



MEMORANDUM

TO: Michael McFarlane
FROM: Rod Lamb
RE: Lighthouse Marine Park Boat Launch Update
DATE: January 17, 2019

Background & History

The Boat Launch project was initially envisioned in the early 1970's. Department records indicate permit approval for the project was received in 1972. The approved boat launch included one boarding float with two parallel concrete ramps on the north and south sides of the float. The ramp facility was also protected by two breakwater structures or jetties on the north and south sides of each concrete ramp (See Figure 1).

Records show that in 1974 Parks requested a change in the scope of the project that included consolidating the two separate ramps and moving the boarding float to the south side of the ramp. The two protective breakwater structures were eliminated (See Figure 2).

In 2011, Parks applied for state grant to replace the boarding float and pilings. The state awarded \$240,000, and Whatcom County provided \$80,000 matching funds for a total project budget of \$320,000.

Seasonal Structure/Boat Launch Use/Maintenance

The boat launch is a seasonal facility. The boarding float is installed around Memorial Day and then removed after Labor Day. A typical season lasts between 12 and 15 weeks.

From 2004-2008 the average number of launches was approximately 775 per year. In the last three years, since the dock was reinstalled after damage the dock sustained in 2015 there have been 436 total launches. 2016 was a partial season and had a total of 88 launches, 2017 was a full season and totaled 284 launches, and 2018 was also a partial season due to damage and totaled 64 launches.

Installing and removing the dock requires significant labor (five crew members) and equipment (backhoe, dump truck and equipment trailer) resources. Safe installation and removal can only occur with calm conditions during favorable daytime low tides. Prior to installation debris from the concrete ramp that has accumulated during winter storms must be removed. Clearing the ramp is a day-long effort of two crew members, a back hoe, and dump truck.

Additionally, in order to keep the launch functional through the season, park staff spends between 75 and 100 hours per season clearing the ramp of debris with a dedicated park tractor.

Site Conditions

The Strait of Georgia is over 135 miles long, nearly twenty miles wide, and covers more 2,600 square miles. Weather systems from the Pacific Ocean can create very rough conditions and Lighthouse Marine Park occupies one of the most exposed locations in the strait.

Regulatory Requirements

The current launch replaced an older structure that was removed from service in 2009 due to damage that was severe enough that replacement was required. The replacement structure was required to meet current regulatory permit requirements from various agencies including WCPDS, WADOE, WDFW, USACE and USFWS. Some of those requirements dictated how and when the project was constructed, while others directly influenced the boarding float final design. Examples include:

- Limited grounding area (no more than 20% of the total float area can contact the ground surface) and requiring a minimum clearance (non-grounding portions of the float must be 12 inches above the ground surface)
- Light penetrating grating to reduce shading effect under the structure (a minimum 60% of the grating surface was required to open so light could pass through)

These requirements had a significant impact on the type of structure that was ultimately constructed and installed at the launch facility. Additionally, the weight of float units was limited by the lifting capacity of equipment available to the parks crew for installation and removal.

Damage / Repair

The replacement dock and pile structures were completed in 2015. The replacement structure was subsequently damaged during a summer storm event in July of that year. An assessment of the damage revealed that grounding sections of the structure included aluminum channel that was determined to be far too light to withstand site conditions.

Parks coordinated with the contractor, engineer and manufacturer to address the deficiency, and make corrective actions. Because of donated design & engineering services, "at-manufacturer's cost" pricing, and donated labor from our contractor, repairs totaled \$27,000. Council approved the additional funding on March 8, 2016 (Ord. 2016-010). Following remanufacturing and installation of the newly design grounding assemblies, Parks installed the repaired dock in June 28, 2016.

After two in-water seasons, staff noticed fatigue cracks on the frame of some of the float units in July 2018. Parks contacted the engineer to assess the damage and to make recommendations. The engineer has indicated the damage is the result of concentrated loading at the points where the dock comes in contact with the ground as breaking waves from high and low tides ebb and flow.

The engineer has prescribed a possible repair that includes reinforcing the float frames with a solid aluminum bar to better distribute the loading and reduce the potential for fatigue stresses (See Figure 3).

The estimate to repair the float is \$50,000.

- Although our engineer has prescribed a repair strategy, no guarantee can be made that the dock will not sustain additional damage.
- Historic records and recent launch counts show that revenues have never been sufficient to cover more than a fraction of the launches operating costs (a \$10 fee is charged to use the launch).
- The majority of visitors to the park come for the day-use and camping facilities, and not the boat launch.

Alternative Launch Facilities

There are three other launch facilities in proximity to Lighthouse Marine Park. These include two private facilities in Point Roberts and one public launch in Delta, British Columbia.

The two private facilities are located at the Point Roberts Marina Resort. The marina operates a monorail launch that can handle boats up to 25 feet in length and weigh less than 3,000 lbs. The second private facility is Westwind Marine Inc., also located at the marina. Westwind can handle larger boats up to 54-feet in length. Details of these facilities follow:

Point Roberts Marina Resort Boat Lift

Restrictions: Single Axle Trailer only / 3000 lbs. maximum capacity (some height restriction apply)

Hours:

- 9am - 4pm Tues-Sat (Winter)
- 8:30am - 7:30pm Sat-Sun (Summer)

Cost:

- \$50 round trip (trailer with rollers)
- \$60 round trip (trailer with bunks)

Westwind Marine, Inc.

Facility launches larger boats typically over 26 feet

Restrictions: maximum capacity up to 54 feet

Hours:

- 9am-4pm Tues & Fri. 9am-3pm Sat (Winter)
- 9am-5pm Tues-Sat. (Summer)

Cost (varies by boat length)

- 28' boat - \$261.80 round trip
- 36' boat - \$336.60 round trip

The Ladner boat launch located in Delta, British Columbia is approximately 10 miles north of Point Roberts. Based on an internet search conducted January 17, 2019 the launch is free and has onsite parking. Exact operational hours are unknown, but appear to be sunrise to sunset, seven days per week.

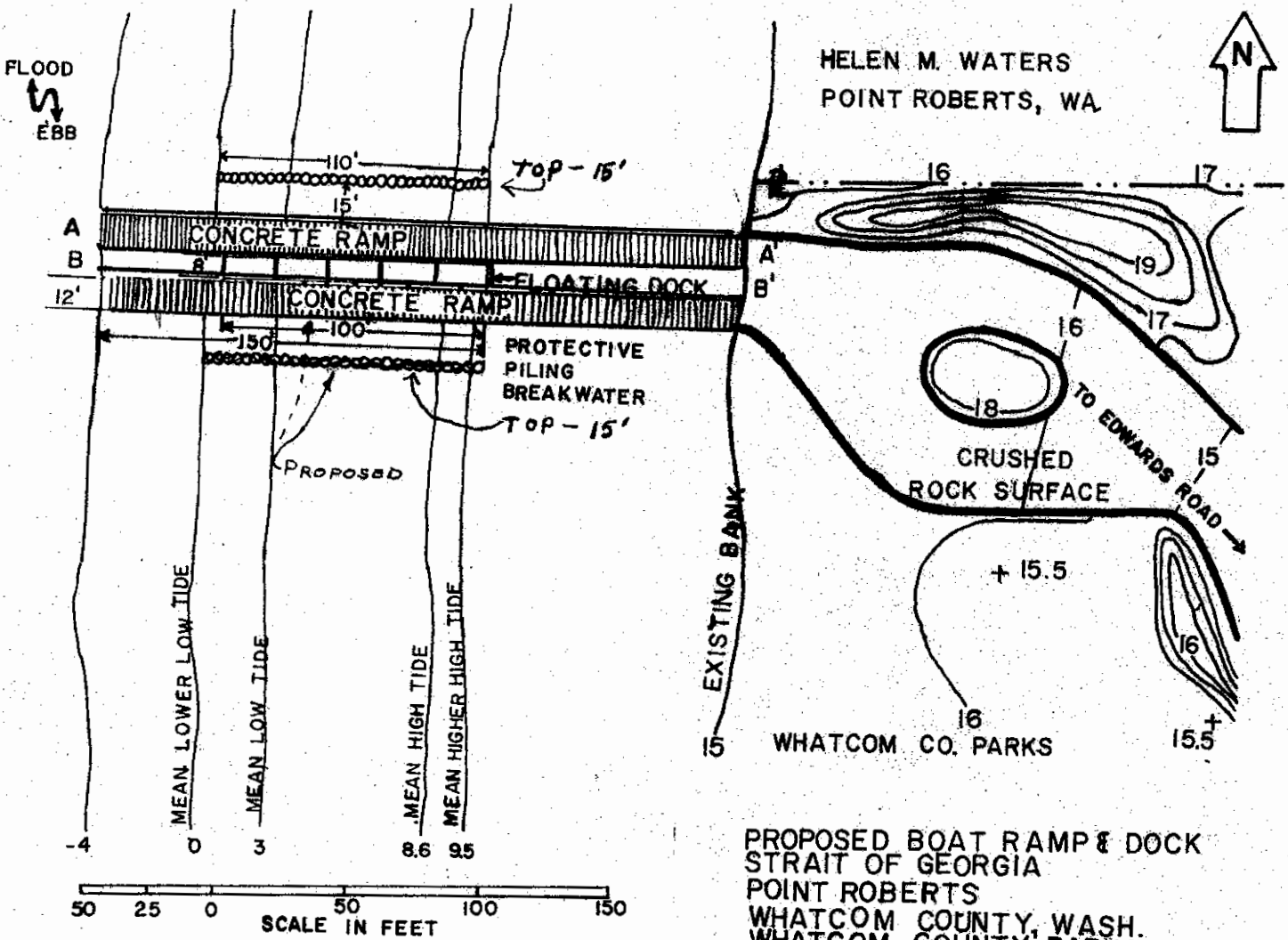
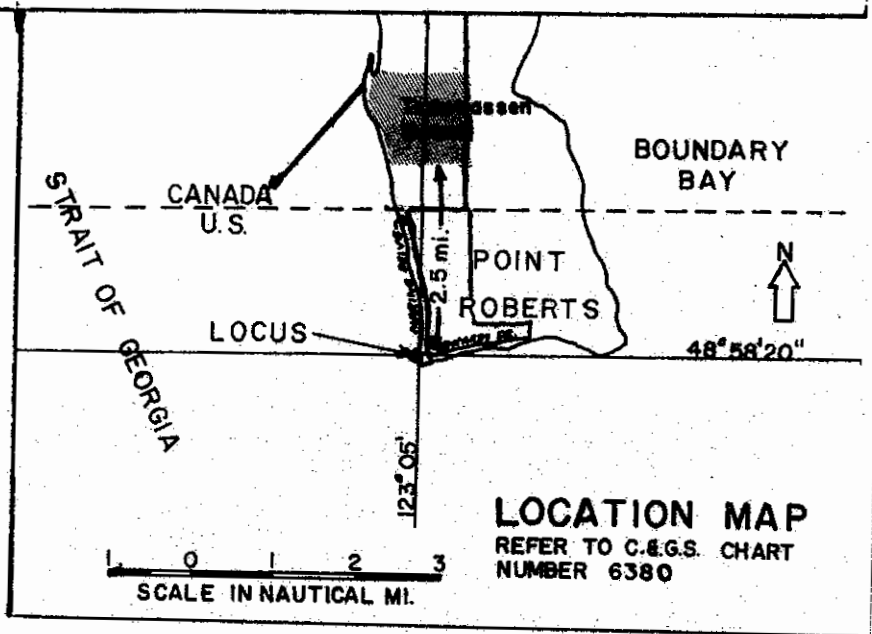
Options to Consider

- Option 1 – Council can authorize a budget supplemental for \$50,000 and prescribed repairs to the boarding float can be made. The repairs would be completed this spring and the repaired float could be installed in May 2019.
- Option 2 – The boarding float could be permanently removed, and possibly repurposed in another park location more suitable to its construction. The concrete launch ramp would remain in place and could be either maintained or not. Boaters could then choose to use one of the three alternative launches listed above.

FIGURE 1 - PARKS ORIGINAL BOAT LAUNCH PROPOSAL (1972)

NOTE:

1. NO HARBOR LINES ESTABLISHED IN THIS AREA
2. DATUM-M.L.L.W. = 0.0'
3. PURPOSE: TO PROVIDE PUBLIC SMALL BOAT RAMP AND DOCK

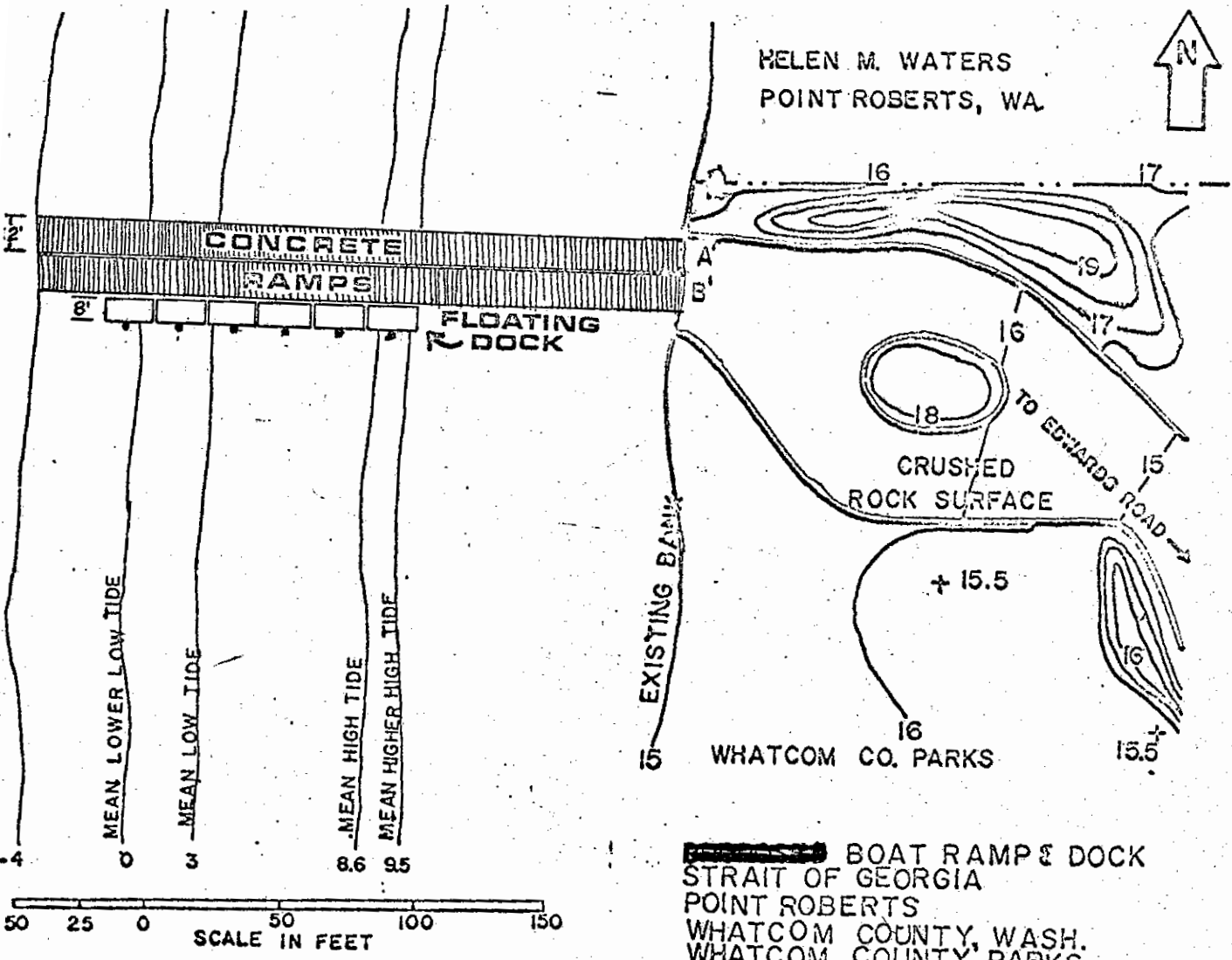
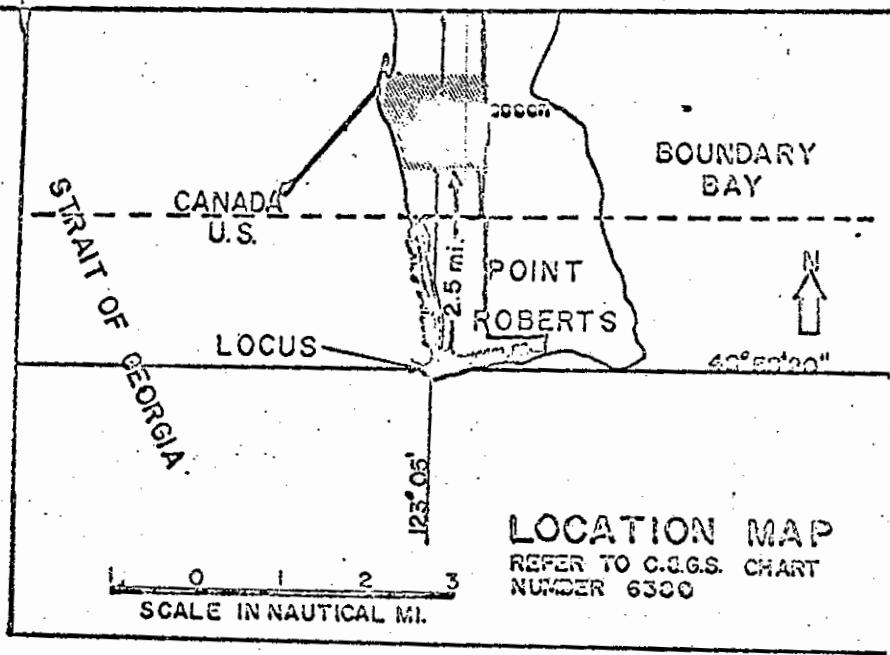


PROPOSED BOAT RAMP & DOCK
 STRAIT OF GEORGIA
 POINT ROBERTS
 WHATCOM COUNTY, WASH.
 WHATCOM COUNTY PARKS
 MARCH 13, 1972

FIGURE 2 - PARKS MODIFIED BOAT LAUNCH (AS-BUILT 1974)

NOTE:

1. NO HARBOR LINES ESTABLISHED IN THIS AREA
2. DATUM - M.L.L.W. = 0.0'
3. PURPOSE: TO PROVIDE PUBLIC SMALL BOAT RAMP AND DOCK

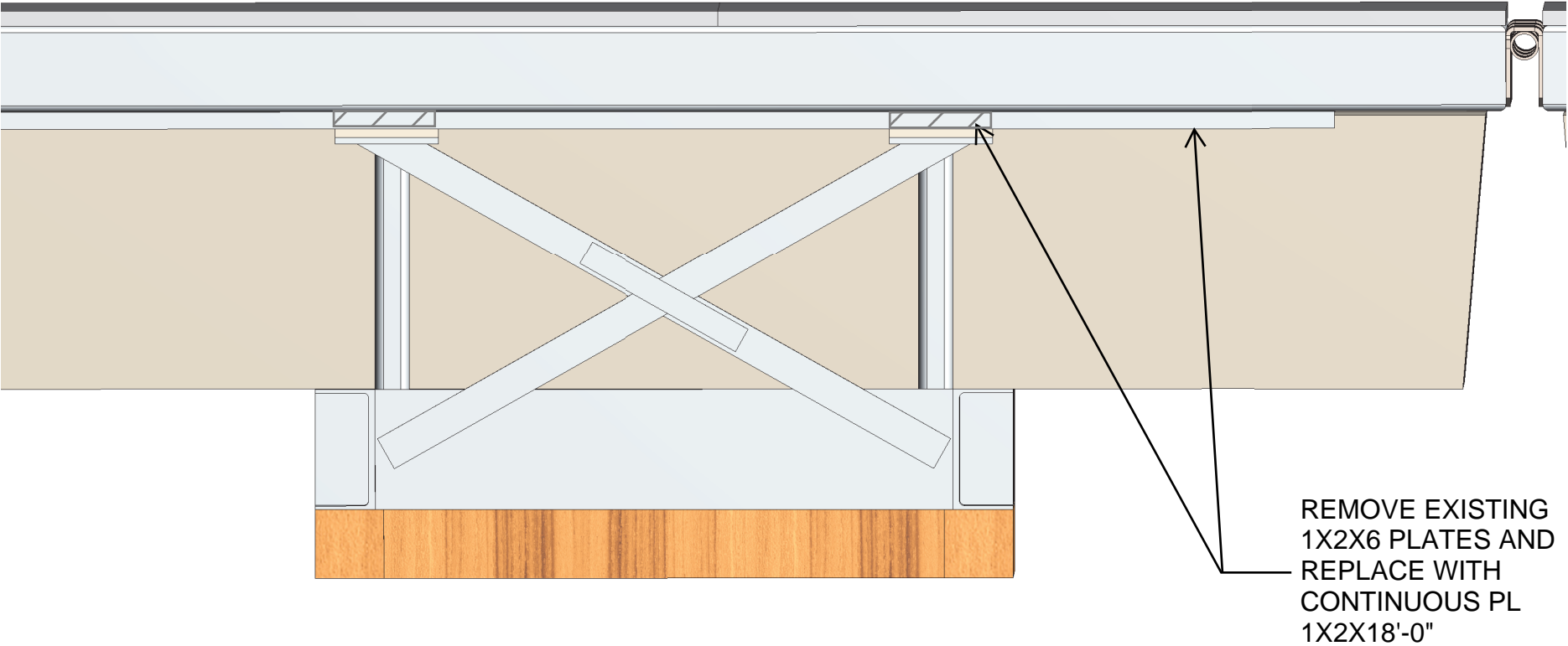


BOAT RAMP & DOCK
STRAIT OF GEORGIA
POINT ROBERTS
WHATCOM COUNTY, WASH.
WHATCOM COUNTY, PARKS

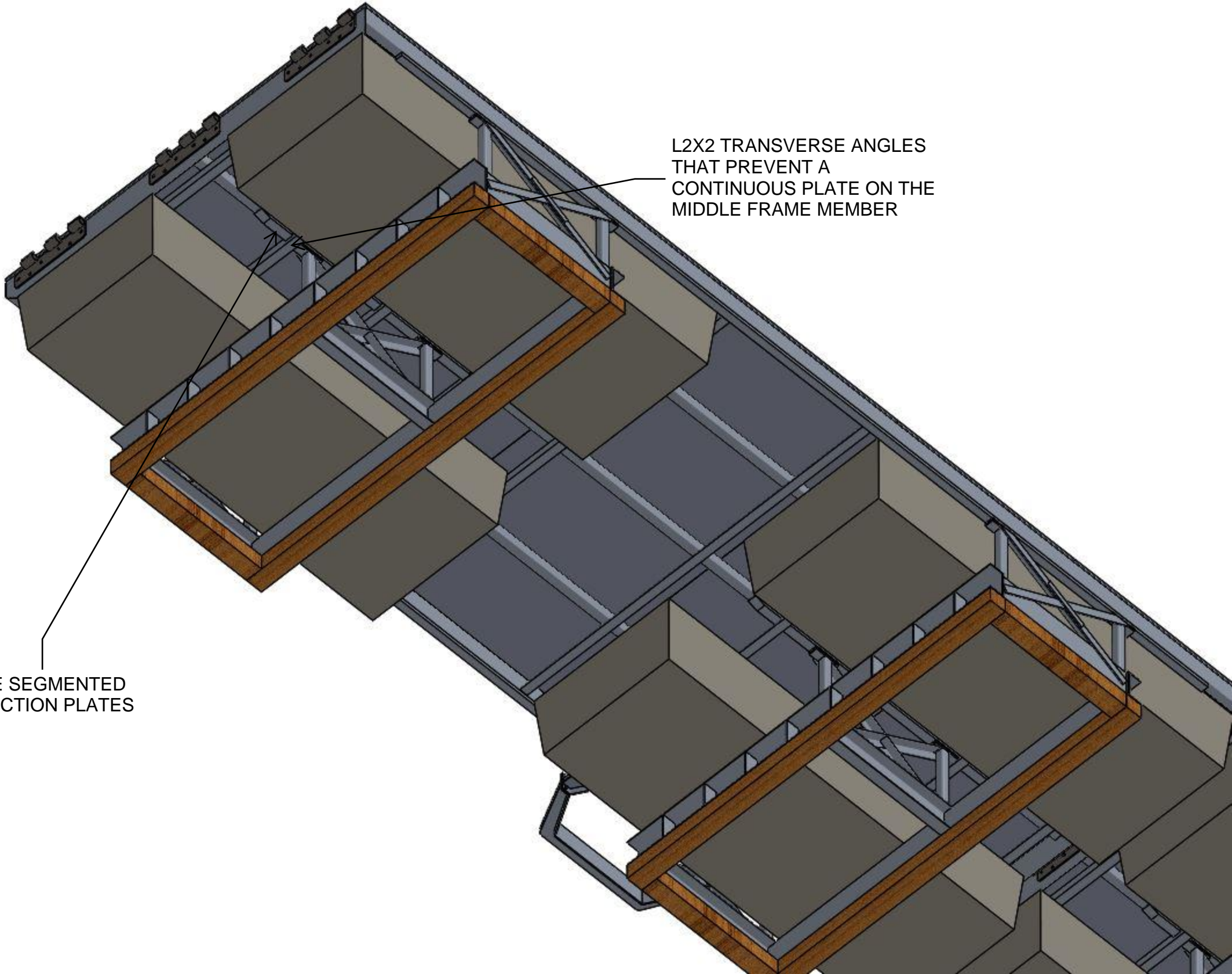
As Built -
August, 1974

Sheet 1 of 3

FIGURE 3 - ENGINEER'S PRESCRIBED REPAIR (2018)



FLOAT REPAIR OPTION - REPLACE LEG CONNECTION PLATE WITH FULL LENGTH PLATE



L2X2 TRANSVERSE ANGLES
THAT PREVENT A
CONTINUOUS PLATE ON THE
MIDDLE FRAME MEMBER

NOTICE SEGMENTED
CONNECTION PLATES

FIGURE 4 - CLEARED BOAT RAMP - JUNE 28, 2016



FIGURE 5 - DOCK INSTALLATION JUNE 28, 2016



FIGURE 6

Dock Repair Cost Estimate

12/17/2018

Lighthouse Marine Park Boat Launch

Base Bid

No.	Description	Quantity	Unit	Cost	Extension
1	Transport (round trip)	1	LS	5000	\$5,000
2	Disassemble Dock Sections	1	LS	2750	\$2,750
3	Media-blast	1	LS	3500	\$3,500
4	Dock Frame reinforcement	1	LS	25000	\$25,000
5	Reassemble Dock Sections	1	LS	2750	\$2,750
6	Parks Crew (load & unload)	16	Hours	63	\$1,008
7	Hinge bushings	8	EA	100	\$800
				Subtotal	\$40,808
				10% Contingency	\$4,080.80
				WA Sales Tax (8.5%)	\$3,816
				Total	\$48,704

Annual Operating Costs

Lighthouse Marine Park Boat Launch

Base Bid

No.	Description	Quantity	Unit	Cost	Extension
1	Spring Installation (clear ramp & install floats)	64	Hours	60	\$3,840
2	Daily Ramp Maintenance (0.75 hours/day)*	75	Hours	50	\$3,750
3	Heavy Equipment Cost (tractor)	1	LS	3600	\$3,600
4	End of Season Removal	64	Hours	60	\$3,840
5	Annual Maintenance **	1	LS	3500	\$3,500
				Total	\$18,530

Note: 2018 Labor rates shown are shown above

* = Assumes 100 day season

** = No historic annual maintenance figures are available & the number shown is used here for discussion purposes only. Actual costs may vary considerably than estimate.

LS estimate assumes 2 crew members for 3 days plus \$500 material allowance

Launch Counts: 2018

- 2016 88 Boats (partial season mid August-Late Sept.
- 2017 284 Boats (Full Season)
- 2018 64 Boats (partial season late May-mid July
- 436 Total @ \$10/launch = \$4,360 revenue



FIGURE 7 - PREVIOUS DOCK FLOAT (2008)