APPLICATION FOR
TIGER VII DISCRETIONARY GRANT

CITY & BOROUGH OF JUNEAU, ALASKA
Docks & Harbors Department

"Juneau Fisheries Terminal Dock Completion Project"

Type: Port & Marine Infrastructure Investments
Location: City & Borough of Juneau, Alaska
1st Congressional District / Alaska
Rural Area

$2.854 Million Requested

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Abstract: *In 1992 CBJ Docks and Harbors Department (CBJ, D&H) built a 157' cellular sheet pile dock along the south side of a rubble mound jetty at the south end of the Aurora Basin small boat harbor. It is part of a larger Fisheries Terminal Project that CBJ, D&H has been working on in phases for some 25 years. The original dock project also included 2 hydraulic cranes and a paved surface on the fill behind the sheet pile. This facility, now commonly referred to in the fisheries community as the "Crane Dock", has proven to be a very important business development incubator. It spawned shore-based processing and direct market fishing businesses that transformed Juneau's virtually dead seafood industry into a thriving and innovative $50+ million sector of our economy.*

However, the success of the Crane Dock has more than caught up with its current capabilities. The existing staging area and two cranes are "max-ed out" at critical times. This Tiger VII Discretionary Grant application for $2.854 million will fund a Phase 2 completion of the Crane Dock – more than doubling its current capacity and restoring its ability to foster and support further growth in our seafood industry. The photo on the Cover Page shows the Crane Dock in its current condition. The Crane Dock Completion Project will add a similar length dock face on the opposite side, two additional cranes, and will also finish the Gastineau Channel end of the structure as usable dock face. The same open cell sheet pile technology employed in the original dock will be used in this project. Benefit / Cost Analysis indicates that the annual value of new business generated will exceed the project construction cost, making this a very cost effective investment of federal funds.

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PROJECT INTRODUCTION & BACKGROUND

The City and Borough of Juneau, Docks and Harbors Department (CBJ, D&H) is the applicant for this TIGER VII grant, which will provide funding to complete the loading dock at the Fisheries Terminal near downtown Juneau.

The concept of a fisheries terminal was developed in the mid-1980's. At the time the fishing and seafood industry in Juneau was in dire condition. Although Juneau was home to several hundred fishermen, fundamental industrial infrastructure was extremely deteriorated or non-existent. In 1987 the run down, 60-year old Juneau Cold Storage, the largest seafood processing operation in the city burned to the ground. Just few years later the equally dilapidated and ill-managed Douglas Cold Storage shut its doors and it too was eventually a total fire loss.. Fishermen who choose to live here had little if anything in the way of service facilities. The harbors were run down, there was no haul out facility or marine service yard, and no local buyers for their fish. Despite the fact that substantial fish resources were taken from Juneau area waters every year, conventional wisdom of the day had it that "the fishing industry in Juneau is dead".

Against this grim background some concerned citizens fought back. In 1986 the original Ad Hoc Fisheries Development Committee made 26 detailed recommendations to the CBJ Assembly to revive the industry. Key amongst these was construction of basic fisheries support infrastructure. The core idea was creation of a Juneau Fisheries Terminal – essentially a smaller version of Seattle's famed Fishermen's Terminal. The idea was a facility that combined vessel moorage with service facilities, marine trades, marine related retail and office space, gear storage, and loading / offloading capabilities. The city and then newly formed (1986) Docks and Harbors Board took up the challenge. Between the two main downtown small boat harbors (which housed most of the commercial fishing vessels) was a tract of land owned by the University of Alaska. It housed a new Marine Technology Building with associated small dock, welding training shop, and a then new 35-ton Marine Travelift. However, the site was not fully utilized. In an innovative agreement, the CBJ and the University agreed on a long-term lease for much of the property. The CBJ Docks & Harbors Department took over management of the Travelift, a substantial part of the uplands, and two tidelands parcels that lay between the south jetty of Aurora Harbor and the rubble mound breakwater of Harris Harbor. In exchange the University received a $500,000 grant from the CBJ for construction of a library at its main campus site overlooking Auke Lake, and modest annual payments for the leased portion of the Marine Tech site. The lease to the CBJ was for 33 years, with an option to renew for an additional 33 years.

CBJ Docks and Harbors quickly moved to make some improvements to its leased area. In 1988 plans were developed for public loading dock. The site chosen was the rubble mound jetty at the south end of Aurora Harbor, which separated that CBJ harbor from the tidelands that the CBJ now leased from the University. Unfortunately, there was not enough funding to complete the project as originally conceived. In fact, the design from PND Engineers called for construction only on the south side of the rubble mound breakwater, creating some 157' of usable dock face. Two new, 4,000 lbs capacity boom cranes were included. The paved staging area surface measured some 45' in width from the dock face to the inside of the timber safety barrier at the top of the rubble mound slope on the north side of the structure. In all, some 9,500 s.f. of paved surface was created, including approach areas. Approximately 7,000 s.f. of this was actually usable for staging purposes. The original Crane Dock – now referred to as Phase 1 - was completed in 1992.

In that same time frame, much of the leased uplands was platted as a small vessel service yard and eventually sublet to Juneau Marine Services, which has invested an estimated $400,000 in equipment and other improvements.[1] JMS also ran the Travelift and managed a small vessel service float. The new yard was a boon to the local fishing fleet, which now had access to good upland service facilities for the first time. The Travelift, which heretofore had seen only very sporadic use for the University's small research boat, was kept very busy hauling fishing boats and other craft for the JMS yard. (Table 1 shows the 7 Stages of the Overall Fisheries Terminal Project, including the 2 Phases of Crane Dock construction.)

Table 1 – Juneau Fisheries Terminal (Overall CBJ Project Costs)

Project Stages	Cost	Status	Notes	Lead Agency
Stage 1 – Secure Lease Arrangement with Univ. of Alaska (tidelands & uplands)	$500,000 grant to UAS, + modest annual payment	Completed 1989	33 yr. lease expires 2021 /renewable to 2054	D&H Harbors
Stage 2 – Initial (Phase 1) Crane Dock construction	$2,279,820	Completed 1992	157' sheetpile dock and cranes on south side of S. Aurora Harbor jetty	D&H Harbors
Stage 3 – Small Vessel Shipyard / Service Facility	$400,000 (est. invested)	Started 1993 / JMS took over in 1997	Prepare and sub-lease portion of uplands area and existing small Travelift for boat maintenance yard.	D&H Harbors & Juneau Marine Services JV
Stage 4 – Acquire the 2 leased tidelands parcels in ownership	"Value for Value" CBJ & UAS Land Exchange	In Process	Swap CBJ parcels near main UAS campus for full ownership of two tidelands parcels	D&H Harbors / CBJ Lands / UAS
Stage 5 – Crane Dock Completion Project (Phase 2 of crane dock construction)	$2,854,000	Complete in late 2017	Complete sheet pile bulkhead on W. & N faces, add two cranes, pave expanded working area	D&H Harbors
Stage 6 – Tidelands fill, expand vessel service area, 150 ton Travelift	$9,600,000 (est.)	Conceptual Stage / 2020 Completion	Fill tidelands acquired in Stage 4. Upgrade and expand vessel service area with better buildings & a 150 ton Travelift (to replace existing, end of service life 35 ton unit)	D&H Harbors
Stage 7 - Fisheries Terminal Main Buildings	$3,600,000 (est.)	Conceptual Stage / 2020 Completion	Replace existing harbor office building with new building inc. harbor offices, commercial office spaces, and marine retail	D&H Harbors / private sector co-developer
TOTAL (All Project Stages)	**$19,250,000 (est.)**			

Following Stage 3 the already limited funding for further work on the overall Fisheries Terminal Project completely dried up. For many years since, almost all of Docks and Harbors' available resources have been devoted to rehabilitating the four small boat harbors under its management. Much of that basic moorage infrastructure was in very poor condition.[2] Nonetheless, it has remained a long-term goal to complete the Fisheries

[1] JMS is owned by Harri Plumbing and Heating, which also owns Harri Commercial Marine, a local marine equipment and supply store. JMS took over the boat yard in 1997, after it had been run by Larsen's Marine for some 4 years.

[2] These harbors (Douglas Harbor, Harris Harbor, Aurora Basin, and Statter Harbor) were operated by the CBJ, but had been built and were owned by the State of Alaska, which eventually signed them over to the CBJ in 2003 in

Terminal project. The University and the CBJ are currently working on a land exchange that will place the two currently leased tidelands parcel under full CBJ ownership, in exchange for land of equal value close to the UAS main campus. This should make it easier to fund completion of Stage 6, which will greatly expand vessel servicing capabilities in Juneau. Docks and Harbors is also in the planning process for replacing its old, cramped and generally inadequate harbor offices. The goal is to construct a new building (or buildings) to house harbor functions and also provide office and retail spaces for marine related businesses. It is encouraging that the University is also revamping and upgrading its trades training programs at its Technology Center. Training is available in diesel mechanics, hydraulics, electrical and welding, all of which are very important for the fishing and marine service industries. The synergy of the University's programs with the boat service yard and the activity of numerous private support contractors offers important workforce development opportunities.

A Transformative Project and Vital Business Incubator

Even though the Fisheries Terminal Project is still far from complete, it has nonetheless stimulated very important economic development in Juneau. Converting part of the uplands leased from the University to space for a boat service yard, and linking that with availability of the 35-ton Travelift, led directly to creation of Juneau Marine Services, our most important vessel servicing business. JMS typically employs 4- 8 people, but also supports the activities of numerous private service contractors – custom metal and fiberglass fabricators, marine refrigeration and electronics specialists, marine suppliers, etc. Many of these operators are located offsite, but depend on the Fisheries Terminal to interface with the vessels they service. One very important onsite shop, is Maritime Hydraulics, which has its own building on a lot sub-let from Docks and Harbors. Maritime Hydraulics started in Juneau, but now has subsidiary operations in Kodiak, Sitka, Ketchikan, Petersburg and Wrangell, and is widely recognized as perhaps the best marine hydraulics shop in the State. These

However, it is the loading dock - only partially completed in Stage 2 of the overall Fisheries Terminal project - that has had arguably created the most important "Ladders of Opportunity" for the Juneau commercial fishing and seafood industry sectors. The dock was never formally named. Most locals simply refer to it as "the Crane Dock". By the time the dock opened in 1992, there was not a single significant seafood processing operation in Juneau. A small salmon smoker called Taku Smokeries was looking to expand in the face of growing demand. Visionary owner, Sandro Lane, saw important possibilities for seafood in Juneau but was hampered by lack of facilities. He started using the Crane Dock to offload fish for transport to a small, offsite processing facility – it was literally a "garage start-up" at his house. Within a few years Sandro's operation had grown to the point that he was able to purchase and convert a much larger, former warehouse facility. Taku Smokeries / Taku Fisheries is now a substantial mid-sized Alaska seafood processor with $20+ million in annual sales to markets across the US, in Europe, China and Japan for salmon, crab, halibut, sablefish, prawns, and salmon caviar. It owns two substantial regional subsidiaries, and employs a total of just over 100 people in peak season. Its signature green processing

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very deteriorated condition. When the CBJ took them over, a condition survey indicated $24 million in deferred maintenance, but the State provided only $7 million to accomplish this huge task. To date, Harris Harbor has been completely rebuilt, Statter Harbor has undergone substantial upgrading and has a large-scale uplands improvement underway; Douglas Harbor has been doubled in size and the old portions awaits a full rebuild of its floats; and Aurora Basin has seen half of its float system and ramps replaced (ribbon cutting on that project is June 5, 2015.)

facility and ice house, with attached retail outlet, and the Twisted Fish restaurant are a fixture of Juneau's downtown waterfront.

A few years later, the father / son team of Mike and Jim Erickson began using the Crane Dock. They had been fishing shrimp out of a skiff with a tiny trawl, and saw a business opportunity in seafood. They started a very small processing operation off the water in an industrial area of town called Lemon Creek. They began buying from local fishermen and offloading the boats at the Crane Dock. They quickly outgrew their first small processing facility, and moved to larger rented space. They now have a substantial facility of their own at Auke Bay north of Juneau. Alaska Glacier Seafoods has its own dock, buys fish from dozens of fishermen, and services domestic and foreign markets with top quality fresh and frozen seafood products, including such standard Alaska items as halibut and H&G frozen salmon, but also specialty items like sea cucumbers. They are a near zero waste facility, with almost all of the normal processing waste now block frozen and sold to pet food manufacturers.

Alaska Glacier Seafoods and Taku Smokeries / Taku Fisheries have a number of things in common. They are roughly the same size. They are diversified – having very similar product mixes. They are innovative and very quality oriented. They operate in national and international markets. Unlike most "Alaska" processors that are owned by very large out-of-state or foreign corporations, they were both local, Juneau start-ups. And – very significantly – *neither could have gotten started, or grown as they have without the public-owned infrastructure of the Crane Dock*.

But, the story doesn't end with Taku and Alaska Glacier. The Crane Dock has been absolutely essential to numerous other start-up businesses. Literally dozens of smaller seafood operations depend on the dock to move their seafood products from boat to shore. These include smaller shorebased processors like Horst Seafoods and Taku River Reds, and the many direct market operations that process and sell just their own catch, like Primo Prawns, which processes and freezes its high value spot prawn catch onboard, and offloads at the Crane Dock.

It is not too much to say that the Crane Dock has been *the* critical public infrastructure investment – a true "business incubator - in transforming Juneau's seafood industry from effectively dead to the vibrant and growing $50+million business sector it is today. Taku and Alaska Glacier still make use of it today, despite now having grown to have their own dock facilities. The smaller processors and direct marketers are very reliant on it. Moreover, lots of the marine service providers in Juneau also depend on it for heavy equipment lifts (engines, winches, etc.) and other service functions. All manner of fishermen use it for loading and offloading nets, crab and shrimp pots, longline gear, bait, provisions and general fishing supplies. Indeed, the facility is so busy and congested at critical times that it can no longer reliably serve all those who need it. It is way past time that it is completed to its original design concept.

CRANE DOCK COMPLETION PROJECT DESCRIPTION

The Juneau Fisheries Terminal Crane Dock (Phase 2) Completion Project is a straight forward marine dock infrastructure project primarily oriented toward servicing the commercial fishing and seafood industry. It will complete and greatly expand the Phase 1 Crane Dock originally constructed in 1992. Table 2 shows the main characteristics of the original structure, the proposed addition, and the completed (combined) structure. Selected

sheets from the original June, 1988 engineering drawings are included as Appendix A. The same construction techniques and general specifications will be used in this project.

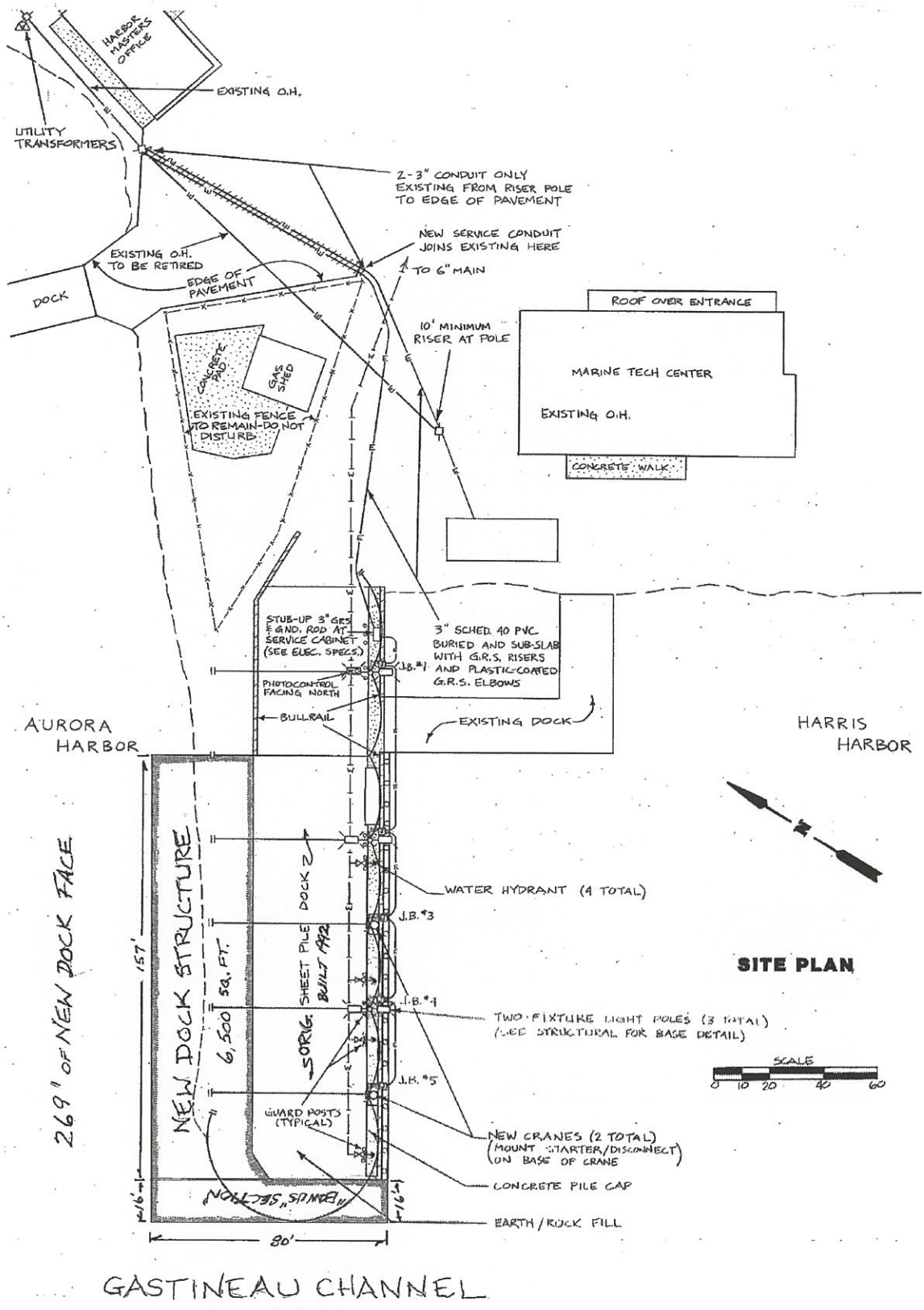
Table 2 - Juneau Fisheries Terminal Dock Main Elements			
Element	Phase 1 (completed 1990)	Phase 2 (proposed – completion 2017)	Completed Facility
Lineal feet of usable dock face	157	269	426
Sq. Ft. of Usable Paved Surface Area	7,000	6,500	13,500
Cranes	2	2	4

The original construction was done on the south side of an existing rubble mound jetty, using sheet pile cells with fill behind, concrete pile caps with timber bull rails, timber fender piles, asphalt surfacing on the fill, and two, 4,000 lbs. capacity electrically powered hydraulic cranes. The original concept had been to carry the structure around to the north side of the jetty as well, but funding was not available. The original structure, known among fishermen simply as "the Crane Dock" has served the industry well for 25 years. Tthe structure is still in very good condition, with many decades of service life left. However, it has long been very crowded during many critical times of the year, and completing the dock to its original conceptual design has been a priority for Docks & Harbors, and the commercial fishing / seafood industry for many years. The proposed completion project will employ the same, well-proven cellular sheet pile construction methodology, and will

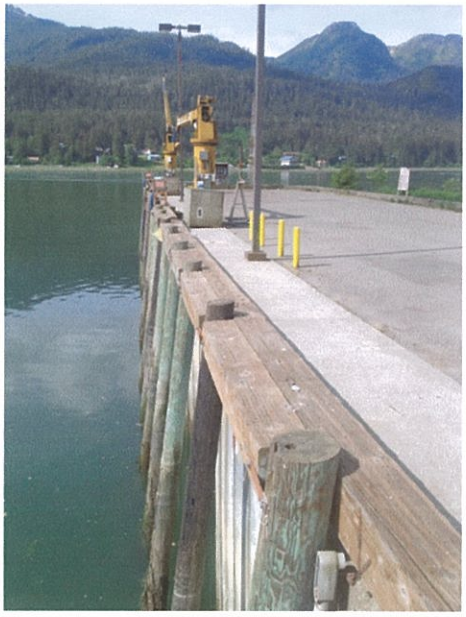
- add 157' lineal of new sheet pile bulkhead;
- create a total of 269' lineal feet of new usable dock face, increasing total usable dock face by 170% from 157' to some 426';
- create an additional 6,700 s.f. of paved working / staging area, increasing the existing working area by more than 95% to 13,700 s.f.; and
- double the number of working cranes from 2 to 4.

How do you get 269 feet of new dock face with only 157 lineal feet of new sheet pile construction? The 157 lineal footage figure used for cost estimation includes the tie-back and end structure of the sheet pile cells. The new structure will connect to the old at several points. The new sheet pile structure will wrap the end of the dock in a similar fashion to the original construction. This end structure extends about 16' beyond what is normally usable as dock face. This area can be made useable after the two end structures are joined by adding bearing support piles at the corners and finishing the area with deck, pile caps and bull rails. This effectively adds 112' of "bonus" dock face on the end of the dock as follows: 16' of new usable face on the existing 157' of the south dock face; 80' along the Gastineau Channel end of the dock; and an extra 16' on the new north dock face. Add that 112' to the normal 157' gained through constructing the five sheet pile cells on the north face, and the total new usable dock face created under this project comes to 269'. This is a very efficient way of using existing structure to maximize the benefit of new construction. Some of the cost of finishing the "bonus" section of dock will be recouped in using the existing anchor pile and sheet pile tie-backs in completing the sheet pile cells on the north face. These existing anchor structures extend some 57' from the existing Phase 1 dock face on the south, so the tie-back structure from north dock face will only need to come back 23' in order to accomplish widening of the entire structure to 80'. The area immediately seaward of the new dock face will be dredged to -15XX MLLW, and the dredge spoils will be used as part of the fill for the sheet pile cell structure.

Figure 2 – Crane Dock Completion Project
(Phase 1 shown in detail, Phase 2 area highlighted)



Detail of Fender Piles & Bull Rail



End of Sheet Pile Cell – New Construction Will Connect To This

Existing Crane - 2 More Like This Will Be Added

North Side Of Rubble Mound Breakwater – New Dock Face Will Be Built Here

PROJECT ELIGIBILTY / RURAL PROJECT

Per the NOFA of April 2, 2015 [Notice of Funding Availability for the Department of Transportation's National Infrastructure Investments Under the Consolidated and Further Continuing Appropriations Act, December 16, 2014] projects that are eligible for TIGER Discretionary Grants include (4) port infrastructure investments (including inland port infrastructure); and (5) intermodal projects.". The Juneau Fisheries Terminal, Crane Dock Completion Project qualifies as a basic port infrastructure investment with intermodal attributes. The project is located in the City and Borough of Juneau, Alaska, which had significantly fewer than 50,000 residents as of the 2010 census (total pop.31,275). According, this project qualifies as a "Rural Project".

ELIGIBLE APPLICANT

The Juneau Docks and Harbors is a departmental agency of the City and Borough of Juneau, Alaska. Juneau is the capital city of Alaska. With a population of 33,064 (est. as of 2013) Juneau is the third largest city in the state. The Docks and Harbors Department is governed by a Board of Directors whose members are appointed by the CBJ Assembly. The Board is charged with managing Juneau's port and small boat harbors on a self-sustaining basis without general fund appropriations. It manages two "enterprise funds". The Port Fund deals entirely with Juneau's large vessel docks and related uplands facilities, which constitute one of the most important cruise ship facilities in north America. The Harbors Fund deals with the CBJ's four small boat harbors (with more than 1,000 vessel slips), launch ramps, tidelands assets, and various other commercial facilities including the Fisheries Terminal and the Crane Dock which is the subject of this grant application.

FUNCTIONS OF THE JUNEAU FISHERIES TERMINAL DOCK

The Crane Dock is one of the centerpiece elements of the CBJ Docks & Harbors Department overall Fisheries Terminal Development Project. As mentioned above the dock was originally conceived to service primarily the fishing and seafood industry sectors, and it has done that well despite over-crowding.

Fishing / Seafood Industry Activities Supported

Commercial fishing activities:

- Loading and unloading of crab and shrimp pots during summer & fall Dungeness crab, winter Tanner and king crab, and fall spot prawn seasons.
- Loading and offloading salmon fishing gear throughout the summer gillnet season, and the summer and winter troll fisheries.
- Loading and unloading gear and supplies throughout the March through November halibut and blackcod IFQ longline season.
- Supporting multiple fishery seasonal gear and equipment changes like putting on deck shelters and wave walls, loading deck freezers, switching out gillnet drums, longline haulers and deck winches, etc., etc.
- Enabling major in-water maintenance and upgrade projects like engine and other major equipment replacements.

Seafood processor activities:

- Offloading salmon, crab and halibut and other catches direct from fishing vessels for movement by truck to processing plants.
- Offloading salmon catches from company and chartered tenders for delivery to the processing plants.
- Servicing tender vessels with ice and supplies.
- Providing ice direct to fishing vessels.

Direct marketer activities:

- See list (above) of activities conducted by non-direct market fishermen.
- Offloading salmon, crab, halibut, spot prawns and other direct marketed species from vessels for movement by truck to cold storage, to the airport for fly-out export, or for delivery to lby truck to local restaurants, stores and individual consumers.

The Crane Dock is a vital fish and seafood unloading point. Both of the major seafood processors in Juneau use it supplement the docks at their plants, and dozens of smaller processors and direct market operators depend on it to get their product ashore. The latter group includes both small shore-based direct marketers and catcher processors would process and freeze their own catches at sea.

Transportation Challenges Addressed / Intermodal Implications

The Crane Dock Completion Project addresses the very basic challenge of getting fishery resources off catcher and tender vessels and into commerce. Phase 1 of the project has been accomplishing this goal for nearly a quarter century, but success has caught up with the facility's capabilities. Overcrowding at key periods like weekly salmon fishery closures or beginnings of seasons for crab, shrimp and other species is now creating real operational problems and inhibiting further growth possibilities. Raw fish offloaded at the dock goes via truck to seafood plants like Alaska Glacier Seafoods (12 miles by highway to the north in Auke Bay) or to smaller uplands processing operations scattered around Juneau. Already processed direct market product is offloaded and delivered locally by truck directly to individual consumers, small retail stores, supermarkets, and restaurants. Some is delivered to Alaska Airlines for export shipment to Anchorage and the Lower 48.

Project Cost Estimate / Uses of Funds

The following table outlines the allocation of funds by major expenditure category. This construction cost estimate is based on similar, recent public project experience in Southeast Alaska. The primary cost driver is the expense of sheet pile bulkhead. The $7,000 per lineal foot estimation figure is applied against the finished usable dock face not the actual footage of sheet pile used. It includes the "tie back" and end portions of the sheet pile cells. Each sheet pile cell measures 31.35', so the 5 cells that will be completed on the north side of the Crane Dock comprise 156.75 lineal feet, 0r 157' for estimation purposes.

Table 3 – Fisheries Terminal Crane Dock Completion Project	
ITEM	**ESTIMATE**
Construction survey	$30,000
Mobilization / Demobilization @ 10% of Construction	197,000
Sheet Pile Bulkhead (5 cells / 157' @ $7,000 / ft.)	$1,099,00
Shot Rock Classified Fill (10,000 cu. yds. @ $15.00 / yd)	60,000
Dredge dock face to -15' MLLW (5,000 cu. yds. dredge spoils used as fill @ $30.00 / yd.)	90,000
Concrete Pile Cap & Bull Rail system	150,000
Fender Piles 32 @ $12,000 ea.	360,000
Crushed Aggregate Leveling Course	8,000
Paved surfacing (6,750 s.f.)	40,000
2 ea. 4,000 lbs Capacity Hydraulic Cranes w/ Base	180,000
Electrical	100,000
Sub-total Construction Costs	$2,164,000
Topographic & Bathymetric survey	25,000
Environmental Permitting	25,000
Geotechnical & Stability Analysis	100,000
Design, Engineering & Construction Mgmt. @ 10%	216,000
Construction Inspection @5% of Construction??	108,000
Contingency @ 10% of Construction	216,000
TOTAL	**$2,854,000**

Local Match / Public & Private Investment

The Crane Dock Completion Project qualifies as a rural project, so does not have a matching fund requirement, and is eligible for 100% TIGER grant funding. Nonetheless, we are very aware of the competitive nature of the TIGER program and the importance of local match if available. Unfortunately, CBJ Docks and Harbors does not have cash match available. This is explained in greater detail under "Why TIGER Grant Funding Is Vital" below.

However, we can demonstrate very substantial prior investment that contributes directly toward the success of this project. We also have "partner match" in the form of in-kind equipment contributions that will add substantially to the long-term success of the project. How these contributions are valued, we leave to US DOT's interpretation and discretion.

Prior CBJ Docks and Harbors Investments - Phase 1 of the Crane Dock was designed in 1988 and put into service in 1992 at a cost of $2,279,820. Based on engineering estimates for this Phase 2 project, the original Crane Dock would have current replacement value of ≥ $2.5 million. Several elements of that original project will contribute to lowering costs for this Crane Dock Completion Project:

a. The end cell of the original dock (facing onto Gastineau Channel) could not be used to create usable dock face. However, by connecting it with the proposed new sheet pile structure and adding corner support piles and a wide pile cap / deck structure a total of 112' lineal feet of new dock structure can be created (16' feet along the original Phase 1 south face; 80' on the Gastineau Channel end; and 16' on the north

face). This is essentially "bonus" dock space that can be gained by completing the north face.

b. In addition, the anchor piles and internal sheet pile "tie-back" structures of the original Phase 1 construction can be used to complete fully closed sheet pile cells for the new structure with substantially less steel as the tie-backs extend quite far towards the north face.

These factors represent real costs saving contributions for the proposed new Crane Dock Completion Project arising from prior investment, even though they cannot technically be counted as match. We estimate that the cost savings on tie-back structure will offset the cost of corner support piles (2), pile cap, bull rails and other finish items on the "bonus" dock face on the Gastineau Channel end of the dock. A reasonable way to estimate the value of these contributions - that are available to this project solely because Phase 1 of the Crane Dock is already in place - is to measure the value of the "bonus" dock face as a percent of the total new dock face to be created by this project. A total of 269' of new dock face will be created, of which 112' is "bonus" space, or 41.6%. Multiplying that against the total estimated project cost ($2.854 million) gives a figure of $1.19 million. That is the value of dock structure that could otherwise *not* be built but for the existence of the original Phase 1 Crane Dock.

In addition, based on the value of adjacent tidelands and uplands, Docks and Harbors estimates the value of the site dedicated to the Crane Dock Completion Project to be $125,000, or about 4.7% of the proposed project cost.

Private Partner Match - The proposed new construction will allow Alaska Glacier Seafoods to place an 11-ton per day ice plant at the Crane Dock in much more advantageous position. AGS already is a major user of the facility. The ice plant, which has a replacement value of $100,000 is a major contribution to the usability and success of the project. It is not a brand new plant, so perhaps cannot be stated as match. It nonetheless represents a substantial private partner contribution to the overall effort representing approximately 3.74% of the Crane Dock Completion Project cost.

Combined Value of Private Partner and Prior CBJ Investments - Total public and private investments with *direct* implications for the Crane Dock Completion Project are thus approximately $1,415,000 or very nearly half (49.5%) of the projected cost. While we recognize that this amount is not eligible to be counted as project match under TIGER grant rules, we do think that these values are worthy of note in terms of prior investment by Juneau in this important project.

Why TIGER Grant Funding Is Vital

Juneau not eligible for many funding sources like Economic Development Administration grants, which have funded similar harbor infrastructure projects in most other Southeast Alaska communities. The reason for this is that the overall unemployment rate in Juneau is below the EDA eligibility threshold. However, the targeted sector of our economy – commercial fishing and seafood – is *not* different economically from similarly situated business in other communities. Unfortunately, the strength of other sectors of Juneau's economy – most notably federal and state government employment – does not readily translate into support for weaker sectors in our community. This long-term imbalance has existed for decades, and is reflected in the poorer state of fisheries infrastructure here.

Likewise, the State of Alaska is no longer making grants for harbor infrastructure. In fact, the State devolved its harbor assets onto communities in the early 2000's, often with very large backlogs on deferred maintenance. In Juneau's case the deferred maintenance totaled more than $24 million, while maintenance funding received at transfer was only $7 million. Juneau is still working to address this serious problem. Under pressure, the State eventually created a 1:1 matching program for harbors, but this only covers grants to rehabilitate harbors that were once State of Alaska assets. That source is not available for projects like the Crane Dock. While Docks and Harbors has a reserve account, all of that funding – and much more - is needed to match possible 1:1 State grants for remaining deferred maintenance in the basic harbor system.

Docks and Harbors receives approximately $450,000 per year in Fisheries Business Tax, but this entire amount is dedicated to repayment of revenue bonds which have partially funded other commercial fishing oriented infrastructure. State bonding through the Alaska Industrial Development and Export Authority (AIDEA) is not an option because direct cash return from facility user fees will not be sufficient to support a bond.

The Docks and Harbors Department other principal source of funds is cruise ship berthing charges and a $3 per visitor levy for Port Development. But, these funds are already dedicated to bond repayment for cruise vessel dock improvements, and , in any case, by federal maritime law, they can only be expended on projects of direct benefit to those vessels and / or their passengers.

Consequently, the Crane Dock Completion Project cannot proceed absent the requested TIGER grant funding.

ADDRESSING TIGER VII GRANT SELECTION CRITERIA

The requested TIGER VII funds will support one phase of the larger multi-phase, multi-year Juneau Fisheries Terminal project, in addressing each of the primary and secondary grant selection criteria set forth in the NOFA, we have, for clarity, broken out comments to cover both the overall project and the phase for which grant funds is requested.

Primary Selection Criteria

Economic Competitiveness – The Crane Dock, even in its partially completed form, has been a critically important piece of public infrastructure that has provided numerous Juneau businesses with the ability to compete with much larger, often foreign-owned seafood companies that dominate the Alaska seafood processing scene. Unfortunately, the success of the dock has resulted in overcrowding that threatens its ability to continue in its role as an important business incubator and support. By more than doubling the dock's capacity and building it out to the full original design concept, Crane Dock Completion Project will ensure that the dock will continue to support existing and new entrant Juneau seafood businesses.

Safety – The Crane Dock Completion Project directly addresses personal and vessel safety concerns of users. In its current, partially completed condition the dock is frequently very congested both on the water side and on the dock surface area. The existing dock face is 150' long, but the inner portion is shallow at low tides, which creates hazards for maneuvering and already moored vessels. Also, the turning basin in front of the existing south face is not large and is subject to strong and swirling currents. This frequently makes getting to the dock face difficult for larger vessels like tenders and limit seiners, particularly

if there is already a vessel tied up along the dock. The Crane Dock Completion Project will add 260' of new dock face. 220' will be added along the north face, while 40' will be added on the west end of the dock. The latter addition will actually make 80 additional feet available, because the existing 40' on west end of the structure is not currently set up for a vessel to tie up against. There is also a larger maneuvering room on the north side. In all the current crowding will be much alleviated with consequent improvement in vessel and personal safety.

The same is true for the surface of the dock. The current surface area is about 6,000 s.f. and the working area is fairly narrow. When there is a lot of material staged on the dock, or coming off boats, maneuvering vehicles to and from the cranes can be difficult. The use of the dock has grown greatly

State Of Good Repair – Since the Crane Dock Completion is all new construction, state of good repair is not a key element of the project. The original, south face of the dock, which was completed in 1992 is still in good structural condition, with decades of useful life left. Fender piles, bulwarks have been repaired or replaced as needed; $20,000 was spent to extend and upgrade electrical service in 2007; and the cranes were rebuilt at a cost of $65,000 in 2008. That said, in the course of this project it is anticipated that minor maintenance items regarding the existing part of the facility may be addressed while construction crews are mobilized and to integrate the structures. The most likely are repairs to the existing paved surface, striping, etc.

Quality of Life – The Crane Dock is definitely a basic infrastructure project aimed at industrial users. However, it does, and will continue to have secondary "quality of life" impacts for the community. Foremost among these is access to high quality seafood. With a population of 32,000 people Juneau represents by far the largest market in the Southeast Alaska region. Although many Juneau residents enjoy catching their own crab, salmon, halibut and other seafood, the fact is that great majority rely on the fishing industry to access local seafood. The 70 direct market fishing operations in Juneau are a very important link in that supply chain. Most have loyal local customer bases. Many also provide product to local seafood counters and to local restaurants.[3] For these direct marketers the Crane Dock is critical for getting their product off their boats and delivered to consumers. Access to top quality, locally caught seafood is something that Juneau consumer value very highly.

The Crane Dock also serves non-fishing industry vessels. This is definitely a secondary role, but is nonetheless important for other operators requiring occasional heavy lift or loading capabilities including owners of larger recreational craft, tour boat operators, and regional freight operators. These vessels provide "quality of Life" amenity for Juneau residents, visiting tourists, and those living in small, remote communities in the region.

Environmental Sustainability – The Crane Dock Completion Project does not directly address environmental sustainability issues in any direct sense. However, it is designed to primarily serve the fishing industry, and Alaska is a recognized world leader in sustainable fisheries management. In fact, the principle of sustained yield management is actually enshrined in the State constitution – the only such natural resource management provision in any state constitution. As for the dock itself, it will be constructed on an existing rubble mound breakwater which was itself placed on previously developed tidelands. No virgin tidelands will be disturbed.

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[3] Local seafood is prominently featured at locally owned stores like Super Bear Supermarket, Foodland IGA, and Jerry's Meats & Seafood. Costco also features locally caught seafood like halibut, salmon and Pacific cod. National supermarket chains like Safeway, Walmart and Fred Meyer do not source locally.

Secondary Selection Criteria

Innovation – When the Crane Dock was first constructed it sparked a minor revolution in the direct marketing of seafood in Alaska. The traditional, nearly century-old development model of the Alaska seafood industry was for independent fishermen to deliver to shorebased processors. This was a "strait jacket" for many fishermen. Under Alaska limited entry licensing fishing permits can only be owned by individual, natural persons; no individual may own more than a single permit in a given fishery; and the permit owner must be onboard the when the permit is being fished. This effectively ruled processor ownership of fishing licenses and processor owned fishing fleets. However, advances in technology were making it possible for more and more processing to take place on board vessels. Fishermen wanted to process and market their own catches, but various State regulations on taxation and seafood sanitation were not supportive. Also, the processors owned all the docks and most simply would not buy fish from any fisherman seeking to be at all independent. It was a "company store" situation. Juneau was one of the first municipalities to build public infrastructure – the Crane Dock - to help independent fishermen. There were no large established processors here to object. The result was a surge in interest by fishermen who wanted to achieve higher prices. They gradually forced changes to State regulations a number of new licensing provisions. Some of these direct marketers have evolved into much larger companies – Mike and Jim Erickson of Alaska Glacier Seafoods being the prime example. Many are continuing with new product development and innovative marketing – evolving web-based marketing, community supported fisheries (CSF's), sales via farmers markets around the country, and various local marketing initiatives to health food stores, restaurants and individual consumers. The Crane Dock was absolutely instrumental in these still ongoing developments, and its effects have been felt in other communities. Fishermen from other towns like Petersburg and Haines come here to access the Juneau market, and to utilize our airport facilities to fly product to Anchorage and the Lower '48. Other communities are now investing in facilities to assist direct marketers and independent small processors. We fully expect to innovative surge sparked by the Crane Dock to continue and expand in the future.

When Phase 1 of the crane Dock was built in 1991-92 cellular sheet pile was a still a fairly new technology. It is often used today, so its application to the Crane Dock Completion Project (Phase 2) cannot in itself be considered innovative. However, several aspects of this project can be viewed as innovative. Using parts of the Phase 1 tie-back system will result in substantially less new structural sheet pile, allowing limitedresources to be devoted to other aspects of the project. Most important of these is the finishing of the end of the dock – heretofore unusable as dock face. We have called this "bonus" dock face elsewhere in this report, and it provides a substantial increase – some 71% - over what would normally be available with the same amount of basic sheet pile construction.

Partnership – The City and Borough of Juneau, Docks and Harbors Department is the project proponent. It has several partnership arrangements in its overall Juneau Fisheries Terminal Project. First among these is its long-term lease agreement with the University of Alaska, which has placed significant lands, tidelands and equipment assets of the University under Docks and Harbors Management. Pursuant to this Agreement, D&H developed Phase 1 of the Crane Dock in 1992 and under took the development of the vessel service yard, which included use if the 35-ton Travelift. These assets have been sublet to Juneau Marine Services since 1997 in what has been a very successful public / private partnership effort to expand the marine services sector in Juneau. A similar arrangement is in place the Maritime Hydraulics. As for the Crane Dock Completion Project itself, they design will make it possible for Alaska Glacier Seafoods to optimally site its auxiliary ice plant to service the fishing fleet.

Benefit - Cost Analysis

The project will have important economic development effects. Analysis done by SeaFisk Consulting (Appendix 1) indicates that new seafood industry first wholesale values - developed after and directly supported by the Crane Dock Phase 2 project – can reasonably be expected to exceed project costs on an annual basis. A ten-year projection indicates overall economic benefits of close to $20 million, against a project cost of $2.854 million.

Projected Seafood Industry Direct Economic Output Growth Attributable to Crane dock Completion (New Shore Processing only after Yr-5)			
Sector	**First Wholesale (annual)**	**FBT & Sales Tax (annual)**	**10-Year Total**
Direct Marketing	$350,000	$18,500	$3,685,000
Existing Shore Processors	$600,000	$4,500	$6,045,000
New Shore Processing	$2,000,000	$15,000	$10,075,000
Total	$2,950,000	$38,000	$19,805,00

Direct Receipts by D&H & CBJ - Dock user fees are negligible, but local sales taxes and the shared portion of the State Fisheries Business tax are substantial. A 5% sales tax accrues directly to the CBJ and would only be collected against direct market sales. It could total as much as $17,500 per year. The FBT go to Docks and Harbors, and could increase FBT receipts by a bit more than $20,000 annually. Over 10 years city entities could expect to receive about $380,000 in direct tax benefits from seafoods slaes increases generated by the the Phase 2 Crane Dock Completion Project.

Job Creation During Construction - Federal government estimates of the impact of transit investment are based on a multiplier which predicts that $1 billion in Federal highway and transit investment supports 13,000 job years of employment. Therefore $2.854 million X 13 jobs per $1 million expenditure indicates that some 37 job years of employment will be generated directly by the Crane Dock Completion. And we think this actually under-estimates job creation during the construction of the project. or one job for every $41,000 in federal TIGER V investment. $1,517,000 in wages and salaries 1.35 spin-off in broader economy $531,000

PROJECT READINESS / PLANNING APPROVALS

Since the Crane Dock Completion Project will adhere to the same design as the original, Phase 1 construction we expect the final design process to be straightforward and brief. The construction will require review by the CBJ Community Development Department permitting section and by the Planning and Zoning Commission. We regard these as pro forma reviews, as the project meets all local zoning and development criteria. The final local matter will be appropriation of grant receipts by the CBJ Assembly. This likewise is expected to be a pro forma step, as the project entirely comports with long-term, local economic development priorities and with the recently adopted Juneau Economic Plan. D&H fully expects enthusiastic endorsement from all local government bodies with project review responsibilities.

Non-local agencies with permitting responsibilities include the US Army Corps of Engineers (USACE), State Coastal Zone Management (CZM), and the Us Environmental Protection Agency (EDA). An Army Corps permit will be required for dredging and for construction in tidelands. We expect little if any difficulty. The general site has already been permitted for the same use, and D&H just recently received a dredging permit for the just completed Aurora Harbor rebuild. That dredge area immediately abuts the Crane Dock site. EPA will also need to weigh in on the dredging because of possible dredge spoil contamination issues. But, again, they just recently approved the Aurora dredging, so no problems are anticipated. State CZM issues will center around habitat concerns. But, the immediate area has already been highly developed, and there are no habitat issues like eel grass beds or salmon spawning streams in the project area. While these permitting steps can be tedious, Docks and Harbors has a long and effective history of permitting significant in-water and tidelands projects. Our experience tells us that this project will easily clear permitting requirements.

PROJECT SCHEDULE

The following is the expected schedule, with time intervals measured from the date of TIGER V grant award. This schedule will easily accommodate the September 30, 2017 US DOT fund obligation deadline. Assuming announcement of grant awards by July 31, 2015, all permit requirements should be completed the end of February, 2016. Construction should be completed by fall, 2016.

Task	Description / Status	Time to Complete
Design	Final Design & Engineering (CBJ CDD review Required)	90 days from award
Local Permitting	CBJ Planning and Zoning Commission Review	60 days from final design
USACE & EDA	Permits for face dredging and in-water / tidelands construction	150 days from award
State	CZM Consistency	150 days from award
Bid & Award	Bid prep, 45 day response period, award	60 Days from final permits (210 days from award)
Construction	Final site prep, building erection, parking and landscape completion	180 Days
Close Out	Contract completion & final review	30 Days
TOTAL	1 year & 2 months from Award to Completion	14 Months

SUMMARY

If funded under this TIGER VII Discretionary Grant request the Crane Dock Completion Project can be completed well within program time limits. It will significantly improve the functioning of the original dock, and will assure the continuance of its innovative and vitally important contribution to the fishing and seafood industry in Juneau and of the northern Southeast Alaska region in general. This is a cost effective economic development project that can only proceed if TIGER funding is secured.

APPENDIX 1 – Benefits v. Costs Analysis
SeaFisk Consulting & Management LLC

Examination of project cost estimate versus economic growth potential of shoreside processing and direct marketing sectors that would be supported by the Crane Dock Completion Project.

SeaFisk Consulting & Management, L.L.C.
FISHERIES DEVELOPMENT • PROJECT MANAGEMENT • MARKETING • SOURCING
P.O. Box 20628 Juneau, Alaska 99802 / tel. (907) 723-4095 / e-mail akprawns@gmail.com

MEMORANDUM

To: Gary Gillette, Port Engineer
CBJ / Docks and Harbors

From: Greg Fisk, Principal

Subject: Benefits v. Costs of Crane dock Expansion

Date: May 25, 2015

Dear Mr. Gillette,

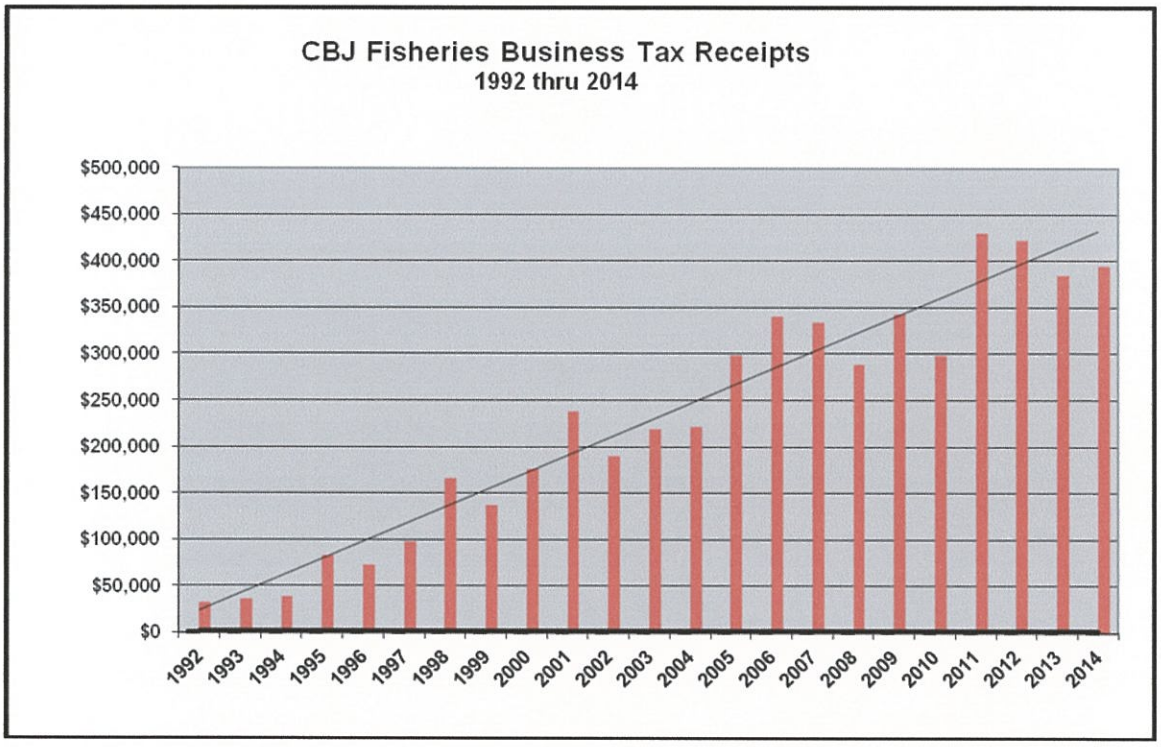
This is in response to your request for an estimation of benefits versus costs from an expansion of the existing crane dock located between Harris and Aurora Harbors. It is my professional opinion that the costs will be more than recovered through direct, indirect and induced economic activity that can reasonably be attributed to the expansion. However, quantification of benefits for a dock like this is not nearly as straight forward as, say, predicting and valuing expanded traffic at a container port. In that sort of analysis one can gauge increased usage in terms of TEU's X an established port tariff and get a pretty good measure of increased economic activity. In the case of the Juneau crane dock we are dealing with multiple independent operators ranging from individual fishermen to sizable processing companies, and several different operating modes – traditional fishing, direct marketing, tendering, etc. The situation is further complicated by the fact that much of the economic data is protected by State of Alaska confidentiality rules.[1] That said, we do have information that will help quantify with some accuracy the importance of the original dock, and knowledge about the state of the fishing and seafood industry to help make some reasonable prognostications about future impacts.

Dock Expansion & Cost: The proposed expansion calls for increasing the available footage of dock face from about 160' to 425'; doubling the staging / working area to nearly 14,000 s.f.; and doubling the crane capacity from 2 X 4,000 lbs to 4 X 4,000 lbs. Estimated cost of the expansion project is not to exceed $3 million. The question is "Will

[1] Where small numbers of operators are involved with specific species or activities, data collected by the Commercial Fisheries Entry Commission and ADF&G is restricted to protect the financial information of operators.

the economic benefits derived from the expansion exceed the cost of construction within a reasonable timeframe?"

Historical Performance: The original crane dock was put into full service in 1992. At that time the seafood industry in Juneau was at a very low state. It is well know that the original public infrastructure investment sparked an industry renaissance. Both of Juneau's main seafood processors were local start-ups that arguably could not have operated in their initial stages absent the crane dock facility.[2] These two companies have been the main drivers of seafood industry rebirth in Juneau over the past 20+ years, but a number of smaller processors and direct market operations have also contributed. A reliable indicator of industry growth over time is Fisheries Business Tax (FBT) receipts. The FBT, commonly referred to as the "raw fish tax", is a levy by the State of Alaska against the landed, or ex-vessel value of all fish. It averages 3%.[3] The FBT is a shared tax. The State remits one-half of the amounts collected to the municipality were the fish is landed for processing. State tax accounting of fish landings is fairly sophisticated, so the FBT is an accurate gauge of the base economic activity of the seafood industry in a given locale. The chart below tracks Juneau's FBT receipts from 1992 – the year that the original Crane dock was placed in service – through 2014.[4]



Juneau's FBT receipts in 1992 were a paltry $32,457. That indicated an ex-vessel value of fish landed to Juneau processors of $2,163,800, with an estimated first wholesale value

[2] Alaska Glacier Seafoods and Taku Smokeries / Taku Fisheries

[3] The FBT varies from 1% to 5% depending on a variety of factors, but is 3% for the vast majority of species and production modes., and that is the accepted average for economic analysis purposes.

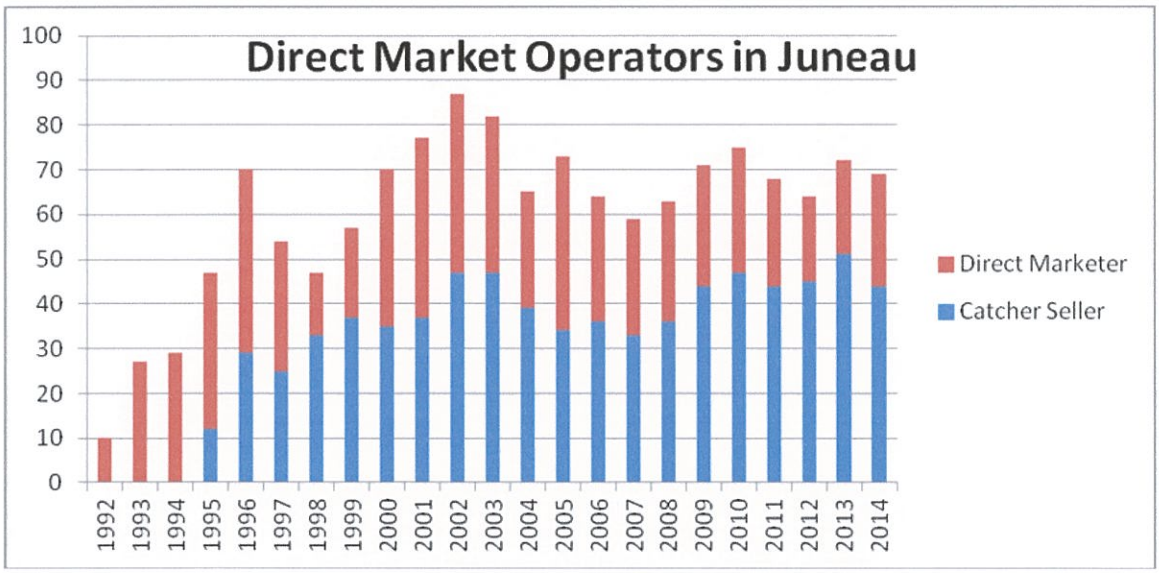
[4] The FBT receipts for a given year reflect fisheries landings activity from the prior calendar year.

from the processors of approximately double that - $4.4 million. At that time the old Douglas Cold Storage plant was still struggling along. It probably represents the bulk of those early figures. Douglas Cold Storage ceased operations in the mid-1990's and the plant later was a total fire loss. Taku Fisheries was just starting up in 1991-92. Alaska Glacier began operating in 1996, and was a significant player by 2000-01. Those two plants have accounted for the great bulk – 95+% - of Juneau seafood production in recent years.

Most of the remainder has been from a several smaller shore based processors like Horst's Seafoods, Taku River Reds, and Jerry's Meats & Seafood. ADF&G Commercial Operator Annual Report (COAR) data indicate that there were 10 licensed shore based processors in Juneau in 2014. Other than the 5 already mentioned we know that 2 were locally owned supermarkets – Super Bear and Foodland IGA – that are licensed to purchase from fishermen. The total number of serious shore based processors has remained fairly stable over the past 20+ years. The average CBJ Fisheries Business Tax receipts for the 5-year period 2009-13 was $384,415, indicating an average ex-vessel value of fish landed for processing in Juneau of $25.6 million – very close to 12 times the pre-crane dock years.

In addition to the shore based processor sector there is a substantial contingent of direct marketers in Juneau. Direct marketers are defined in State regulation as fishermen who sell only their own catch. There are two basic classifications; Catcher / Sellers, who are only permitted to sell unprocessed seafood products to the public directly from their vessels; and (confusingly) Direct Marketers who are licensed to process (usually meaning freezing and packaging) their own catch and selling it into general commerce just like large processors. This group of individual owner / operators is highly dependent on the Crane dock. Unfortunately, COAR data does not capture Catcher / Seller values, and the Direct Market production values are very substantially underestimated because of Fisheries Business Tax Reporting rules. This problem is illustrated by COAR data on first wholesale value by Juneau shore based and Direct Marketers in 2014. The first wholesale value for shore-based processors (almost all from our two largest plants) was cited in COAR as $36.5 million in 2013, at an average per pound value of $4.29. This is almost certainly too low by a large amount, as it is a good rule of thumb that first wholesale is about double the ex-vessel value, which would peg their first wholesale number at some $52 million in 2013. The problem is even worse for the Direct Marketer numbers. Here, we know part of the problem. Their sales value is based on what they would have gotten for their product had they sold to a processor – the so-called "grounds price". This is *not* their actual price. It is an artifact of a somewhat arcane rulemaking designed to equal out the tax burden per unit of resource used amongst conventional and direct market fishermen. Under prior rules direct marketers were paying 4 to 8 times (avg. about 5.5 times) the tax per unit of product depending on the species. Thus, COAR data for Direct Marketers indicates that in 2013 a total of 14 operators generated just $484,981 at an average of just $2.75 per pound. This is far off the mark. Direct Marketers do not go to all the trouble that direct

marketing entails just to sell for the same price they could get by delivering to a shore based processor.



So, the entire sector is grossly undervalued. COAR data indicates that the direct marketing sector in its entirety accounted for a bit less than $500,000 in first wholesale value in 2013, out of a total figure for all Juneau production of $37 million – about 1.35%. The real number is much higher. That $500,000 figure is in reality more like $2.75 million. Plus there is substantial direct marketing in Juneau by fishermen from other communities. A reasonable estimate would peg that at an additional 20%, or $550,000. And, as noted earlier, COAR does not account for Catcher / Seller sales. We simply do not have a good idea on that number, but it is surely *at least* $200,000. That means that the entire direct market sector in Juneau is at least $3.5 million annually. Measuring that against a more reasonable total first wholesale value of $52 million would indicate a direct marketing contribution of about 6.7% - about 5 times greater than indicated by COAR data.

Implications for the Future: The total numbers of Direct Marketers and Catcher Sellers in Juneau increased rapidly in the years after the Crane dock first opened – growing from 10 in 1992 to a peak of 87 in 2002, then leveling off at an average of 68 over the past decade. There is no doubt that the availability of the dock contributed substantially to the initial rapid growth. It offered fishermen capabilities they simply had not had before. This coincided with a period of relatively poor ex-vessel prices for salmon, which has been a general driver of interest in direct marketing. The drop from the peak reflected a rebound in basic salmon prices. But, the fact that the number of direct marketers has remained fairly high indicates that this sector has truly established itself as a regular part of the overall industry, and is not just a transitory phenomenon. Is there likely to be growth in this sector in the future? Quite probably. Numbers of participants have trended moderately up since 2007 despite strong ex-vessel values. They have also

resisted increasing congestion at the Crane dock. Direct marketers have to compete for dock use with the larger processors and regular fishermen users. Additional working space and twice as many cranes would be a significant boost for direct marketers. An increase of just 10% in direct market sales would add about $350,000 annually in seafood sales, or $3.5 million over 10 years. Fisheries Business Tax receipts from that increase in sales would be negligible – only about $1,000 per year because of the aforementioned FBT valuation issue. But direct market sales do generate city sales tax at 5%. That would amount to some $17,500 per year to CBJ coffers, or $175,000 over a decade.

What about the larger processors? As noted, our two largest processors were once almost totally dependent on the crane dock as start-ups. But, their rapid and substantial growth has allowed them to develop their own dock facilities. Taku now rarely uses the crane dock and will not likely account for any meaningful usage increase in the future. Alaska Glacier now lands 90+% of their fish directly at their own plant dock in Auke Bay. They will remain a regular user of the facility for servicing tenders and supplying ice, but it is unlikely that they will substantially increase the percentage of their total landings that can be attributed to the Crane dock. That said, their overall growth goals are aggressive – as much as 2 million additional pounds of salmon per year over current levels. They are also substantial players in the halibut market, and halibut stocks are rebounding. They have been good at meeting growth targets. If even 10% of that salmon increase and a few thousand pounds of halibut comes across the Crane dock, $300,000 or more ex-vessel or $600,000 first wholesale in additional sales could be counted annually as crane dock economic contribution. No CBJ sales tax would accrue, but some $4,500 in FBT would be generated. That totals an additional $6,090,000 in additional economic output in the Juneau economy over a decade.

Is there a chance that the Crane dock Completion Project could spawn an additional shore-based processor in Juneau? It is very unlikely that we will see another Taku Fisheries or Alaska Glacier Seafood develop, as happened following Phase 1 of the Crane dock in 1992. However, there is still plenty of room for additional processing in Juneau. Only about 40-45% of the fish caught in the immediate vicinity of Juneau is landed here for processing. The rest is tendered to other communities. This means that in any given year there are 10 million or more pounds of salmon alone that could potentially be accessed by an entrepreneurial local operator. There is a very reasonable chance - indeed a strong likelihood – that an additional 500,000 pounds of onshore processing will develop in Juneau in the fairly near future. Assuming a typical product mix, that could generate an additional $2million per year in first wholesale output and another $15,000 in FBT per year. Since such a development is not an incremental increase on existing operations, but rather an episodic event, for projection purposes it is assumed that the benefits will accrue only beginning in year 5 following the completion of the Phase 2 of the Crane dock.

Benefits Exceed Costs: The economic growth discussed is tabulated below. This degree of industry growth is quite reasonable to forecast. The projected increase in Juneau seafood industry first wholesale value is only a 5.7% increase over current levels. Is it reasonable to attribute that to the crane dock completion? Yes. Increases in output are projected on modest assumptions. They could be substantially greater. They are based primarily on projections for sectors that are highly dependent on the crane dock, but which probably cannot expand with the current degree of crowding at the facility.

Projected Seafood Industry Direct Economic Output Growth Attributable to Crane dock Completion (New Shore Processing only after Yr-5)

Sector	First Wholesale (annual)	FBT & Sales Tax (annual)	10-Year Total
Direct Marketing	$350,000	$18,500	$3,685,000
Existing Shore Processors	$600,000	$4,500	$6,045,000
New Shore Processing	$2,000,000	$15,000	$10,075,000
Total	$2,950,000	$38,000	$19,805,00

These numbers do not take into account secondary and induced effects in the local economy. Leakage in the Alaska economy is very high, so such effects would be unlikely to exceed 25%. But, that would still bring total economic output increases over 10 years into the $25,000,000 range. That is more close to ten times the initial projected investment in the Crane Dock Completion Project. Indeed, if the modest projected level of new shore-side processing is achieved, new economic output attributable to the project should exceed investment costs every year.

APPENDIX 2 – Letters of Support

Project Support Letters From:

- Alaska Glacier Seafoods
- Juneau Fisheries Development Committee
- Primo Prawns
- Harri (Juneau Marine Services & Harri Commercial Marine)
- Taku River Reds

ALASKA GLACIER SEAFOODS INC.
"Alaska's Finest"

6/2/15

Carl Uchytil, Port Director
CBJ Docks & Harbors Department
155 S. Seward St.
Juneau, AK 99802

Subject: Expanding the Downtown Crane Dock

Dear Carl,

I want to express my strong support for your efforts to build out the crane dock by adding a new dock face and more cranes on the north side. As you know, the crane dock was extremely important for us when we were starting Alaska Glacier Seafoods back in 1996. In fact, without the dock I don't think we could have built our company. When we were operating in leased spaces in Lemon Creek we were completely dependent on the dock to unload fish. Even now that we have our own processing facility and dock in Auke Bay, we still depend on the crane dock to service our tenders and fishing boats on the south end.

But it is now very crowded when fisheries are starting up and fishermen are changing gear, or and the end of openings when people are offloading gear or independent guys are moving fish. The industry has simply outgrown the existing facility. That's good. It shows that the original investment was a good one. But we need to catch up with existing conditions and build for the future. There is a lot of potential for future growth in our seafood industry in Juneau, but the crane dock can no longer support growth as it is now. The expansion you are talking about should make it possible for us to locate our 11-ton ice plant at the dock in a way that can better service gillnetters and tenders working the Taku Inlet fishery. We think that is an important partnership for both us and the city.

Best of luck with your grant application, and let me know if there is more we can do to help.

Sincerely,

Mike Erickson
President

P.O. BOX 34363 • JUNEAU, ALASKA 99803 • (907) 790-3590 • Fax: (907) 790-4286

CITY/BOROUGH OF JUNEAU
ALASKA'S CAPITAL CITY

FISHERIES DEVELOPMENT COMMITTEE

May 27, 2014

Mr. Carl Uchtytil
Port Director
CBJ Docks & Harbors Department
155 S. Seward Street
Juneau, AK 99801

Re: Commercial Fisheries Infrastructure Priorities

Dear Carl,

In November of last year the Committee wrote to Board Chairman David Logan regarding what we saw as the most important fisheries infrastructure projects for CBJ Docks and Harbors to address. Our Number 1 priority was "...(c)ompletion of the **Juneau Fisheries Terminal** project, begun in 1990, and only partially completed with construction of the crane dock." We recognize that the entire Fisheries Terminal project involves a number steps and will take time to fully implement, but we are very pleased that you are pursuing a USDOT TIGER grant to expand the Crane Dock portion of the overall project.

The CBJ's Fisheries Development Committee (FDC) was constituted by the Assembly to provide advice to Borough bodies respecting all aspects of fisheries related development in Juneau. Of particular concern to the Committee is the state of public infrastructure needed to support commercial fisheries. The FDC has worked successfully to catalyze industry, public and government support for important projects in the past – projects that have helped spark a renewed, and now very vital Juneau seafood industry, which is an important and growing sector of our economy. Last November we described the overall Fisheries Terminal as follows (references to the Crane Dock emphasized):

> **"Juneau Fisheries Terminal** - In 1989 the CBJ and University entered into a long-term lease on much of the University owned tract between Harris and Aurora Harbors. The agreement included a $500,000 grant to support construction of the Egan Library on the UAS campus. The leased lands, including the 35-ton Marine Travel Lift, were placed under D&H management. The plan at the time was to construct a marine development and support facility modeled on Seattle's Fishermen's Terminal – with haul out and maintenance yard, space for marine related support businesses, retail and offices, harbor management facilities, and continuation / further development of the University's marine related technical and vocational training at the Marine Tech Center. *The paved, sheet-pile cell structure, with its two yellow cranes - known generally as the "crane dock" – was built in the early '90s, but only partially finished. The north facing side was never completed*. The center tract of land and travel Lift were sublet to Juneau Marine Services, and remain the most important marine service facilities in Juneau. Small tracts have been sublet to important marine related businesses like Maritime Hydraulics. *These are all successes. Indeed the crane dock has been an important business incubator for the seafood industry in Juneau. For example, Alaska Glacier Seafoods got its start using that public facility to offload fish*.

But, the original vision – which remains very valid to this day – has been only partially realized. Much remains to be done. The existing 35-ton Travel Lift is at the end of its useful life and is woefully inadequate capacity-wise. We need a 150-ton lift to service vessels like seiners, tenders, tugs, commercial landing craft, tour vessels, and even the large yachts that visit Juneau. More space is needed for vessel service areas, and must be created by filling much of the leased tidelands. Buildings are needed for marine service businesses and to house D&H's own operations. *The crane dock needs to be completed*.

We noted that "(v)arious plans have been developed by D&H over the years, and the FDC urges the Board to renew efforts to implement them". We are hopeful that US DOT will award your TIGER grant funding request, and think that completion of the Crane Dock will be a major improvement for all sectors of the local seafood economy – fishermen, direct marketers, and processors alike. We also believe that this project can help reignite progress on the entire Fisheries Terminal Project.

Sincerely,

Jim Becker, Chairman

May 25, 2015

Carl Uchytil
City and Borough of Juneau
Docks and Harbors
155 South Seward Street
Juneau, Alaska 99801

Dear Mr. Uchytil,

I am writing to support the CBJ's application for federal TIGER grant funding to expand the crane dock at the Fisheries Terminal site between Harris and Aurora Harbors. I am co-owner of the 56' F/V Morgan Anne. I use the vessel in catcher / processor mode during the fall spot prawn fishery, under a Direct Market Vessel License issued by the Alaska Department of Environment Conservation. All of my prawns are frozen at sea to assure highest quality and are marketed under my Primo Prawns brand. I sell most of my production directly to local individuals, but also provide product to a couple of local retail outlets, and ship some product by air to a few selected customers eslewhere in Alaska and the Lower '48. All of my product comes ashore form the boat at the crane dock, so it is extremely important to me as a direct market fisherman, and to my customers, who otherwise couldn't access my product.

I also use the dock extensively for loading equipment prior to the prawn season. The aluminum processing shed, my deck mounted freezing system, and all my pots, line, bait and general supplies go on board at the crane dock, and come off there at the end of the season along with my prawn catch. My partner and I also regularly use the crane dock throughout the summer salmon season, when the Morgan Anne is on contract as a tender to one of the major processors in town. We frequently offload salmon in totes at the crane dock. My partner also does crab and longline fisheries during the winter months and uses the dock to load and unload crab pots, longline gear and other equipment. In summary, the crane dock is vitally important to my direct market business and to our general fishing and tendering operation.

However, there are problems. The dock is now often very crowded at critical times. The existing dock face is sometimes hard to maneuver too in strong tide situations, and the inner portion near the old wood dock is too shallow at low tide for many boats, including mine. Completing the dock on the north side will be a big plus, but I also urge you to look at using the end facing

Gastineau Channel. The end would be a bit wind exposed, but in most conditions would be just fine, and that would add a lot of extra dock space. For larger boats it would likely be the preferred location most of the time.

I hope that you are able to get the grant funding to finally expand the dock as people have been urging for years. It will certainly be important for me and for other direct marketers. I also hope that this project will generate momentum to finally move forward on other aspects of the long-term Fishermen's Terminal idea. We really need to get a larger Marine Travelift in Juneau – at least a 150' tonner.

Regards,

Ian Fisk
F/V Morgan Anne

Harri Plumbing & Heating, Inc.
5245 Glacier Highway
Juneau, Alaska 99801
t: 907.586.3190
f: 907.586.4129

Carl Uchytil, Port Director
CBJ Docks & Harbors Department
155 S. Seward St.
Juneau, AK 99802

Re: Crane Dock Investments / Juneau Fisheries Terminal

Dear Carl,

I understand that Docks and Harbors is in the process of applying for a federal grant to complete the crane dock by building a new dock face on the north side and adding at least two new cranes. I have always believed this to be a very important project, one that will benefit many involved in the local marine industry. Over the years, I have watched the amount of activity at the cranes continually increase and I have often voiced my support for the completion of this project. The crane dock is a heavily used piece of infrastructure that has been instrumental in providing the fishing fleet with alternatives to market their product, among many other uses. Glacier Seafoods got their start at this location and numerous fishermen unload their catch to ship to markets all over the world. The congestion during the fishing season can be difficult to manage and the additional services are badly needed and will be well used.

I believe completing the crane dock will bring us one step closer to realizing the overall goal of establishing a truly functional marine terminal project to better support the local fishing economy. Both our retail ship chandlery business and our full service boatyard will be able to expand significantly when the entire project is completed. As you know, Juneau desperately needs a new, higher capacity Marine Travel Lift. The existing 35 ton machine is very close to the end of its useful life. It is unable to lift many of the working boats in our region, nearly all of which would much prefer to obtain their services locally rather than to incur the additional cost and inefficiency of traveling out-of-town. I estimate that Juneau vessel service businesses are missing out on upwards of $2 million a year in business due to our inadequate infrastructure. We really need at least a 150 ton Travel Lift, and more upland area for vessel servicing.

For the record, my company has invested more than $400,000 in its boatyard operation alone. We typically provide seasonal employment for up to 8 people at our boatyard and full time employment of 8 people at our retail store. In addition, our boatyard supports the work of probably 15 to 20 other marine suppliers and service providers.

Good luck in the grant application process please let me know if I can be of any help.

Best regards,

Harri Plumbing & Heating, Inc.
Jeff Duvernay, President

3152 Pioneer Avenue
Juneau, AK 99801

June 4, 2015

Mr. Carl Uchytil, Port Director
Docks and Harbors Board
155 S. Seward St.
Juneau, AK 99802

Re: Support for crane dock grant

Dear Mr. Uchytil and Board Members,

Taku Renewable Resources Inc. is a provider of wholesale Alaska salmon. We have commercially fished for salmon in Taku Inlet, at the mouth of the Taku River south of Juneau, for almost thirty years. In 2003,we formed Taku River Reds (TRR), a relatively small, family owned, direct-to-market fishing business. Our goal has been to supply quality-conscious American consumers with the best possible sustainably harvested wild Alaska salmon. We began by processing, packaging, shipping and marketing only the salmon we personally caught aboard our boat the F/V Heather Anne. Now, in order to supply TRR's steadily increasing client base, we also purchase salmon from a small network of Taku Inlet commercial fishermen who similarly carefully handle the salmon they catch.

From the start we have been very dependent on the public crane dock between Harris Harbor and Aurora Harbor near downtown. The fish we offload at the site goes to one of our processors and some shipped fresh to our customers from the Juneau airport. The dock has been essential to our business. Unfortunately, it has become more and more crowded over the years, with lots of competing users. I know that the city has been thinking about expanding the dock for many years, but there has never been money available. Building out the north side by Aurora and adding more cranes would be an enormous improvement, so we hope that the federal grant you are applying for gets approved.

Thank you for your efforts.

Sincerely,

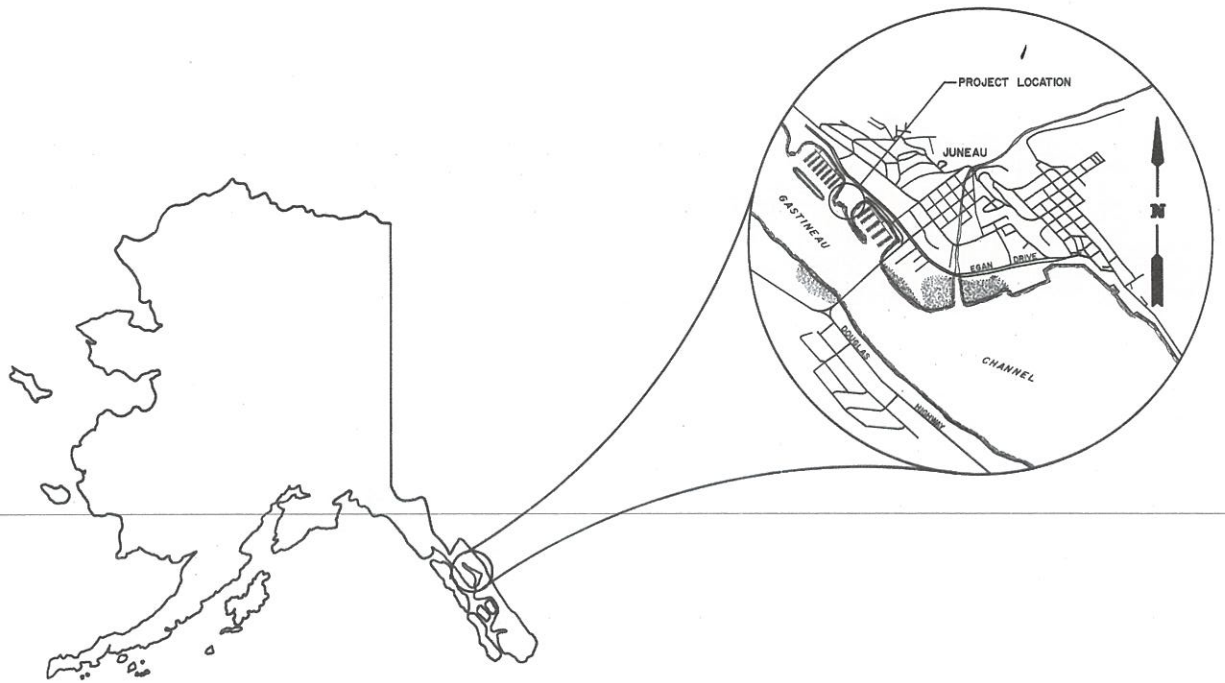
Kirk Hardcastle
Vice-President: Taku Renewable Resources Inc
DBA: Taku River Reds

APPENDIX 3 – Sheet Pile Dock Engineering Drawings 1988 Phase 1 / PND Engineers, Inc.

Selected pages from original engineering drawings. The same construction techniques and details will be adhered to in Phase 2 Crane Dock Completion Project.

JUNEAU FISHERIES TERMINAL

CITY AND BOROUGH OF JUNEAU
DEPARTMENT OF ENGINEERING
CONTRACT NO. E89—005



INDEX

STATE OF ALASKA — 49TH — James Nelson CE-1831 — REGISTERED PROFESSIONAL ENGINEER

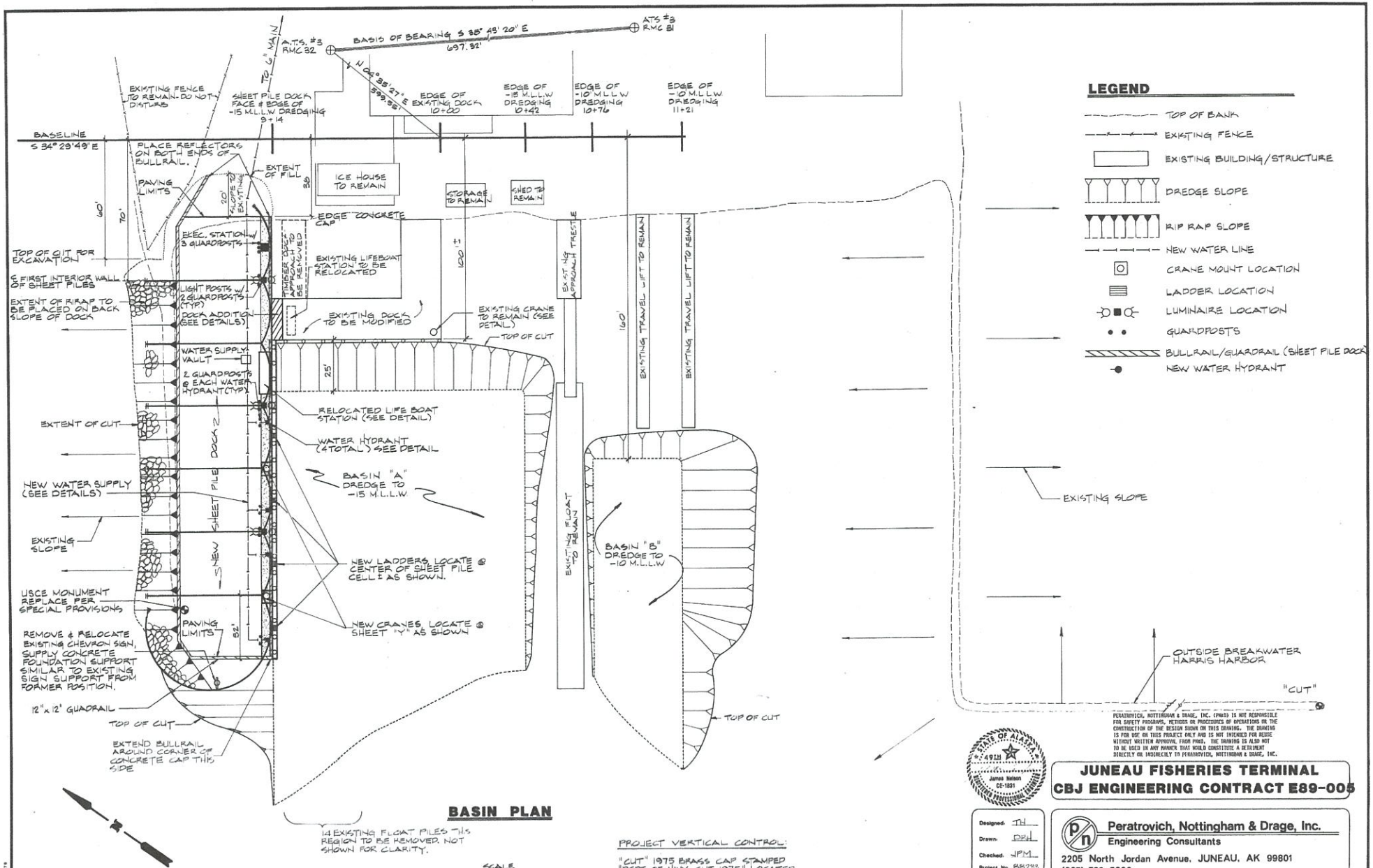
JUNEAU FISHERIES TERMINAL
CBJ ENGINEERING CONTRACT E89-005

Designed: TN
Drawn: DRH
Checked: JLN
Project No. 89035
Date: 4/21/89
Scale:

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
2205 North Jordan Avenue, JUNEAU, AK 99801
(907) 789-5006

TITLE SHEET & INDEX

sheet 1 of 12



BASIN PLAN

PROJECT VERTICAL CONTROL:

"CUT" 1975 BRASS CAP STAMPED "DEPT. OF HWY, CUT 1975" LOCATED AT SOUTH END OF OUTSIDE BREAKWATER, HARRIS HARBOR. ELEV. 25.36' M.L.L.W. (U.S.C.E. 1984)

STATE OF ALASKA — 49TH — James Nelson CE-1831 — REGISTERED ENGINEER

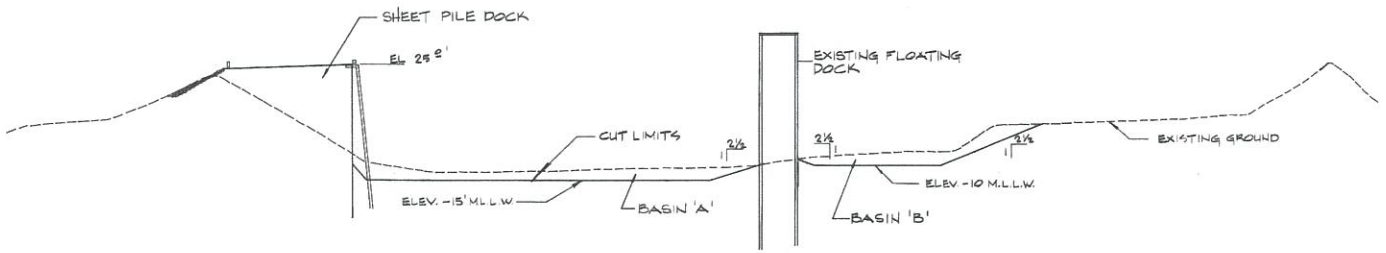
JUNEAU FISHERIES TERMINAL
CBJ ENGINEERING CONTRACT E89-005

Designed:	TH
Drawn:	DRL
Checked:	JPM
Project No.	88259
Date:	4/1/90
Scale:	

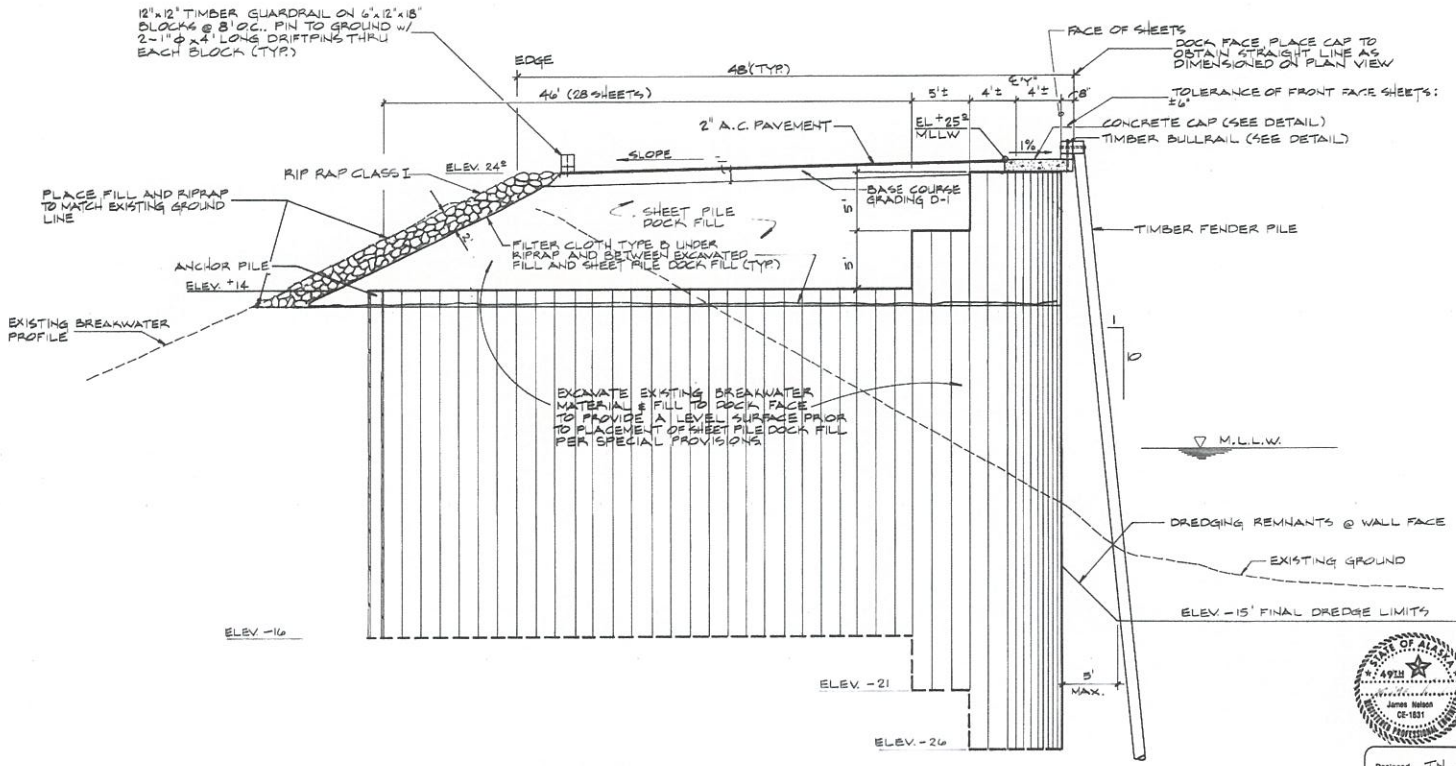
Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
2205 North Jordan Avenue, JUNEAU, AK 99801
(907) 789-5006

BASIN PLAN

sheet 4 of 12



TYPICAL BASIN SECTION



TYPICAL SHEET PILE DOCK SECTION

STATE OF ALASKA
49TH
James Nelson
CE-1831
REGISTERED PROFESSIONAL ENGINEER

JUNEAU FISHERIES TERMINAL
CBJ ENGINEERING CONTRACT E89-005

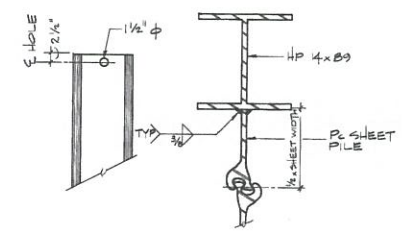
Designed: JN
Drawn: DAH
Checked: JLN
Project No. 89233

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
2205 North Jordan Avenue, JUNEAU, AK 99801
(907) 789-5006

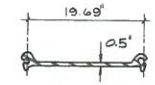
Date: 12/1/89
Scale: _____

BASIN & SHEET PILE DOCK SECTIONS

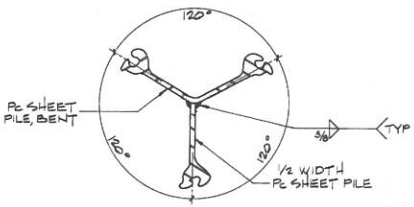
sheet 5 of 12



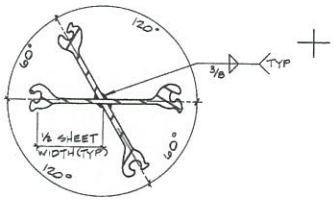
PICK HOLE DETAIL **ANCHOR PILE SECTION**



TYPICAL STRAIGHT SHEET PILE

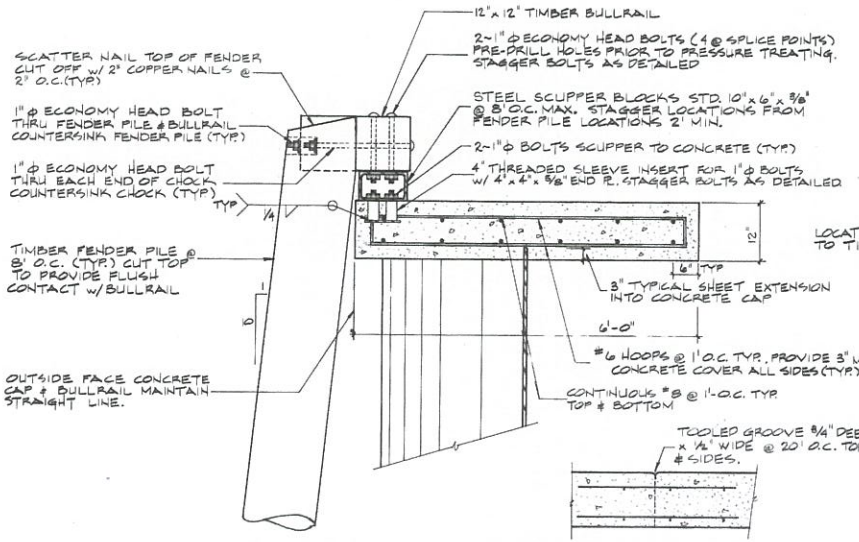


Y SHAPED SECTION

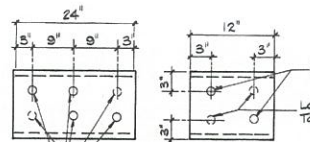


SPECIAL X SHAPED SECTION

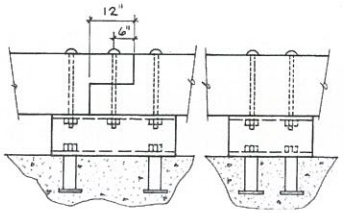
PLAN SHEET LAYOUT



PILE CAP DETAIL **CRACK CONTROL DETAIL**



PLAN SCUPPER BLOCKS
(TYPICAL SHEET PILE DOCK)



ELEVATION SCUPPER BLOCKS

STATE OF ALASKA — 49TH — James Nelson CE-1831 — REGISTERED PROFESSIONAL ENGINEER

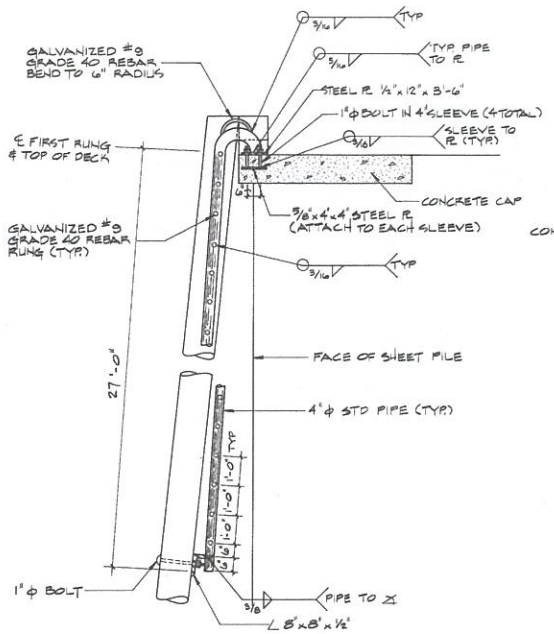
JUNEAU FISHERIES TERMINAL
CBJ ENGINEERING CONTRACT E89-005

Designed: JN
Drawn: DPH
Checked: JLH
Project No. 89235
Date: 6/2/89
Scale:

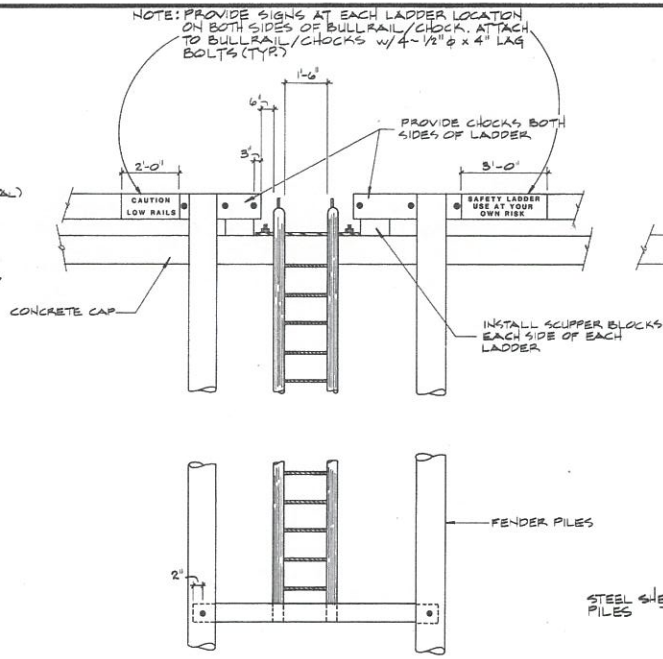
Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
2205 North Jordan Avenue, JUNEAU, AK 99801
(907) 789-5006

SHEET LAYOUT & DETAILS

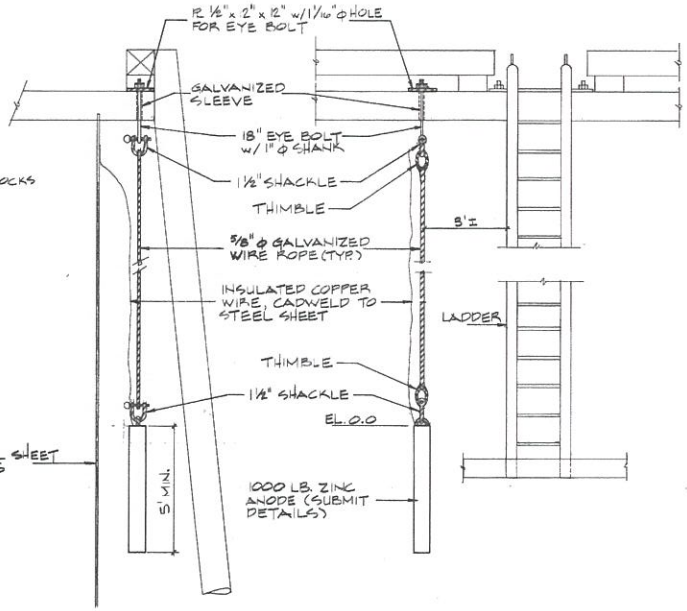
sheet 6 of 12



NEW LADDER SECTION



NEW LADDER DETAIL



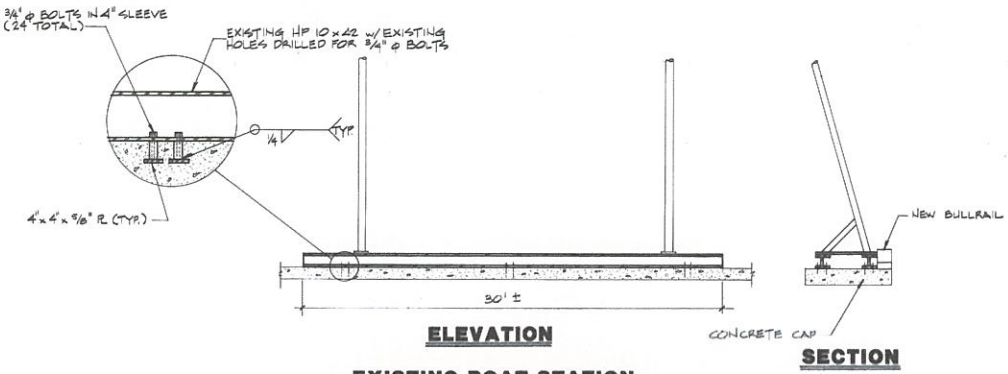
SECTION

ELEVATION

NOTE: FENDER PILES NOT SHOWN FOR CLARITY

ANODE DETAIL

(EACH LADDER LOCATION, 4 ANODES TOTAL)



EXISTING BOAT STATION

ELEVATION

SECTION

RELOCATE BOAT STATION FROM EXISTING TIMBER DOCK TO SHEET PILE DOCK AS LOCATED ON THE BASIN PLAN.

NOTE: LIFE BOAT NOT SHOWN FOR CLARITY

STATE OF ALASKA — 49TH — James Nelson, CE-7631 — PROFESSIONAL ENGINEER

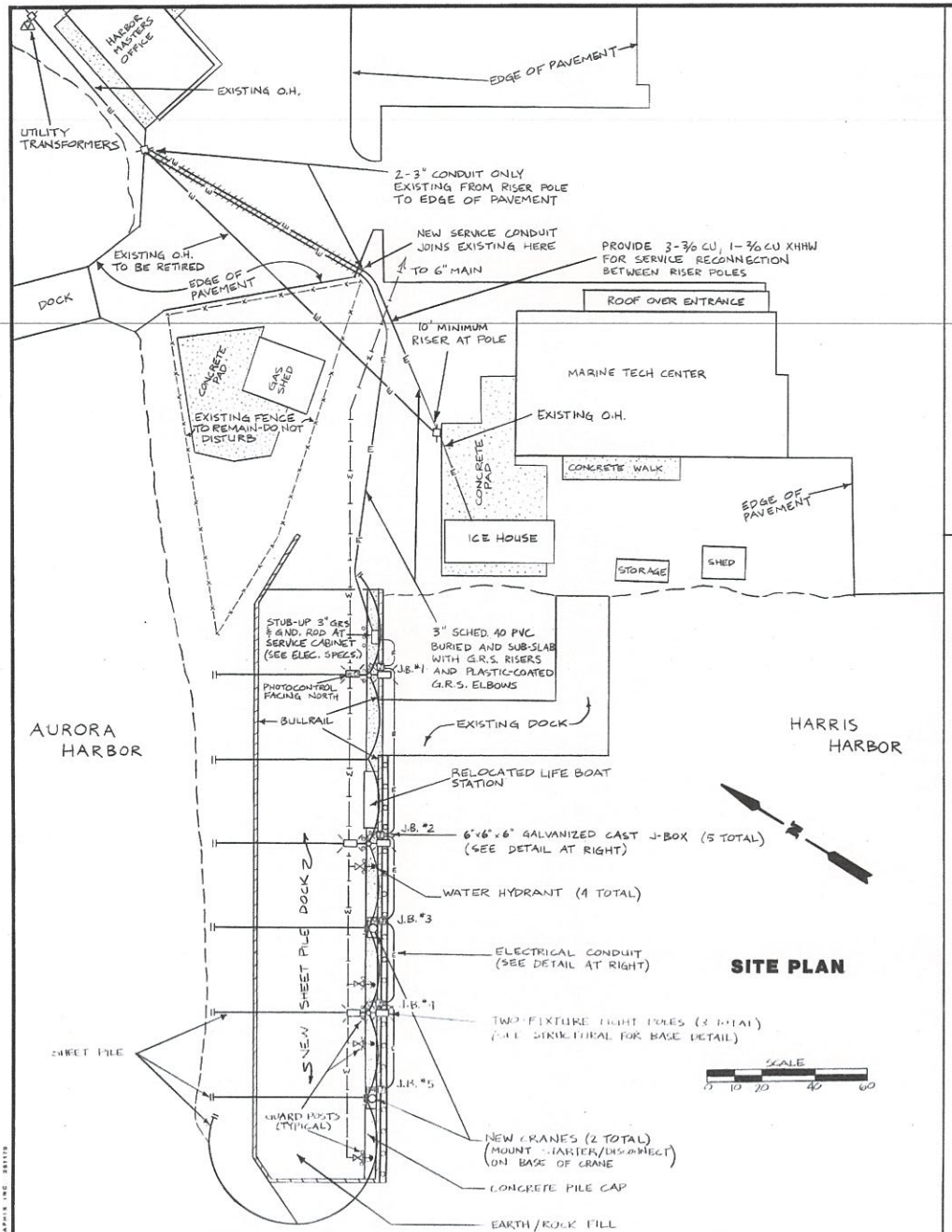
JUNEAU FISHERIES TERMINAL
CBJ ENGINEERING CONTRACT E89-005

Designed:	J.N.
Drawn:	D.R.H.
Checked:	J.L.N.
Project No.	89035
Date:	6/5/90
Scale:	

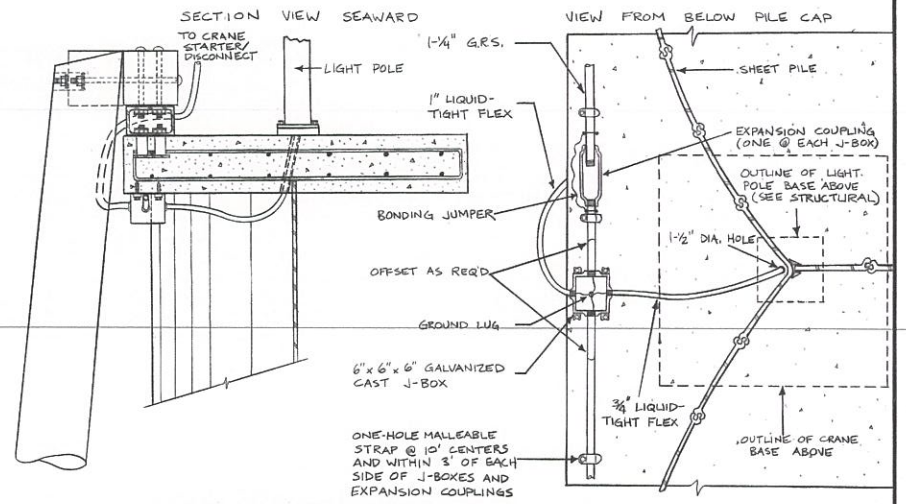
Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
2205 North Jordan Avenue, JUNEAU, AK 99801
(907) 789-5006

MISC. DETAILS

sheet 7 of 12

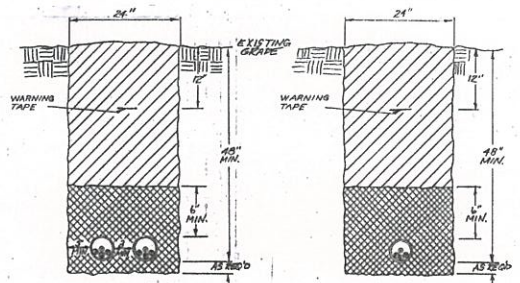


SITE PLAN



CONDUIT LOCATION / JUNCTION BOX DETAIL

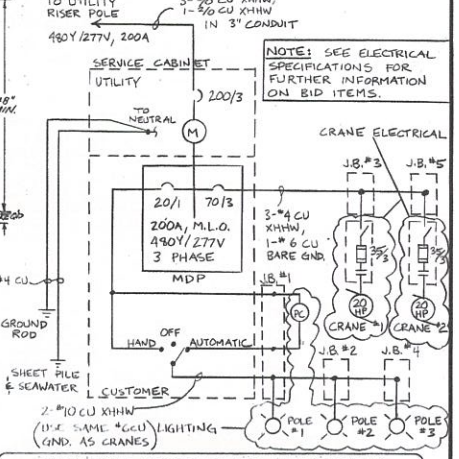
N.T.S.



TRENCH DETAIL

LEGEND
BEDDING
COMPACTED BACKFILL UNDISTURBED SOIL
SECONDARY POWER

ONE-LINE DIAGRAM



FAULT CURRENT/ LOAD CALCULATIONS

FAULT CURRENT IS LESS THAN 10kA, BASED ON 320' OF 3/0 CU. SERVICE CONDUCTORS (70' OVERHEAD, 250' UNDERGROUND IN G.R.S.), FED FROM 0-75kVA TRANSFORMERS AT 480Y/277V.

CRANE	1 @ 20HP X 125%	(480V, 3Ø)	34A/Ø
CRANE	1 @ 25HP X 100%	(480V, 3Ø)	27A/Ø
LIGHTS	8 @ 865VA X 125%	(277V, 1Ø)	14A/Ø (MAX.)
TOTAL		(480Y/277V, 3Ø)	75A/Ø

JUNEAU FISHERIES TERMINAL
CBJ ENGINEERING CONTRACT

STATE OF ALASKA — REGISTERED — T. E. Nottingham — #9231-LE

Designed:	TEN/TCO
Drawn:	TCO
Checked:	TEN
Project No.	923-801
Date:	7-88
Scale:	NOTED

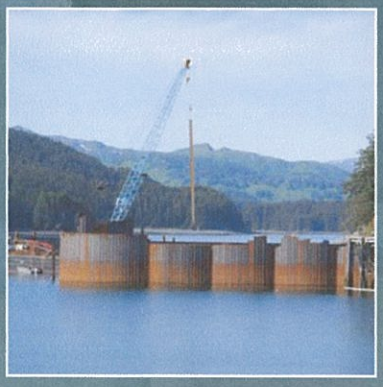
Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
2205 North Jordan Avenue, JUNEAU, AK 99801
(907) 789-5006

ELECTRICAL PLAN AND DETAILS

sheet 12 of 12

Appendix 4 – Sheet Pile Construction Brochure
PND Engineers, Inc.

Descriptive brochure on PND's open cell sheet pile construction technology, patented in early 1980's

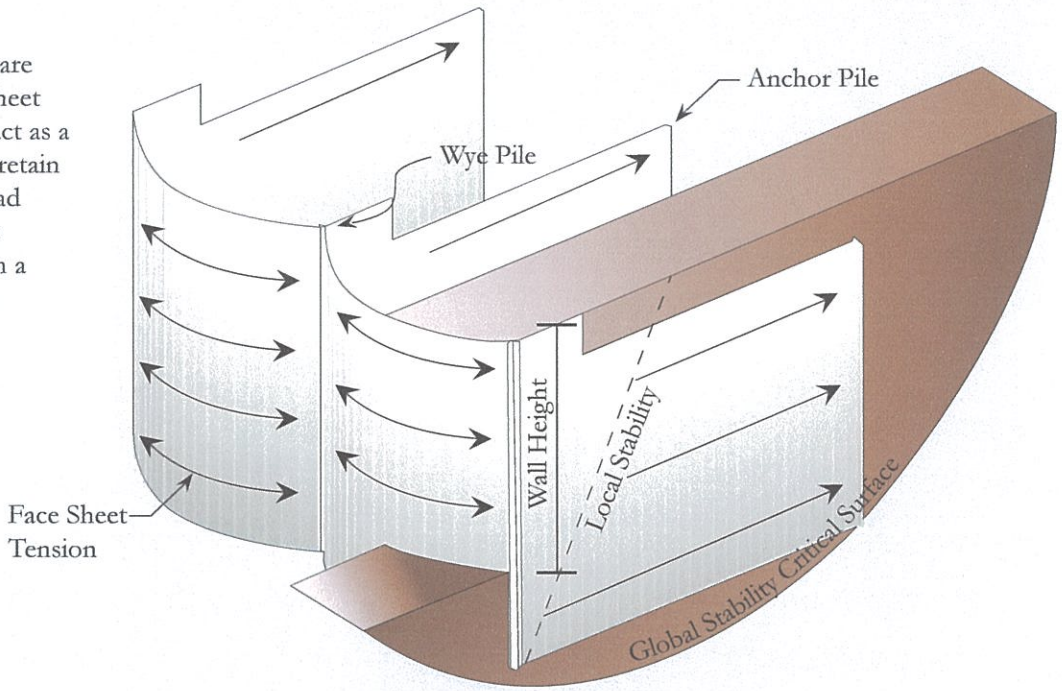


OPEN CELL SHEET PILE® TECHNOLOGY

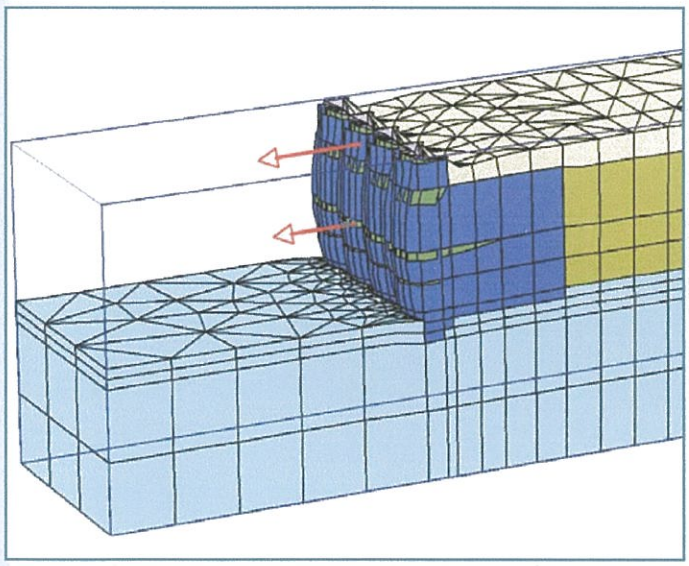
PND ENGINEERS, INC.

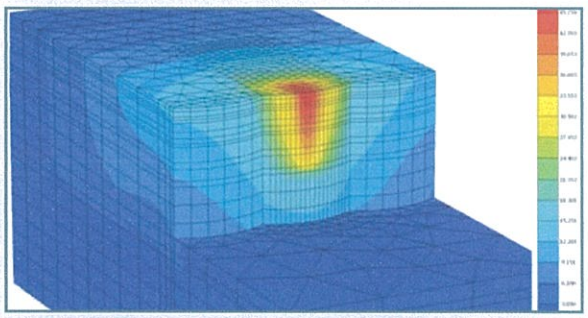
OPEN CELL SHEET PILE® TECHNOLOGY

The OPEN CELL® sheet piles are vertically arranged driven flat sheet pile-composed structures that act as a horizontally-tied membrane to retain soil. The OPEN CELL bulkhead features a vertical flat sheet pile anchor wall (tail wall) to restrain a curved flat sheet pile arch face.



ISOMETRIC VIEW





STRUCTURAL STABILITY & MODELING:

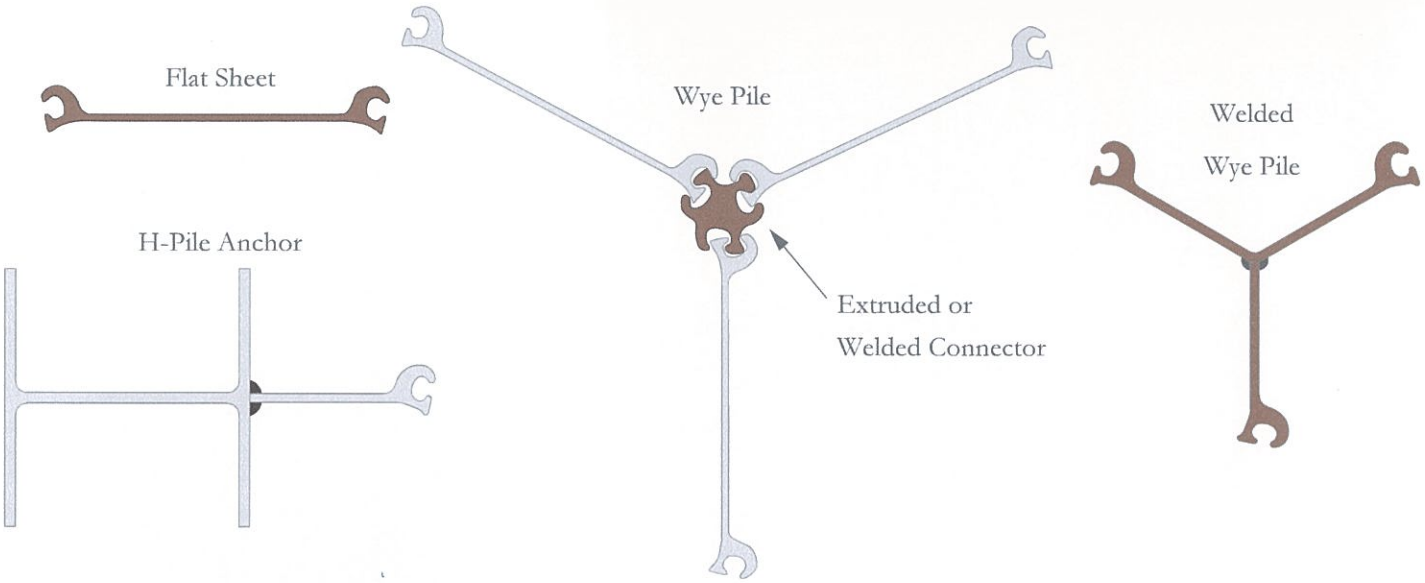
At left and above are models representing analysis of an OPEN CELL structure. Rigorous geotechnical analysis – performed on every structure we design – can include multiple methods involving both classic analysis and numerical methods that have provided consensus of results.

PATENTS:

PND has spent years testing, observing, and refining the OPEN CELL system and holds all related information to be proprietary. The OPEN CELL system is patented, holding U.S. Patent No. 6,715,964 B2; U.S. Patent No. 7,018,141 B2; U.S. Patent No. 7,488,140 B2; and U.S. Patent Application No. 12/879,997.

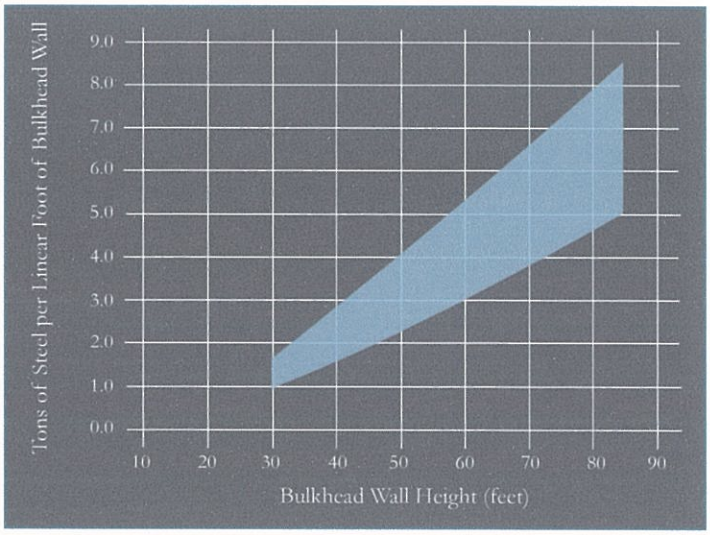
OPEN CELL SYSTEM COMPONENTS:

The OPEN CELL system utilizes flat sheet piles and either extruded connectors or welded connectors. The simplicity of the design and durability of the materials allow PND to adapt the OPEN CELL system to many uses and conditions.



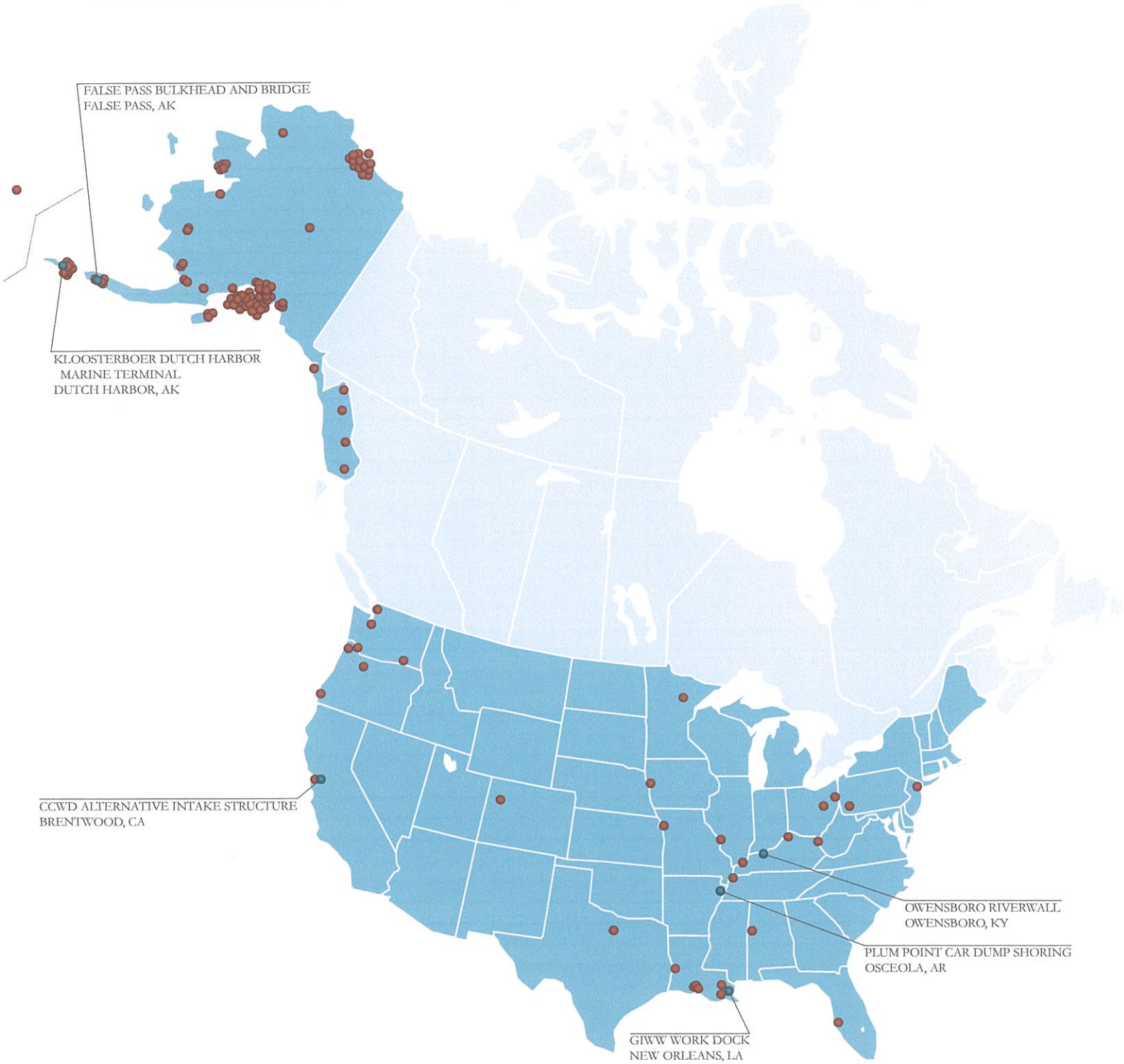
STEEL QUANTITY ESTIMATES:

The graph below represents estimated steel quantity per foot of bulkhead wall height. Wall height is measured from ground- or mud-line to top of a driven sheet pile. (See isometric view on opposite page.)



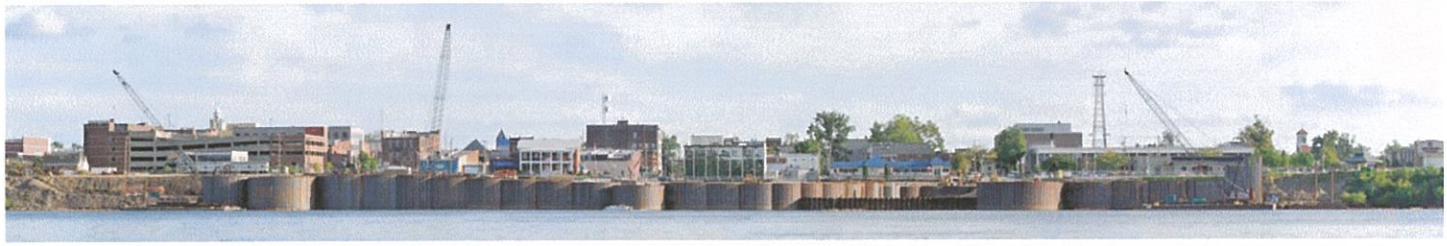
PROJECT LOCATIONS

OPEN CELL structures number more than 187 completed structures across North America, as of January 2013.

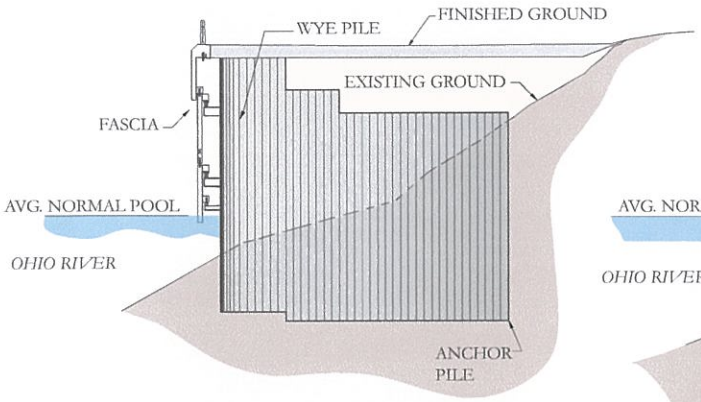


OPEN CELL structures outside North America, and projects currently in planning phases, are not shown.

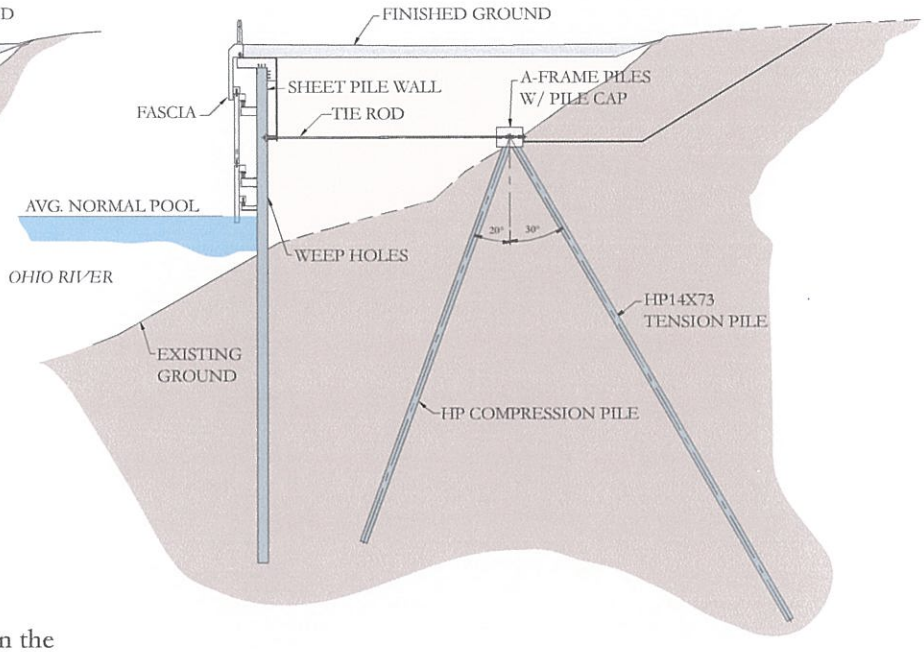
DESIGN EFFICIENCY COMPARISON



OPEN CELL® SYSTEM AS AN ALTERNATIVE DESIGN: OWENSBORO RIVERWALL



ALTERNATIVE DESIGN:
OPEN CELL® BULKHEAD



ORIGINALLY PROPOSED DESIGN:
COMBIWALL

When the City of Owensboro, Kentucky, began the redevelopment of its downtown waterfront on the Ohio River, two objectives were desired: stabilize a chronically sloughing bluff and create more park area. Complications with the proposed tie-back combiwall with numerous A-frame piles and deep excavations resulted in bids that exceeded available funding.

The City Engineer reassessed the situation and allowed value-engineered alternative design bids from contractors. One of the bidders, Richard Goettle, Inc., used the OPEN CELL system as a substitute earth retention system, offering nearly $13 million in cost savings, reducing the amount of steel by 30%, as well as saving six to eight months of wall construction time.

The revised wall design was able to keep the concrete fascia, pavilion, and overlooks desired in the original concept. PND completed the design of the new OPEN CELL bulkhead wall to the acceptance of the City. Goettle installed the 1600-foot-long, 40-foot-high sheet pile wall in six months in 2009.

Want Your Own Trade-Off Study?

PND can provide concept design and rough order of magnitude materials estimates to compare to other alternatives. Information needed for concept includes:

- Overall site plan
- Geotechnical information
- Operational needs

SPECIAL APPLICATION: VERTICAL CONFINED DISPOSAL FACILITIES

USACE: ALTERNATIVE CONTAINMENT METHOD REVIEW

The OPEN CELL system had been reviewed by the U.S. Army Corps of Engineers (USACE) to determine its acceptability as a Vertical Confined Disposal Facility (VCDF). The USACE Environmental Laboratory at the Engineer Research and Development Center in Vicksburg, Mississippi, concluded in its final report that the OPEN CELL system, "...can be effective for controlling environmental risk for containment of dredge material."

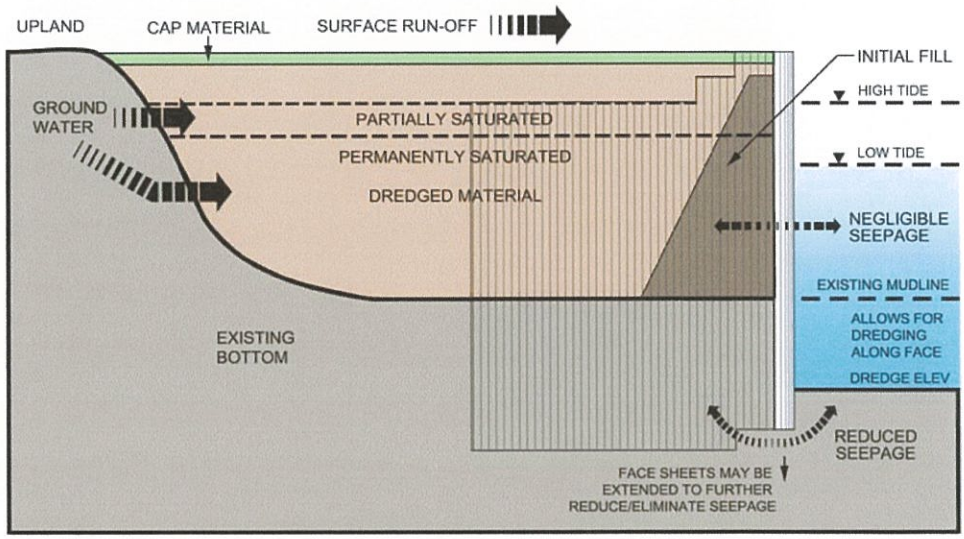
The USACE report is available at www.pndengineers.com

The OPEN CELL VCDF...

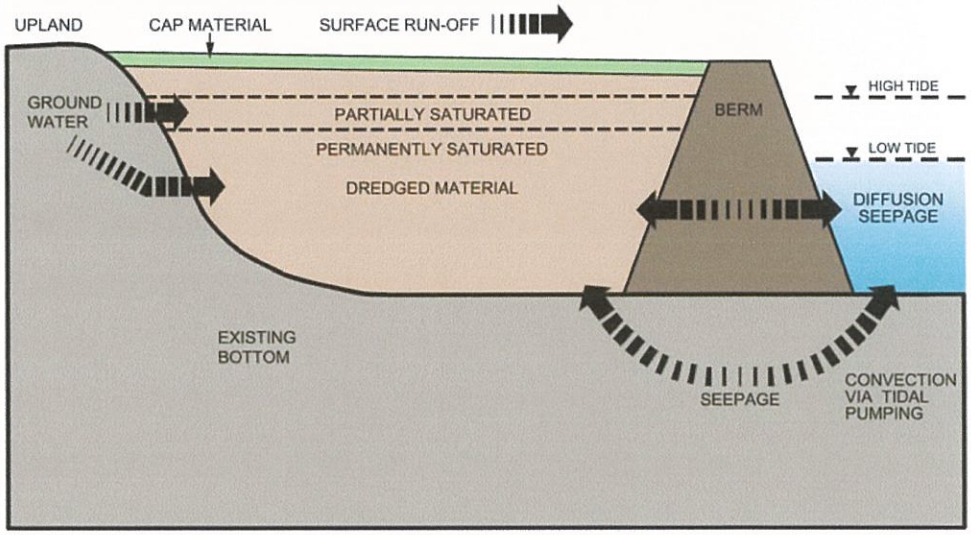
- Reduces or eliminates contaminant migration under the containment structure.
- Is constructible in poor soil conditions and deeper water.
- Provides a vertical face and the ability to dredge directly in front of the containment wall.
- Eliminates seepage through the containment structure.

Conventional Confined Disposal Facilities (CDF) are typically constructed using an earthen or rock dike, but these structures are porous and permeable. Flow through the OPEN CELL bulkhead decreases to a point where a "watertight barrier" is formed, thus preventing containment transport.

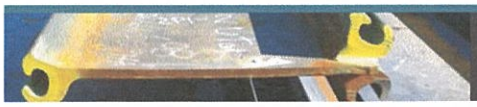
A VCDF, employing OPEN CELL technology, will require less space for dike construction and can therefore have a larger dredged material capacity for the same areal footprint when compared to CDFs using conventional dikes.



OPEN CELL® Vertical Confined Disposal Facility



Conventional Confined Disposal Facility



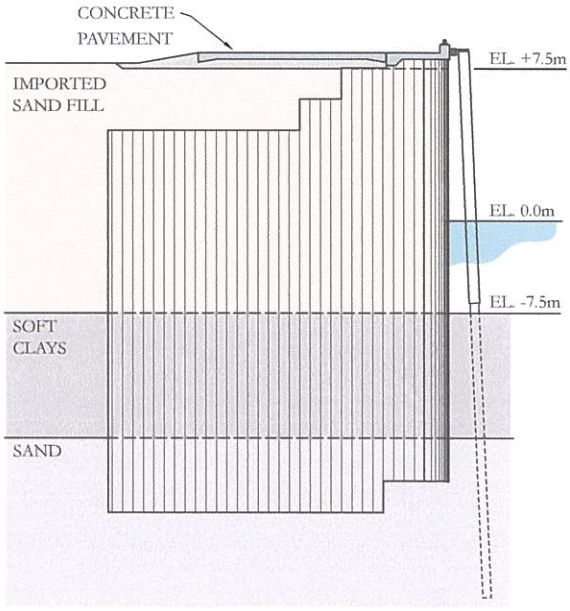
UMM QASR PIERS | Umm Qasr, Iraq

OWNER: IRAQI NAVY

Award: Winner AGC 2011 Aon Build America - International

PND provided planning, design, and construction observation for new Iraqi naval pier facilities, a seawall, and supporting infrastructure at Umm Qasr Naval Base in Iraq. PND teamed with West Construction and CCI Alaska, Inc., for this design-build project for the U.S. Army Corps of Engineers. Umm Qasr is located at the southern tip of Iraq on a waterway leading to the Persian Gulf.

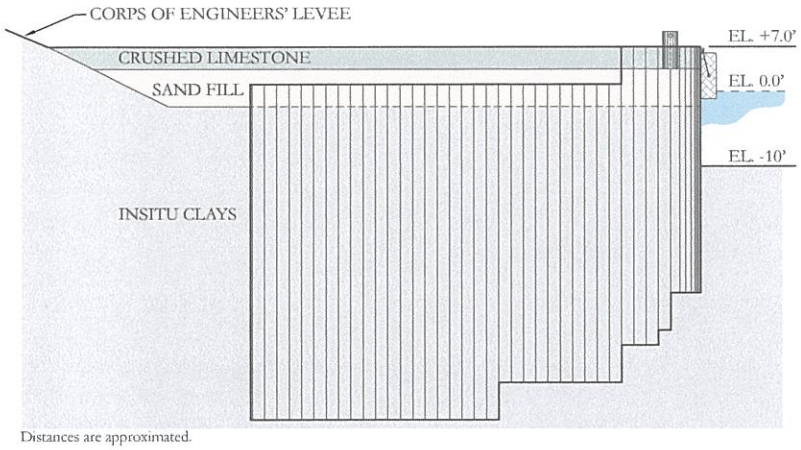
The new naval facilities consist of two piers: Pier 1 utilizes the OPEN CELL SHEET PILE bulkhead system; Pier 2 is a floating dock with a gangway, located just south of Pier 1. The piers form the nucleus of a new dock facility to moor Iraqi Naval vessels responsible for security for Gulf region shipping and the adjacent Port of Umm Qasr commercial shipping activities. The new facility provides operational and maintenance support for patrol ships that were recently purchased by the government of Iraq. Pier 1 has a height of 45 feet, is 1,200 feet in length, and created over seven acres of usable uplands staging area for the Navy.



GIWW WORK DOCK | New Orleans, Louisiana

OWNER: U.S. ARMY CORPS OF ENGINEERS

PND provided engineering services to Gulf IntraCoastal Constructors, a Joint Venture, (Kiewit) for an OPEN CELL bulkhead wall for the U.S. Army Corps of Engineers' Levee Project. The bulkhead wall was used as a temporary barge dock and loadout facility along the Intracoastal Waterway. Our services for the project included concept development, final design, and construction assistance.



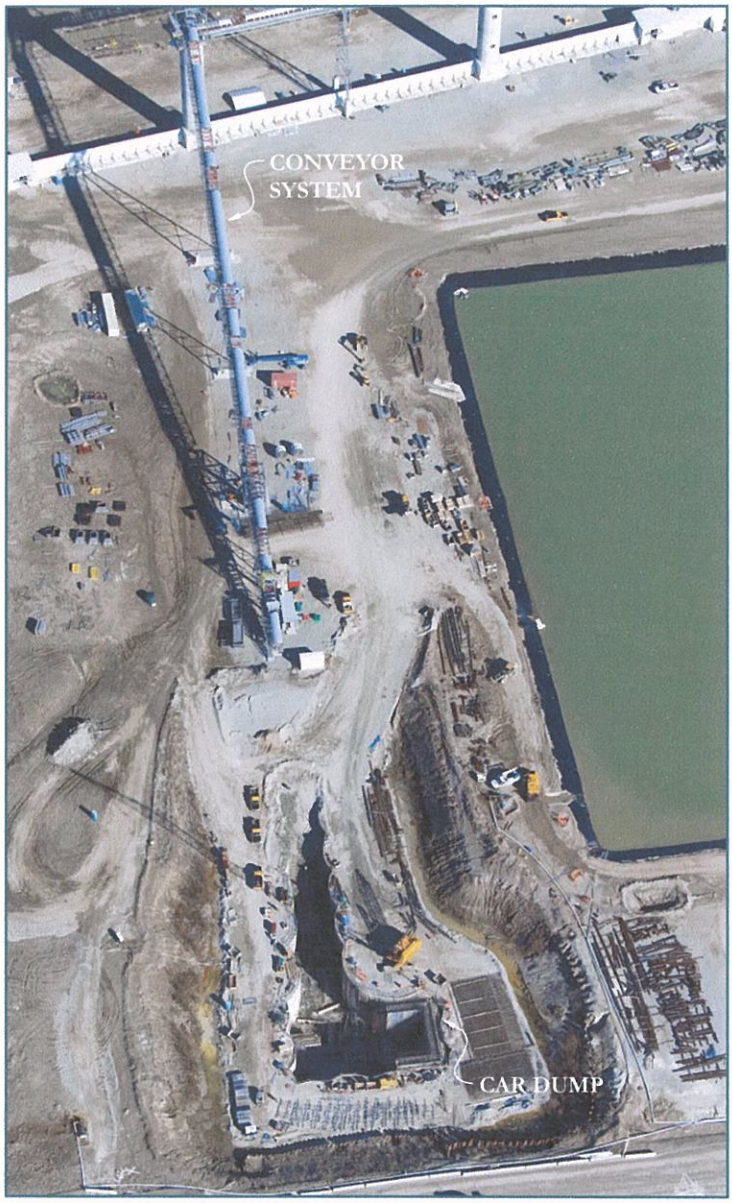
Distances are approximated.

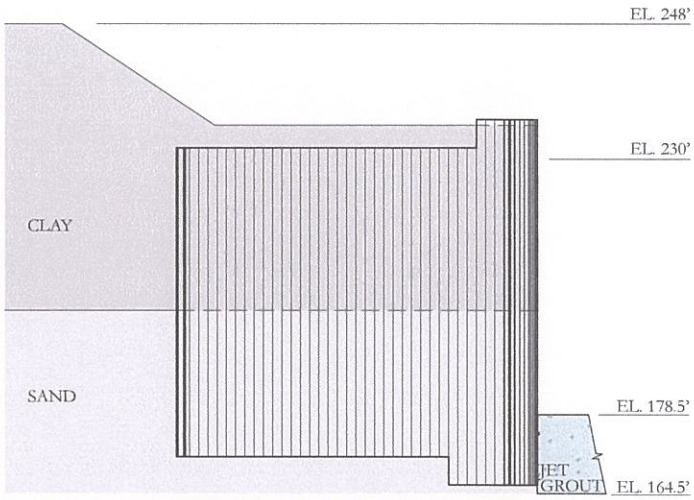
FALSE PASS BULKHEAD & DOCK | False Pass, Alaska

OWNER: U.S. ARMY CORPS OF ENGINEERS

PND was retained by Kelly-Ryan, Inc., to value engineer components of the False Pass Small Craft Harbor project. PND designed a 180-foot-long sheet pile bulkhead dock utilizing the OPEN CELL system. Kelly-Ryan realized significant savings in cost and time to construct this option over the U.S. Army Corps of Engineers' original design. In addition to the bulkhead, PND designed a bridge to allow a 70-foot breach in the causeway for fish passage. The abutments of the bridge utilized the OPEN CELL system. Services included coordination with the USACE, final design, and construction assistance.

PLUM POINT CAR DUMP SHORING | Osceola, Arkansas



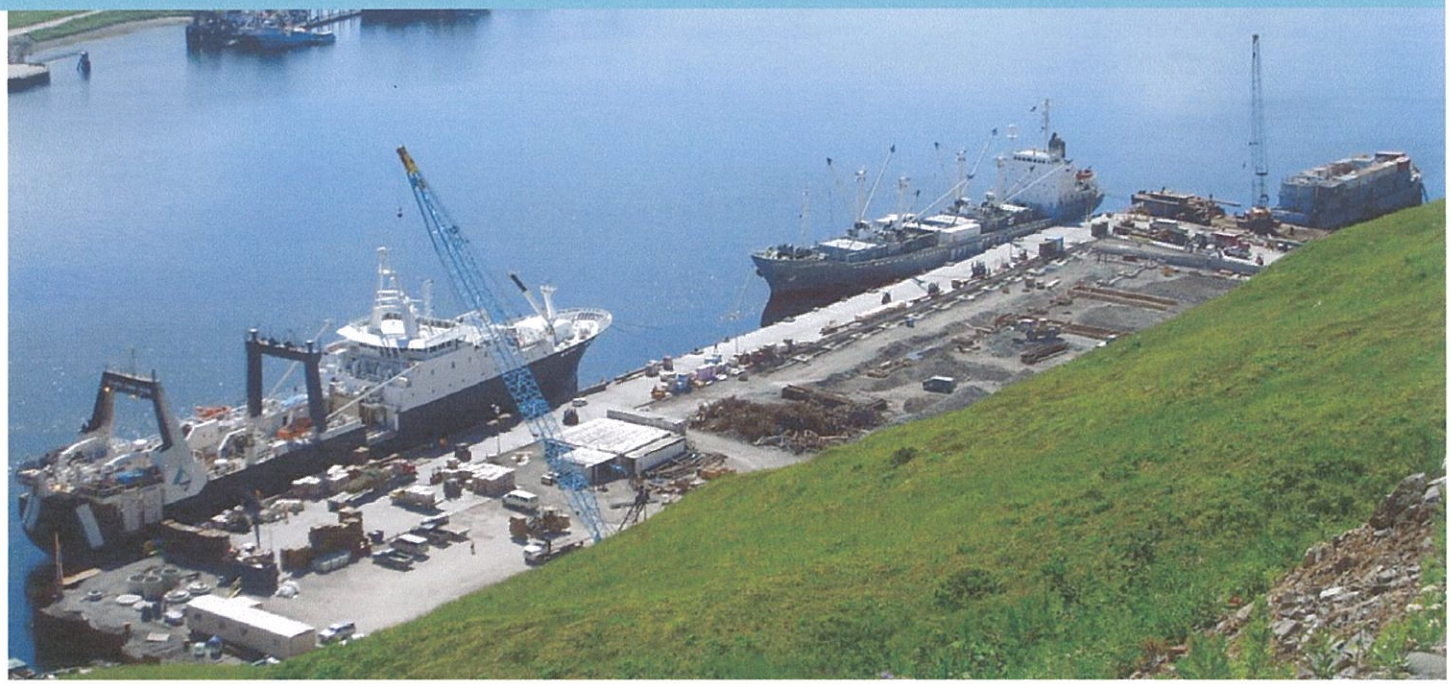


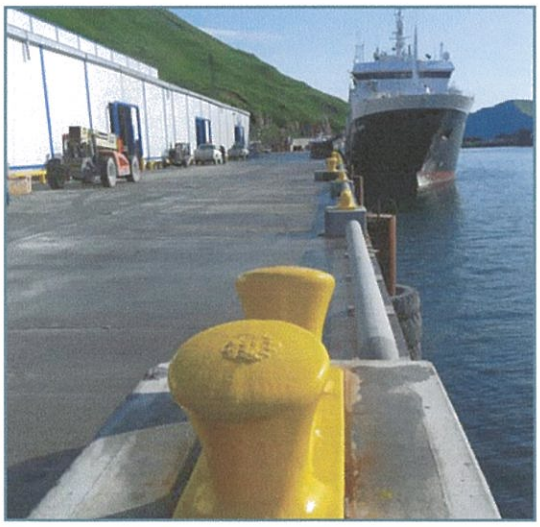
OWNER: PLUM POINT POWER PARTNERS

PND provided the owner of this facility with design of an OPEN CELL bulkhead structure for deep excavation development. This project allows construction of a railroad car dump structure and conveyor system to feed the adjacent power plant with coal delivered by train.

Total excavation at the site was nearly 70 feet, with an average of 52 feet of vertical retaining wall. Excavation of inside walls was completed in two weeks. The hole remained open for around six months, during construction of the interior hopper system.

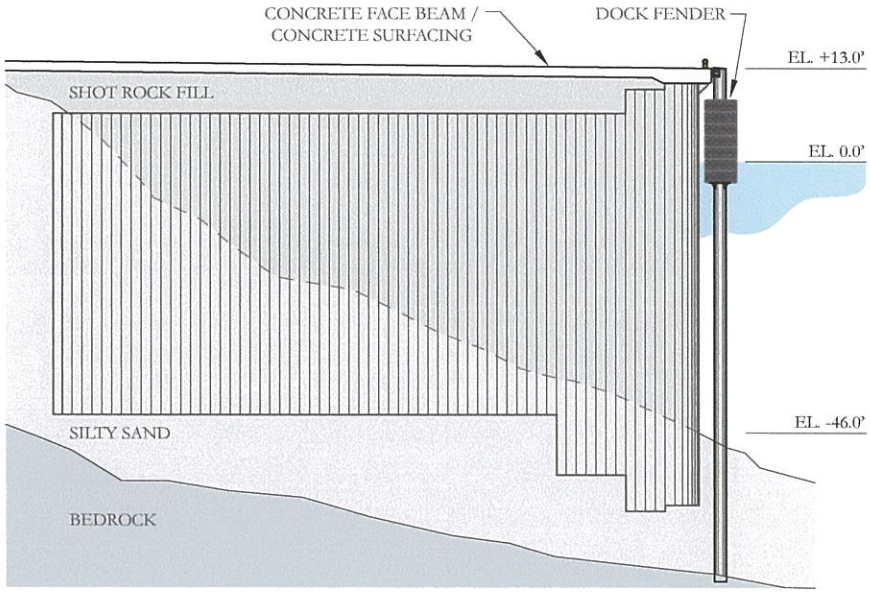
KLOOSTERBOER DUTCH HARBOR MARINE TERMINAL | Dutch Harbor, Alaska





OWNER: KLOOSTERBOER - DUTCH HARBOR, LLC.

The Dutch Harbor Marine Terminal was designed as a 100-year facility in a highly active seismic area and provides a dramatic advance in seafood trans-loading and cold storage technology for Dutch Harbor, the largest seafood producing port in the United States. The OPEN CELL SHEET PILE dock facility was determined to be 50 percent less expensive than the competing dock design and was developed from concept design to completed construction (quarry development, sheet pile and fill installation) within a nine-month period. The dock provides 46 feet of draft and created over three acres of usable uplands. Existing materials are characterized by soft soils over shallow bedrock.



OPEN CELL SHEET PILE® TECHNOLOGY

PND Engineers, Inc., founded in 1979, is a full-service engineering firm that provides civil, marine, geotechnical, structural, and construction inspection services for a wide range of projects. The OPEN CELL SHEET PILE technology was devised, tested, and patented by the company's founders. Since its development in 1981, it has been utilized in more than 185 stuctures.

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