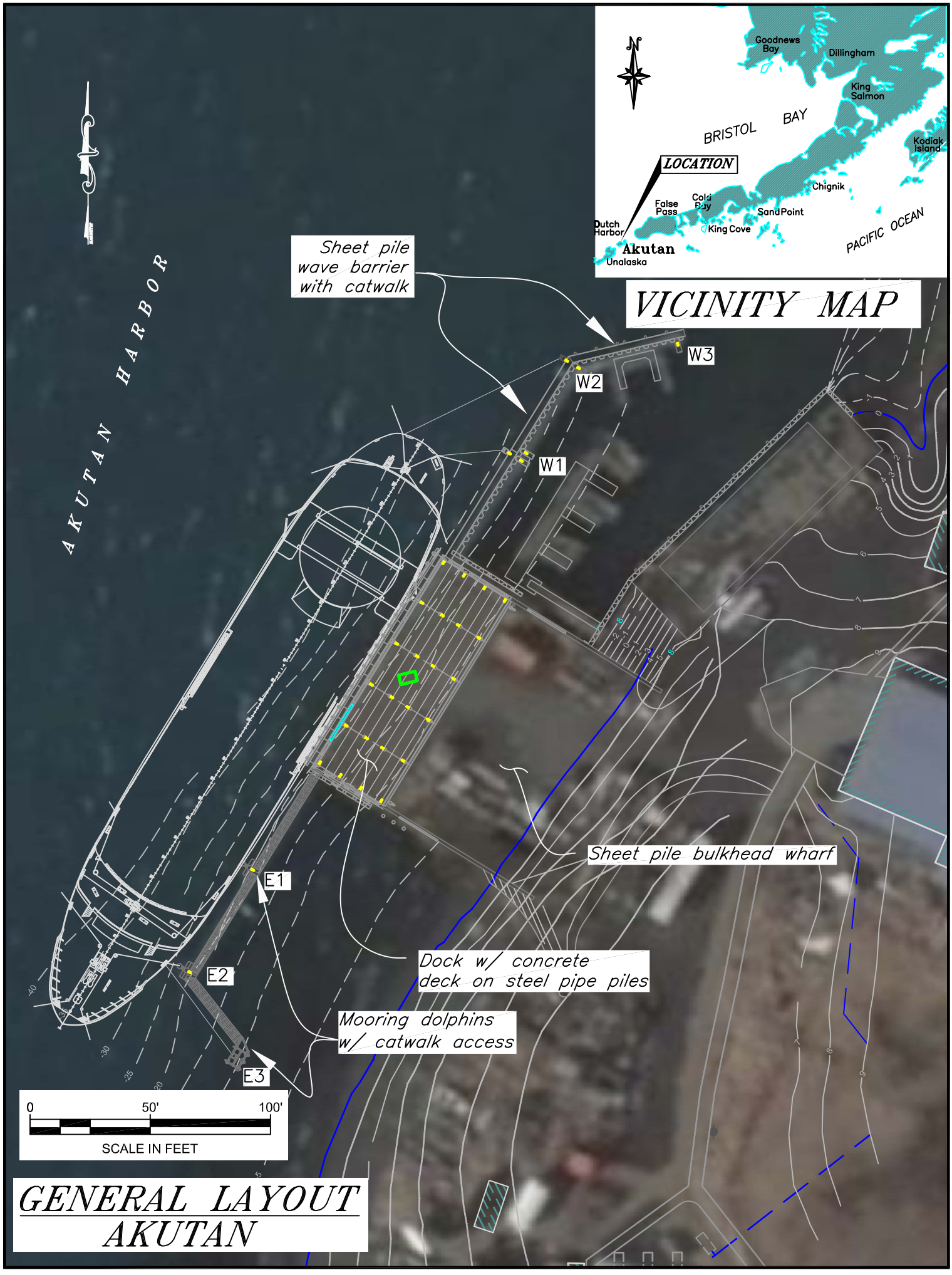


VICINITY MAP

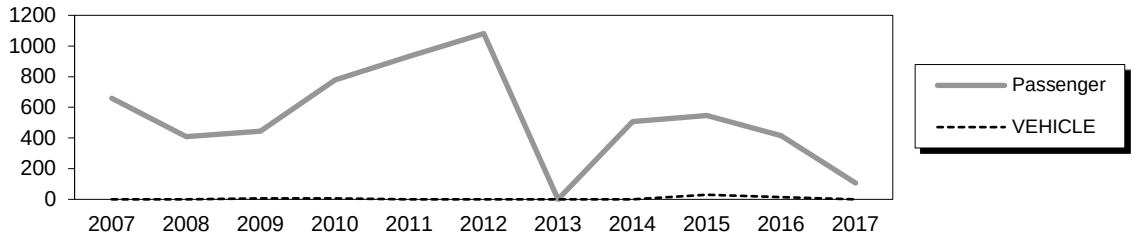
GENERAL LAYOUT
AKUTAN

Akutan City Dock

Owner: Aleutians East Borough

Terminal Manager: 907-381-1366 – Brett Willis, Harbormaster

Terminal Description: The M/V TUSTUMENA docks in Akutan during its May through September Aleutian Chain trips. AMHS has previously discharged only passengers at this facility; however, sailings now include some vehicles. The Akutan City Dock is a platform dock constructed of concrete panels, steel pile caps and steel support piling. Abutting the back of the dock is an earth filled sheet pile bulkhead for the full length of the dock. There are two mooring dolphins with fender units on each side of the dock. In line with the western dolphins is a sheet pile wall that acts as a wave barrier for a small boat harbor, with a 50-foot extension installed in 2005. The past 10 years of total passenger and vehicle traffic at Akutan is shown below. Akutan had no ferry service in summer 2013 while the M/V Tustumena was in the shipyard for repairs.



The most recent above water survey was completed on September 8, 2016. The underwater inspection occurred on July 17, 2014. The most recent fracture critical inspection was on September 18, 2012.

Vessels	
Name	Berthing, Alignment
Tustumena	Port / Starboard

Tidal Data (MLLW=0.0 feet)	
Highest Observed	6.7
MHHW	3.7
MHW	3.4
Lowest Observed	-1.8

Terminal Building
This facility does not have a terminal building.

Generator & Building
This facility does not have a generator on-site.

Utilities @ Dock
There are no utilities at the City Dock.

Uplands	
Short-Term Parking:	N/A
Long-Term Parking:	N/A
Staging Area:	N/A
Paint Striping:	No
Driving Surface:	Ashalt/Gravel

City Dock - #1946	
Type:	35' x 100' Concrete Panels
Year Built:	1982
Support:	16" dia Steel Pipe Piles
Coating:	Coal Tar Epoxy
Fenders:	(21) - 16" dia Steel Pipe Piles
Fender Face:	UHMW wear strips
Anodes:	Yes
Lighting:	Light poles, east and west ends of dock
Condition:	Fair
Load Posting Sign:	Single Axle 7 Tons; Tandem 12 Tons

Sheet Pile Bulkheads							
Section	**Length**	**Type**	**Coating**	**Anodes**	**Built**	**Cond.**	**Notes**
1	90'	Z-Section	None	Yes	2002	Good	
2	100'	Z-Section	None	Yes	2005	Good	This structure has not been inspected yet.

Dolphins							
Dolphin	**Dolphin Piles**	**Fender Support**	**Fender Face**	**Anodes**	**Built**	**Cond.**	**Notes**
W3	1B, 1V	-	-	No	2005	Good	
W2	1B, 1V	2V	Plastic Rub Strip	No	2002	Good	
W1	2B, 2V	2V	Plastic Rub Strip	No	2002	Good	Rubber Fenders & steel wale are severely damaged.
E1	3B	1H	Rubber donut, vertically mounted	Yes	1993	Fair	
E2	3B	1H	Rubber donut, vertically mounted	Yes	1993	Fair	Red Navlight
E3	5B	-	-	Yes	2015	New	

Catwalks / Gangways								
#	**From Struct.**	**To Struct.**	**Length / Style**	**Built**	**Safety Chains?**	**Cond.**	**Lighting**	**Notes**
C1	W3	W2	45' / Catwalk	2005	Yes	New	None	Catwalk is integral with sheet pile wave barrier
C2	W2	W1	90' / Catwalk	2002	Yes	Good	None	Catwalk is integral with sheet pile wave barrier
C3	W1	Dock	90' / Catwalk	2002	Yes	Good	None	Catwalk is integral with sheet pile wave barrier
C4	Dock	E1	50' / Catwalk	1993	Yes	Fair	None	
C5	E1	E2	50' / Catwalk	1993	Yes	Fair	None	
C6	E2	E3	30' / Catwalk	2015	Yes	New	None	

LEGEND
V = Vertical Steel Pipe Piling B = Battered Steel Pipe Piling H = Steel H-Pile
C1 = Catwalk

Projects			
Year	**Project #**	**Project Name**	**Description**
1982	N/A	Akutan City Dock	Original construction of the City dock and sheet pile retaining structure. Plans not on file.
1993	N/A	Akutan City Dock Modifications	Install the west dolphins W1 & W2 and catwalks C3 & C4
2002	N/A	Akutan City Dock Modifications	Installed section 1 of the east sheet pile bulkhead, dolphins E1 & E2, and catwalk C2.
2005	N/A	Akutan City Dock Modifications	Installed section 2 of the east sheet pile bulkhead, dolphin E3 and catwalk C1.
2015	67745	Akutan City Dock Improvements	Raised the height of the existing fender system, installed a new mooring dolphin on the east side and made other miscellaneous repairs

Observations

1. The precast concrete panels of the deck are in fair/poor condition. The top surfaces are showing signs of degradation from weathering. Roughly 25% of the panels have drain holes drilled through the deck and soffit on 12" centers. Several panels have fine cracks radiating transverse to the span direction and distributed along the longitudinal panel edges. In some panels the grout in the closure pour has eroded and the aggregate is loose. A chain drag test over the deck indicated that approximately 10 percent of the panels have some areas of delaminated or porous concrete.

   The most recent Fracture Critical inspection report found several locations of moderate cracking, spalling, and delamination on the underside of the precast deck panels with exposed pre-stressing strands. The piles were reported in fair condition, though they typically exhibit 1/32" pitting and 1/8" laminar rust. All of the piles supporting pier cap 3 are misaligned by roughly 2". Piles B and C are misaligned at pier cap 5 by roughly 1".

   The underside of the dock framing (steel caps and piles) all exhibit failed coatings and extensive rust and scaling. The 2015 project installed 100# bar anodes on dock support piles & dolphin piles.
2. The western dolphin piles, the sheet pile wave barrier, and the sheet pile bulkhead are uncoated. These steel elements may be thicker than necessary to permit a long-term corrosion loss. The 2015 project installed 100# bar anodes on the sheet piles.
3. In the splash and atmospheric zones, approximately 50 percent of the epoxy coating on the piling has failed. There is widespread corrosion of the upper segment of the piles, along the edges of the pile cap flanges and on all surfaces of the bearing plates.
4. The dolphins and catwalks on the east side of the dock were originally coated with epoxy. Only 15 percent of the coating remains and the flanges of the catwalk stringers are freely corroding. The stringers are bolted to the dolphins using a single plate shear connection. The connection restricts the longitudinal movement between the dolphin and catwalk.
5. Depth to mudline elevations, taken with leadline readings at locations along the fender face in 2016, range from -27 to -31 MLLW.
6. The moveable bull rail section has been removed from the dock front and set off to the side. The break in the rail along the dock face is a safety hazard.

Inspection Summary		
Structure	Priority	Recommendations
Category I - Safety Issues		
Movable bull rail	1	Replace the heavy bullrail with a design that is balanced on one wheel or pivot pin, and can swing easily pulled with human power.
Category II - Rehabilitation Work		
Dock - Concrete Deck Panels	2	Seal the deck panels with a concrete topping lift.
Dock Support Piles	3	Program a project to re-coat the piling.
Category III - Upgrades Needed		
General	4	The dock is rated for passing light vehicle loads, and is load rated for minimal freight transfer. The community should seek funds for a dock replacement in the future.