analysis of deep and shallow foundation systems, including analysis of lateral loading using various computer programs, evaluation of slope stability, assessment of earthquake hazard, UST removals, site remediation and Phase I environmental site assessments.

Related Project Experience

Seward Marine Industrial Center Harbor Improvements | Seward

Bob was the Project Geotechnical Engineer responsible for geotechnical studies for a major expansion of the harbor at the SMIC. The improvements generally included partially enclosing the harbor with a new breakwater on the west side, extending both the existing North Dock and East Dock, and adding moorage floats, gangways, utilities and associated amenities. The geotechnical investigation included drilling several borings up to 130' offshore from a landing craft, and an extensive borehole drilling program in the upland area of the project. Sampling and testing for both geotechnical soil properties and environmental parameters were performed. Geologic hazards and considerations included seismically induced settlement and slope instability, design criteria for sheet pile cofferdams, and pile supported dock structures.

ARRC Seward Marine Terminal Expansion | Seward

Bob was the Geotechnical Engineer for this project that includes extending the existing freight dock by approximately 400'. Initial tasks include conducting a sediment transport study to enhance the type and alignment of the new jetty structure and an analysis of alternatives for the dock expansion. Bob was responsible for the geotechnical investigation, soil characterization and analysis.

Valdez Municipal Harbor Facilities Planning and Design | Valdez

Bob was the Project Geotechnical Engineer responsible for supplemental geotechnical studies for the planning and design of a new small boat harbor in Valdez. The improvements included a new breakwater, floating docks, boat ramp and parking areas on-shore. The geotechnical investigation included drilling several borings up to 75' deep offshore from a barge to supplement the previous investigation performed by others. Sampling and testing for both geotechnical soil properties was performed. Bob has also been involved during construction, analyzing rock cut slopes and other features identified during construction.

Kotzebue Shore Avenue Reconstruction | Kotzebue

Bob was the Geotechnical/Environmental Engineer providing services for improvements to Shore Avenue for DOT&PF. This project included design of more than 3500 lineal feet of sheet pile wall for erosion protection. Most of the wall was a tie-back sheet pile wall with up to 17' height. Three vistas extending further into Kotzebue Sound were of filled cellular construction. Another 1000' of roadway was protected by armor stone. R&M was responsible for road and shoreline protection design, surveys, geotechnical analyses and permitting support. The project was constructed in 2010, with completion in 2011.

Haines Ferry Terminal Retaining Wall Review | Haines

Bob was the Project Geotechnical Engineer for the peer-review of the retaining wall design for the support of an aging cellular cofferdam structure at the ferry terminal in Haines. The review included analysis of lateral earth pressures for tied-back and cantilever walls. Arching theory was used for the analysis of the narrow backfill between the existing sheetpile cofferdam and the new wall.

Biorka Island Dock Replacement Project | Biorka Island, Sitka

Bob was the Project Geotechnical Engineer responsible for planning and supervision of the geotechnical investigation for the replacement of the dock on Biorka Island, near Sitka. Geotechnical services included the drilling of three boreholes at the dock site with a Geoprobe drilling rig using an under-reaming system to advance through boulder rich soils and rotary coring methods to sample in bedrock. The geotechnical investigation

Education

1986 M.S. Geotechnical Engineering, Oregon State University

1984 B.S. Geology, Earlham College

Professional Registration

1993 Professional Civil Engineer, Alaska #CE8525



also included evaluation of the suitability of the existing material site at the island for production of rip-rap and classified fill for the project.

AMHS Ward Cove Marine Facility Feasibility Plan | Ward Cove

Bob was the Project Geotechnical Engineer and Project Manager for the geotechnical investigation and dredge sediment sampling for the proposed Alaska Marine Highway Ferry Terminal at Ward Cove. The project involved drilling and sampling deep boreholes in the offshore areas of the project to characterize the soil and bedrock for the design on a pile supported dock. Environmental sampling was also conducted to assess the potential for contamination in the soils to be dredged.

Seward Cruise Ship Dock Facility | Seward

Bob was the Geotechnical Engineer responsible for a field investigation, including drilling from a landing craft. Other responsibilities included stability analysis of submarine slopes and pile capacity analysis.

Harbor Expansion | St. George

Bob was the Geotechnical Engineer responsible for design of an expansion of the Zapadni Bay Harbor on St. George Island to provide a berth with breasting dolphin array for floating crab and fish processors and a service dock. Scope included rock excavation, grading, utility relocation, marine structure installation and final dredging of 200' by 400' harbor basin extension.

Ketchikan Shipyard | Ketchikan

Bob was responsible for a geotechnical investigation for the expansion of the ship yard in Ketchikan. The scope of the project included planning and carrying out a field which included drilling several deep boreholes through over 100 feet of fill material and alluvial soils to bedrock. Analysis included liquefaction potential, settlement, axial and lateral load capacity of driven pile foundations and bearing capacity of spread footings.

Port of Anchorage Annual Engineering Services Term Agreement | Anchorage

Bob was the Geotechnical/Environmental Engineer providing services for a number of projects. He was responsible for providing assistance to the Port in preparing and maintaining compliance with an NPDES Stormwater Permit. Duties include planning, devising and implementing a sampling program to meet EPA monitoring requirements, assimilation of rainfall data, calculation of loading factors, and planning and documenting worker stormwater education training.

Seward Highway MP 54.8-59.3 Canyon Creek Bridge Replacement | Seward Highway

Bob was the Geotechnical Engineer responsible for developing geotechnical design criteria for the Canyon Creek Bridge. His responsibilities included interpretation of rock cores, liquefaction analysis, foundation analysis and report preparation. During the field investigation, Bob was responsible for logging rock core borings at bridge foundation locations.

DOT&PF Geotechnical Engineering Services Term Agreement | Alaska

Bob was the Geotechnical Engineer on several projects under this term contract to provide geotechnical services for DOT&PF throughout the state. Projects included a site investigation for a new veteran's cemetery in Fairbanks, investigation for a port facility in the village of Mertarvik in western Alaska, and the development of an exploration plan to investigate the slope stability at the south abutment of the Yukon River Bridge on the Dalton Highway.

DOT&PF Statewide Hazardous Waste and Environmental Services Term Agreement | Alaska

Bob is the Project Manager for a term agreement with DOT&PF Statewide Public Facilities. R&M has held this term agreement since 2008 to provide professional services in the area of hazardous waste assessment, investigation and clean-up. These services include, but are not limited to: environmental site assessments (ESA), spill site cleanup, disposal of contaminated materials, contamination remediation, building demolition and hazardous building materials (HBM) abatement, risk assessment and regulatory agency coordination. Since 2008, our team has been awarded 28 projects.

Van T. Le, AICP Public Involvement

Mrs. Le specializes in comprehensive and site specific land use planning and permitting, policy research and analysis. As a former Municipality of Anchorage Land Use Planner with more than 12 years of experience, she offers a range of planning experience in all aspects of local and regional planning including site selection land use studies, site plan and conditional use applications for public facilities, and area development plans. Van is also a public involvement specialist with experience in effective and open communication style workshops and open houses to address issues including neighborhood compatibility, traffic impacts, right-of-way, parking, environmental concerns, drainage and vehicular and non-motorized safety. She is a regular presenter on capital projects to agencies, Community Councils, community stakeholder groups and the Anchorage Planning and Zoning Commission.

Related Project Experience

Valdez Harbor Waterfront Development Master Plan | Valdez

Van provided public involvement for the Valdez Municipal Harbor Facilities Planning and Feasibility project. She developed surveys that were distributed to user groups, including harbor slip holders, vessel owners, people on the waiting list, harbor business owners, seafood processing and fuel vendors in the harbor, and others to solicit information on needs and priorities for the existing and the new harbor development. She also provided review, assessment, edits and recommendations for the small harbor master plan update and small boat harbor plan update.

Houston Community Impact Assessment and Comprehensive Plan Revision | Houston

Van is the Lead Planner working on updating the City of Houston's Comprehensive Plan, which will include an economic, physical and social impacts assessment of several transportation infrastructure projects. As part of the Public Involvement Program for the Plan Revision, Van is facilitating a Steering Committee that includes City Council, Planning Commission members and residents. In addition, the Public Involvement Program will include a Visioning and Futures Workshop and GIS-based scenario planning charrette.

Eklutna River Bridge Replacement Project | Eklutna

Van was the Planner and Public Involvement lead working on this joint DOT&PF and MOA project to reconnect residents, visitors and emergency responders on this critical transportation project. Van designed and implemented the public involvement plan that has galvanized stakeholders, including Native Village of Eklutna and state legislators, on the need and purpose of the preferred alternative for the project.

Muldoon Town Square Park Master Plan | Anchorage

Van is the Lead Planning and Public Involvement Coordinator for the Muldoon Town Square Park Master Plan, which will provide a 20-year vision for the new park. The project is working to identify current and future needs, establish an implementable framework for future development, management and maintenance of the park. Her responsibilities include leading stakeholder and agency coordination, public workshops, site planning and master plan approval.

Turnagain Arm Area Comprehensive Plan 2010 | Anchorage

Van was the Project Planner and Public Involvement Lead updating this community comprehensive plan for a small community within the Municipality of Anchorage. Her work included working with the community of 300 to craft policies and strategies for guiding future growth and development, including future needs for housing, roads, schools, parks and commercial services. Van led the public involvement and successfully implemented community visioning workshops and a comprehensive community survey to guide the plan's goals, objectives, policies and strategies.

West Dimond Boulevard Upgrade: Jodhpur Road to Sand Lake Road | Anchorage

Van is the Lead Planner and Public Involvement Coordinator for this MOA collector roadway upgrade located within the Sand Lake Community Council area. She is responsible for keeping design deliverables on schedule to meet permitting requirements of the Municipality's CSS project development process, while balancing



Education

2003 M.S. Environmental Science,
Alaska Pacific University

1997 B.A. Urban Geography,
University of British Columbia

Certifications

AICP, American Institute of
Certified Planners

Public Participation, International
Association for Public Participation

Adobe InDesign Graphic Design
Level II

TransCAD Transportation Planning
Software

Systematic Development of
Informed Consent (Bleiker
Method), Institute for
Participatory Management and
Planning

Professional Affiliations

- ✦ American Planning Association
- ✦ Institute of Transportation Engineers
- ✦ International Association for Public Participation
- ✦ Women in Transportation Seminar



divergent public interests, legislative directives and budget restrictions. Van worked closely with state and local elected officials, Sand Lake Community Council, and residents to successfully plan and facilitate a public open house for this controversial project.

AMATS Household Travel Survey | *Anchorage*

Van is the Planning and Public Involvement Lead for the AMATS Regional Household Travel Survey (HTS), which collects information on how people travel daily for work, recreation and shopping to show a complete picture of how the roads, trails, highways and other transportation facilities are used daily to help to identify existing and future deficiencies in the transportation system. The HTS will update the AMATS regional database of household travel behavior, including regional trip activities (e.g. Mat-Su to Anchorage), which will be used to estimate, model and forecast future travel.

Chugiak-Eagle River Comprehensive Plan Update 2006 | *Chugiak-Eagle River*

Van was the Project Planner working on this Community Comprehensive Plan Update. She worked with the community to craft policies and strategies for guiding future growth and development, including future needs for housing, roads, schools, parks and commercial services. Van led the planning and public involvement and successfully implemented the community's vision through an updated land use plan that graphically depicts the plan's goals, objectives, policies and strategies.

Girdwood Area Comprehensive Plan Update | *Girdwood*

Van was the Project Planner and Public Involvement Lead for including detailed analysis of future land use, housing needs, parks, roads, economic development and facilitating a CAC.

Anchorage Title 21 Land Use Code Rewrite | *Anchorage*

Van was the lead Public Involvement Planner working with stakeholders to update the Municipality's land use code. Van coordinated and facilitated open houses, presentations and all meeting logistics to inform stakeholders of changes to the land use code. Van provided parking demand analysis for parking requirements for Title 21 Update and was involved in the Chugiak-Eagle River Chapter 10 of Title 21's land use code rewrite.

AWWU Site Plan for an Expansion of a Public Facility |

Anchorage

Van is the Senior Planner in charge of site planning and permitting services for an expansion of an utility facility for the Anchorage Water and Wastewater Utility. She coordinated the site, drainage and landscaping plans required for an administrative site plan approval under the Municipality's Title 21 Public Lands and Institutes (PLI) Zoning district (New Code). She also authored the Non-Conforming Determination Application that was required for a front-yard setback for this project which received approval.

Official Streets and Highways Plan 2011 | *Anchorage and Chugiak-Eagle River*

Van was the Project Manager for this functional classification plan update to implement the Long Range Transportation Plan for AMATS Transportation Planning. Van facilitated a CAC that included representatives from Anchorage area community councils. Van was responsible for coordinating and facilitating public involvement, plan writing and coordinating with the MOA's current and future CIP-listed projects.

CSS Transportation Projects | *Anchorage*

Prior to joining R&M, Van was the Planning and Public Involvement Lead on the development of six CSS-based Concept Reports, Design Study Reports and permitting applications for Municipally-owned roadway projects, to implement adopted plans and policies at the project level. She worked extensively with area stakeholders on improvements to neighborhood collector roadways and multi-use trails throughout Anchorage and Chugiak-Eagle River through workshops and open houses to address community input.

Benjamin C. Haight, PE Electrical Engineer



Education

1972 B.S. Electrical Engineering,
Washington State University

Professional Registration

1979 Professional Electrical
Engineer, Alaska #EE4800

Professional Affiliations

- ✦ National Society of Professional Engineers
- ✦ Association of Energy Engineers
- ✦ Institute of Electrical Electronic Engineers
- ✦ Illuminating Engineers Society
- ✦ National Fire Protection Association
- ✦ National Society of Architectural Engineers
- ✦ U.S. Green Building Council
- ✦ Alaska Association of Harbormasters & Port Administrators



Mr. Haight has been providing electrical engineering services throughout Alaska for more than 43 years. Currently the Principal at his firm, he maintains the responsibility for technical direction, quality assurance, contract document standards, and project scheduling. Ben has been designing electrical systems for marinas, harbors, docks and floats for the majority of his career. Project experience includes lighting, power distribution, metering, grounding, and various shore power configurations. Most recently, he has been involved with the development and implementation of standards and procedures addressing the recent National Electrical Code modifications to require Ground Current Protection. Part of his participation includes technical and educational presentations to the public and harbor staff.

Related Project Experience

Lutak Dock | Haines

Ben was the Lead Electrical Engineer responsible for evaluation of the electrical systems as part of an overall survey of the dock in 2012. The survey included review of the conditions, performance, and usefulness of the lighting, electrical service, and power distribution.

Port Chilkoot Dock | Haines

Ben was the Lead Electrical Engineer for this recently renovated dock project that provided new electrical systems. The systems include LED lighting, power distribution, shore power for the small charter boat float, and power for miscellaneous equipment.

South Franklin Cruise Ship Dock Shore-Power | Juneau

Ben was the Lead Electrical Engineer for several projects at this facility, which include the original construction of the dock with electrical service, distribution, lighting and capstans. Subsequently, the dock was upgraded with bus parking area lighting; and cruise ship shore power. The lighting incorporated flood lights using marine grade fixtures and high pressure sodium lamps. The shore power system involved a festooning system with several hard usages, 15 KV cables supplying power to the ships, as well as the utility service to and on the dock. Ben was instrumental in the design; and provided construction services for all of the projects.

Ketchikan Berth III | Ketchikan

Ben was the Lead Electrical Engineer for construction of electrical services, power distribution and lighting. The facilities include renovation of the current Berth II dock for better access and security, installation of the Berth III floating dock, installation of Transient floating dock, replacement of the Casey Moran Harbor to facilitate the new floating docks, the construction of a pedestrian promenade around the Casey Moran Harbor, and the construction of a visitor center with public restrooms & passenger shelter. The electrical systems included new service and distribution of 480 and 208 volt power, large vessel shore-tie power on the Berth III dock, vessel shore-tie power in the Casey Moran Harbor, lighting throughout, and building systems.

Trucano Bulk Fuel Plant | Juneau

Ben led the electrical design for this facility that includes electrical service, distribution and lighting for a tank farm, pumps, fire protection pumps, truck loading and marine vessel fueling. The design incorporated NEC compliance in hazardous area.

Aurora Harbor, Phase 1 | Juneau

Ben is the Lead Electrical Engineer for Phase 1 of this project that will replace floats A, B, C and D, as well as the headwalk and two approaches. The electrical systems will include new shore-tie pedestals, pole mounted lighting, feeders, and distribution equipment. The shore-tie facilities will include some 100 ampere, 208 volt, and three phase power. The new electrical systems will include relays and devices for Ground Fault Protection.

Thank you for considering R&M's proposal.



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