PROJECT DESCRIPTION

ST. PAUL HARBOR BOAT LAUNCH RAMP RENOVATION

1. PURPOSE

The City of Kodiak and the Alaska Department of Fish and Game – Division of Sport Fish seek to renovate the existing St. Paul Harbor boat launch ramp to prolong its usable lifespan and provide continued access for the public.

2. NEED

The St. Paul Harbor is one of two small boat harbors serving the community in Kodiak. The functionality of the boat launch ramp is necessary to accommodate current and future recreational boating and fishing needs near Kodiak's downtown area. The boat launch is located in the eastern portion of the harbor, situated between Docks 1 and 2, and is utilized by the community for launching and loading small vessels.

Although the exact construction date is unknown, the boat launch was designed in 1976. The ramp is currently in need of renovation to ensure it remains serviceable and safe for the community. The existing boat launch ramp is constructed from a series of concrete planks and an asphalt approach, with a ramp surface measuring 160 feet in length and 16 feet in width. These planks are designed with interlocking hooks and eye joints, allowing for enhanced flexibility. The existing boarding float is 160 feet in length, 6 feet in width, and connects to a small concrete abutment with asphalt patching.

An inspection report performed by Ingenium Design, dated January 15, 2021, noted the condition of the ramp and potential avenues for repair or replacement. An above-cursory level inspection was performed on March 30, 2021 by PND Engineers, Inc. to assess the conditions and determine the feasibility of partial repair against a complete replacement. The inspection findings identified the current structure exhibits significant wear and considerable displacement of concrete planks at the ramp's terminus. This is likely attributed to loss of underlying subgrade materials from a combination of repetitive vessel "power-loading" when launching and retrieving, and a ramp toe that lacks protective reinforcement such as armor stone or riprap. Consequently, this undermining has led to the failure and separation of several hook and eye joints in the last five planks.

Reports indicate that several vehicles have become immobilized on the ramp during lower tide conditions, supporting that the surface is hazardous for vehicles attempting to launch boats. Additionally, the existing ramp is not useable for vessel launch or retrieval at water levels below +1.00' Mean Lower Low Water (MLLW), rendering the public ramp non-functional through a significant amount of the local tidal cycle.

Following the findings of the inspection reports, an emergency temporary repair was carried out, consisting of reinstalling displaced concrete planks and installing a grout mass at the toe of the boat launch. The proposed project will reconstruct a new launch ramp facility, including new concrete plank ramp surfacing and accessible boarding floats. Completing this project will provide functionality at all tidal levels, accommodate the high usage needs of the public, and ensure the facility remains functional for minimum of 20 more years.

3. LOCATION

Latitude	Longitude	USGS Quad
57.786737° N	152.407637° W	Kodiak D-2 SE

Section	Township	Range	Meridian
32	027 S	019 W	Seward

Tide Station	Station Datums (elevation, ft.)		
	MLLW	HTL	MHW
NOAA station 945-7292 (Kodiak Island, AK)	+0.00	+13.40	+7.77

4. DRIVING INSTRUCTIONS

From Kodiak Airport, travel on Rezanof Dr. northeast towards the town of Kodiak, AK for 4.8 miles. Turn right onto W. Marine Way and the project location at St. Paul Harbor is located on the right.

5. ADJACENT LAND OWNERSHIP

The existing St. Paul Harbor boat launch ramp is located on tidelands owned by the City of Kodiak (ATS 49) and is bordered by parcels owned by the City and Trident Seafood Corporation.

Table 1. List of Adjacent Properties

Parcel No.	Owner	Description
14856	City of Kodiak	ATS 49 TR N-18
24354	Trident Seafood Corporation	New Kodiak BK 18 LT 6A-2
ADL 2835	City of Kodiak	Adjacent municipal tidelands

6. DESCRIPTION

The existing launch ramp, including the ramp planks, foundation, abutment, floats, and anchor piles will be demolished. Construction activities will include a new reconstructed launch ramp that will be rotated 10 degrees northwest of the existing ramp orientation; this will reduce excavation near the toe of the new ramp and mitigate the need for future maintenance. Other launch ramp facility upgrades include new on-float lighting, upland potable water service, signage, and traffic striping.

The reconstructed launch ramp will be slightly steepened to a grade of 13% for easier vessel launching/retrieval and extended to a water elevation depth of -6.50' feet below Mean Lower Low Water (MLLW) to facilitate launch ramp functionality at all local tidal levels.

A new pile-supported fish cleaning station platform structure will also be provided as part of the proposed project. The waste chute will be connected to a floating "humpy dumpster" sealed and enclosed waste container, which can be removed and transported to deeper waters outside of the harbor for disposal in accordance with federal, state, and local laws.

6.1 MOBILIZATION

Project barge shipments will originate from Anchorage, Homer, Seward, or Seattle and will travel along normal shipping routes.

One 150 ft-long work barge and a support skiff will be used to aid project activities. The barge will be towed by a 90-ft tug boat capable of transit at 9.5 to 10 knots.

6.2 DEMOLITION

Float units will be detached from the existing piling and removed with heavy equipment via the existing ramp. These components will be staged on the uplands for removal/disposal from the project site. Three (3) existing 12.75" steel piles and one (1) existing 12.75" timber pile will be removed with a vibratory hammer attached to a crane from the work barge.

Ramp panels will be removed using an excavator and/or crane and staged on the uplands for removal/disposal from the site. Existing grade beams will be removed using an excavator and staged on the uplands for removal/disposal from the site.

6.3 INSTALL NEW CONCRETE RAMP PLANKS, APRON, AND ABUTMENT

A bulldozer and/or excavator will be utilized to grade the ramp subgrade. Grade beams will then be placed and connected. Crushed rock fill will be placed between the grade beams. Fill materials for the reconstructed launch ramp will be sourced from project excavation, where possible, or obtained from an established and permitted commercial source offsite.

The new concrete deck planks will be installed with the crane. Revetment will be placed according to plans using an excavator. The new approach apron and boarding float abutment will be formed with temporary falsework. Cast- in-place concrete will be installed and finished. The reconstructed launch ramp will consist of two 16-ft lanes with 2-ft rumble strips on each side, for a total useable width of 18 feet per lane, meeting modern boat launch facility standards. Temporary forms/falseworks will be removed.

Riprap will be placed around the new ramp at the ramp edges and toe to protect against undermining due to tidal, wave, and other erosive forces.

6.4 INSTALL FLOATS

Float units will be unloaded from the barge and placed into the water. The floats will be interconnected and held in place with anchoring and lashing. New timber boarding floats measuring 8 ft wide will be provided to meet modern accessibility standards. Piles will then be driven through pile hoops on the floats to secure the system in its final location. Approximately 1548 SF of new timber boarding floats will be held in place by four (4) 12.75" diameter anchor piles.

The fish waste chute float and humpy dumpster assembly will be positioned for pile driving.

6.5 INSTALL PILES

The contractor will drive piles using a vibratory hammer to first refusal or the required minimum embedment, whichever occurs first. Vibratory hammers will be used whenever feasible for driving piles to the required specified embedment depth. If piles do not reach embedment depth, an impact hammer will be used to achieve the required refusal criteria.

Launch ramp piles will be driven through boarding float pile hoops as a guide. Temporary template piles are anticipated to guide permanent pile driving for the fish cleaning station deck structure. A total of eighteen (18) temporary 24" or less diameter template piles will be used to facilitate and guide permanent pile installation. The fish cleaning station pile caps and superstructure will be installed following installation of the piles. Waste chute piles will be driven through integrated pile hoop assembly as a guide.

6.6 INSTALL FISH CLEANING STATION DECK, ROOF, AND WASTE CHUTE

The fish cleaning station decking, railing, tables, roof cover, and waste chute will be constructed following pile installation. The timber deck measuring 33 ft by 25 ft, will be supported by nine (9) 16" diameter piles. This fish cleaning station will include a fish waste chute pinned and supported by two (2) 12.75" piles.

6.7 DEMOBILIZATION

Refuse and excess materials from the project will be reclaimed, recycled, or disposed of as necessary in accordance with applicable regulations. Project equipment will be demobilized to the port of origin according to the contractor's needs and means. All remaining project barges will be demobilized either to Anchorage, Homer, Seward, Seattle, or to another job site in Alaska.

7. QUANTITIES

Material quantities for activities with the potential to impact protected species are summarized in **Table 2**, **Table 3**, **Table 4**, **Table 5**, and **Table 6**. These quantities will be used to support calculations of impact ranges and durations and for analysis of project effects.

Table 2. Fill Demolition Quantities

Demolition Element	Project Total	Below HTL (EL =13.40')	Below MHW (EL =7.77')	Below MLLW (EL =0')
Existing Ramp Footprint (acre)	0.07	0.07	0.05	0.02
2021 Riprap Repair (acre)	0.017	0.017	0.017	0.017
Total Existing Footprint	**0.087**			

Table 3. Structural Demolition Quantities

Demolition Element	Project Total	Below HTL (EL =13.40')	Below MHW (EL =7.77')	Below MLLW (EL =0')
Concrete Ramp Plank (Square Feet)	2,144	2,144	1,414	334
Timber Float (Square Feet)	806	806	618	170
Concrete Abutment (EACH)	1	0	0	0
Round 12.75" Steel Piles (EA)	3	3	2	1
Round 12.75" Timber Pile (EA)	1	1	0	0

Table 4. New Fill and Excavation Footprint

	Project Total	Below HTL (EL =13.40')	Below MHW (EL=7.77')	Below MLLW (EL=0.00')
New Launch Ramp Footprint (Acre)	0.31	0.27	0.21	0.11

Table 5. New Fill and Excavation Quantities

	Project Total	Below HTL (EL =13.40')	Below MHW (EL=7.77')	Below MLLW (EL=0.00')
Excavation (Cubic Yard)	354	280	234	144
Granular Fill (Cubic Yard)	238	238	222	146
Underlayer Rock (Cubic Yard)	166	166	166	94
Base Course Grading A (Cubic Yard)	183	122	40	0
Base Course Grading D-1 (Cubic Yard)	25	5	0	0
Riprap (Cubic Yard)	281	278	245	170
Apron/Abutment Cast-In-Place Concrete (Cubic Yard)	57	9	0	0
Precast Concrete Planks (Square Feet)	159	106	35	0
Ramp Concrete Planks (Cubic Yard)	239	239	179	82
Timber Boarding Floats (Square Feet)	1548	1465	1110	631

Table 6. New Structures and Piles Driven in Tidal Waters

Pile Type & Location	Construction Method	Project Total	Upland	Below HTL (EL =13.40')	Below MHW (EL=7.77')	Below MLLW (EL=0.00')
Fish Cleaning Station Footprint (Acre)		0.03	n/a	0.02	0.01	0.00
***Steel 12.75" Round Pile (Launch Ramp)**	Vibratory & Impact	4	0	4	3	2
***Steel 12.75" Round Pile (Fish Cleaning Station)**	Vibratory & Impact	2	0	2	2	2
***Steel 16" Round Pile (Fish Cleaning Station)**	Vibratory & Impact	9	3	6	4	0
Steel 18" Temporary Template Pile (Fish Cleaning Station)	Vibratory	18	6	12	8	0

*Vibratory hammers will be used whenever feasible for driving piles to required specified embedment depth. If piles do not reach embedment depth, an impact hammer will be used to determine if required refusal criteria has been achieved.

8. SCHEDULE, DURATION, AND CONSTRUCTION SEQUENCE:

Project work is anticipated to begin in fall of 2025, and conclude in summer of 2026, with a total duration of approximately 4 to 6 months.

The following table is provided as a generalized sequence of events. Details as to quantities, volumes, and construction are provided in the tables above.

Phase	Estimated Duration*
Mobilize to Site	2 weeks
Demolish Existing Floats	1 week
Remove Existing Concrete Ramp Planks	2 weeks
Install New Concrete Ramp Planks, Apron, and Abutment	5 weeks
Install Floats	1 week
Install Piles	2 weeks
Install Fish Cleaning Station Deck, Roof, and Waste Chute	4 weeks
Demobilization	1 week

Notes: *Durations based on active time working onsite. Total duration will vary due to working around tides (i.e., in-water fill placement and grading during low tides) and access constraints onsite. Activities are anticipated to occur sequentially in the order presented in the above table.

9. BEST MANAGEMENT PRACTICES

Construction will use the following best management practices (BMPs) to prevent impacts to waters of the U.S. (WOTUS):

- Fill/riprap materials placed in WOTUS will be clean blasted rock with relatively few fines to reduce impacts from turbidity and/or sedimentation.
- The launch will be maintained in a manner that does not introduce any pollutants or debris into the harbor or cause a migration barrier for fish.
- Fuels, lubricants, and other hazardous substances used during construction will not be stored below the high tide line.
- Review of best available data on migratory bird nesting will be conducted prior to construction to prevent impacts to protected bird species during clearing (if applicable). If possible, clearing will be performed outside of seasonal nesting windows.
- New floats will be manufactured off site and floated in.
- All manmade construction debris will be collected and not allowed to enter waters of the state.
- Land based equipment will not be operated on the substrate below the waterline.
- Project construction will be completed in compliance with state water quality standards.
- Contractor will check equipment for leaks and other problems that could result in discharge of petroleum-based products, hydraulic fluid, or other material to the waterway.
- Contractors conducting in-water and over-water work, including demolition, will be familiar with implementation of BMPs and permit conditions typical of working in the aquatic environment.
- The contractor will have a spill containment kit, including oil-absorbent materials, on site to be used in the event of a spill or if any oil product is observed in the water.
- Piles will be removed using vibratory extraction to greatest extent possible. Piles which cannot be extracted will be cut below the mudline.
- All pile and floats removed will be disposed of at an appropriate upland facility.
- New piles will be installed using a vibratory hammer with the exception of the trestle piles which will require proofing with an impact hammer.
- All in-water work shall occur during daylight hours only.
- During pile driving operations, the fish cleaning stations inside the small boat harbor will be closed.
- The following BMPs will be utilized to prevent stormwater run-off during construction:
    - Projects impacting more than one acre will have a Stormwater Pollution Prevention Plan (SWPPP) on file with the State.
    - Staking of sensitive areas (if applicable) prior to construction to identify areas to be avoided, including wetlands without planned development.
    - A Stabilized Construction Entrance (a temporary stone-stabilized pad located at points of vehicular ingress and egress on a construction site will mitigate sedimentation and stormwater pollution).
    - Installation of silt fences consisting of a geotextile fabric stretched across and attached to supporting posts, providing a temporary barrier to sediment and reducing the runoff velocities of sheet flow from non-vegetated surfaces.

- Use of weed-free straw wattles to intercept sheet flow and detain small amounts of sediment from disturbed areas.
- Establishment of a vegetative cover on disturbed areas by seeding with appropriate seed mixes supported with fertilizer and mulch to protect bare soil and bind the soil with roots, thereby providing long-term erosion control.

10. MITIGATION

10.1 AVOIDANCE

WOTUS could not be entirely avoided for this project because this project is a boat launch ramp located in tidal waters.

10.2 MINIMIZATION

Incorporation of the proposed BMPs listed above will avoid and minimize impacts to WOTUS to the extent possible. The rotated alignment of the new ramp minimizes the excavation required to reach required depths for the launch ramp.

10.3 COMPENSATION

The proposed project is located within a busy harbor in downtown Kodiak where previous disturbance has occurred. Therefore, no compensatory mitigation is proposed.