

February 21, 2018

R&M No. 2573.01

Brad Ryan
Director of Public Facilities
Shawn Bell
Harbormaster
Haines Borough
P.O. Box 1209
Haines, Alaska 99827

RE: Haines Lutak Dock Ro Ro Ramp, Option 4.

Dear Mr. Ryan and Mr. Bell:

R&M Consultants, Inc. (R&M) is pleased to provide the attached concept drawing and preliminary cost estimate for Option 4 for the above mentioned project. We have previously provided a condition assessment and report for the existing Roll On Roll Off (Ro Ro) ramp. This report outlined three options for the Ro Ro ramp. On February 7, 2018 we received several comments and a new concept from Mr. Shawn Bell Harbormaster. It is our understanding that this was put forth by AML after the Borough met with them about the project. In general the concept is to provide a new Ro Ro ramp that will be situated to provide service to the AML barge.



AML Cargo Barge

The concept includes several features that AML has requested including:

- A 24' wide x 120' long high capacity ramp similar to ramps used at other AML facilities.
- The barge moors in an alignment with the face of the existing dock.
- The ramp is sited to land in the center of the barge.
- There is a pile supported concrete deck causeway that connects the ramp to the uplands.

Option 4 has less demolition of existing structures and less earthwork than Option 3. This should reduce the mobilization, construction survey, and environmental compliance costs during construction. The attached concept shows the barge partially



R&M CONSULTANTS, INC.

9101 Vanguard Drive
Anchorage, Alaska 99507

phone: 907.522.1707
fax: 907.522.3403

moored on the existing dock and partly off the western end on two new dolphins shown. The pile supported causeway includes a landing platform at the top of the ramp and then an angled approach to the uplands. The angled approach allow the continued use of the existing small boat launch ramp.

The design forklift is an AML Svetruck S1150 with top pick capacity. This forklift has the ability to handle 53-foot containers and can stack them five high. This machine has a total loaded weight of about 295,000 lbs (see attached data sheet). It was reported to us that the typical AML Ro Ro ramp has a 500,000 lb cargo capacity.



Svetruck S1150 Forklift

Our investigation shows that the new ramp will weigh about 233,000lbs and the float will weigh about 94,000 lbs. Fabrication of these items will be about \$3 to \$4 per pound of steel. Coating, transportation, and installation will be in addition to the fabrication costs.

The attached cost estimate is preliminary and should be used for comparison and budget purposes only. It is not a bid. We included a 25% contingency. It is our hope that the cost estimates are slightly conservative and that the project will come in under this. We hope to avoid the converse of this with escalating costs. The actual cost of the project will be dependent on a number of factors that are difficult to predict at the preliminary stage. Mobilization costs for example can vary widely and may be dependent on the schedule and availability of qualified contractors.

Brad Ryan
Director of Public Facilities
Shawn Bell
Harbormaster
Haines Borough
Page 3

Under a somewhat normal course of events it would take about 1 year and a half to 2 years to design, permit, bid, and construct a new facility.

1. Design and permitting 6 to 8 months.
2. Bidding and contracting 2 months.
3. Fabrication and construction 8 to 12 months.



AML Juneau Barge Facility

Please contact me with any questions or comments.

Sincerely,

R&M CONSULTANTS, INC

A handwritten signature in blue ink, appearing to read "John C. Daley".

John C. Daley, PE
Project Engineer

Enclosures:
Concept Drawing.
Preliminary Cost Estimate
Svetruck S1150 Data Sheet

ESTIMATED CONSTRUCTION COST

HAINES LUTAK DOCK - NEW BARGE RAMP OPTION 4

NO.	PAY ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
1	MOB AND DEMOB	LS	1	\$1,500,000	\$1,500,000
2	CONSTRUCTION SURVEY	LS	1	\$70,000	\$70,000
3	PROTECTED SPECIES OBSERVER	LS	1	\$80,000	\$80,000
4	EROSION AND POLLUTION CONTROL	LS	1	\$25,000	\$25,000
5	SILT CURTAIN - BOOM	LS	1	\$50,000	\$50,000
	SUB TOTAL MOB AND DEMOB				\$1,725,000
6	DEMOLITION OF EXISTING RO RO RAMP	LS	1	\$35,000	\$35,000
7	STRUCTURE	LS	1	\$20,000	\$20,000
8	STRUCTURE	LS	1	\$20,000	\$20,000
9	DEMOLITION OF EXISTING FENDERS	EA	4	\$2,000	\$8,000
10	DEMOLITION OF EXISTING FENDER PILES	EA	8	\$2,500	\$20,000
	SUB TOTAL DEMOLITION				\$103,000
11	FURNISH AND INSTALL SELECT MATERIAL TYPE A	CY	25	\$20	\$500
12	FURNISH AND INSTALL SUBBASE GRADING TYPE B	CY	50	\$25	\$1,250
13	D-1	CY	30	\$40	\$1,200
14	FURNISH AND INSTALL CLASS I RIP RAP SLOPE PROTECTION	CY	150	\$102	\$15,300
15	FURNISH AND INSTALL CLASS IV RIP RAP SLOPE PROTECTION	CY	150	\$109	\$16,350
16	FURNISH AND INSTALL GLULAM BACKWALL	LS	1	\$5,000	\$5,000
17	FURNISH AND INSTALL GUARDRAILS	LS	1	\$2,500	\$2,500
18	FURNISH 30" DIAMETER PIPE PILES	LF	630	\$350	\$220,500
19	SOCKET	EA	9	\$25,000	\$225,000
20	FURNISH 18" DIAMETER PIPE PILES	LF	2,100	\$106	\$222,600
21	SOCKET	EA	30	\$20,000	\$600,000
22	FURNISH AND INSTALL TENSION ANCHOR	EA	16	\$35,000	\$560,000
23	FURNISH AND INSTALL 3 PILE DOLPHINS	EA	1	\$140,000	\$140,000
24	FURNISH AND INSTALL 4 PILE DOLPHINS	EA	1	\$210,000	\$210,000
25	FURNISH AND INSTALL STEEL FRAMING AND CONCRETE DECK	SF	3500	\$350	\$1,225,000
26	FURNISH AND INSTALL TRANSFER BRIDGE	LS	1	\$1,165,000	\$1,165,000
27	FURNISH AND INSTALL TRANSFER BRIDGE FLOAT	LS	1	\$470,000	\$470,000
28	FURNISH AND INSTALL TRANSFER BRIDGE PILE CAP AND BEARING	LS	1	\$50,000	\$50,000
29	FURNISH AND INSTALL LIFE RINGS	EA	2	\$1,200	\$2,400
30	EXTINGUISHERS	EA	2	\$1,200	\$2,400
31	FURNISH AND INSTALL 150# ANODES	EA	87	\$1,200	\$104,400
32	FURNISH AND INSTALL MECH BUILDING	LS	1	\$60,000	\$60,000
33	ELECTRICAL, MECHANICAL, AND LIGHTING	LS	1	\$315,600	\$315,600
	SUB TOTAL CONSTRUCTION				\$5,615,000
	TOTAL CONSTRUCTION				\$7,443,000

ESTIMATED CONSTRUCTION COST

HAINES LUTAK DOCK - NEW BARGE RAMP OPTION 4

NO.	PAY ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
A	DESIGN UPLAND SURVEY	LS	1	\$55,000	\$55,000
B	DESIGN HYDROGRAPHIC SURVEY	LS	1	\$20,000	\$20,000
C	DESIGN GEOTECH PROGRAM	LS	1	\$140,000	\$140,000
D	DESIGN (10% OF CONSTRUCTION)	LS	1	\$744,300	\$744,300
E	PERMITTING CLEAN WATER ACT SECTION 10 AND 404	LS	1	\$20,000	\$20,000
F	PERMITTING NMFS IHA	LS	1	\$80,000	\$80,000
G	PERMITTING NEPA	LS	1	\$100,000	\$100,000
H	CONSTRUCTION ADMINISTRATION (6% OF CONSTRUCTION)	LS	1	\$446,580	\$446,580
	SUB TOTAL ENGINEERING AND ADMIN				\$1,605,880

TOTAL CONSTRUCTION & ENGINEERING COST: \$9,048,880
25% CONTINGENCY: \$2,262,220
TOTAL: \$11,311,000

Model	S1150-225				
Lifting capacity					
1	<i>Q Load</i>	ton	52	lb	1150
Load centre					
2	<i>c</i>	mm	1300	in	51
Lifting height telescopic mast					
3	<i>h3 Standard</i>	mm	13800	in	543
Tilt					
4	<i>Forward / Backwards</i>	°	15/15	°	15/15
Fork length					
5	<i>L1</i>	mm	2440	in	96
Fork arm width/thickness					
6	<i>b x s</i>	mm	300x105	in	11.8x4.1
Distance between forks					
7	<i>b1 max - min</i>	mm	3970-930	in	156-36.6
Overall dimensions					
8	<i>L2 Length incl. forkshaft</i>	mm	8225	in	324
9	<i>B Width</i>	mm	4250	in	167
10	<i>h1 Closed height</i>	mm	9670	in	381
11	<i>h4 Extended height</i>	mm	16570	in	652
12	<i>h2 Height over cabin</i>	mm	4140	in	163
Turning radius					
13	<i>Wa</i>	mm	8075	in	318
Load arm					
14	<i>x from center of driveaxle</i>	mm	2755	in	108.5
90°-stacking aisle					
15	<i>Ast 4 with forklength acc. to pos 8</i>	mm	12175	in	479
Driving and lifting performance					
16	<i>Driving speed fwd/rev.</i>	km/h	22.5/22.5	mile/h	14/14
17	<i>Lifting speed with/without load</i>	m/sec	0.3/0.32	in/s	11.8/12.6
18	<i>Lowering speed with/without load</i>	m/sec	0.3/0.3	in/s	11.8/11.8
Draw bar pull					
19	<i>In carriage loaded</i>	kN	247	lbf	280337
Climbing performance					
20	<i>With/without load</i>	%	17/30	%	17/30
Total weight					
21	<i>Standard equipped</i>	kg	81500	lb	179676
Axle load					
22	<i>Driveaxle with/without load</i>	kg	123600/46500	lb	272491/102515
23	<i>Steer axle with/without load</i>	kg	9900/35000	lb	21826/77162
Tyres					
24	<i>Dimension drivewheels</i>		18.00x33"		18.00x33"
25	<i>Dimension steerwheels</i>		18.00x33"		18.00x33"
Wheelbase					
26	<i>y</i>	mm	5700	in	225
Track					
27	<i>Driveaxle/steeraxle</i>	mm	3100/2900	in	122/114
Ground clearance					
28	<i>m2 under liftmast</i>	mm	300	in	11.8
29	<i>m1 mid forklift</i>	mm	480	in	18.9
Brakes					
30	<i>Mainbrake</i>		Wet disc brakes		Wet disc brakes
31	<i>Parkingbrake</i>		Spring brake type SAHR		Spring brake type SAHR
Engine					
32	<i>Manufacturer</i>		Cummins		Cummins
Alternator					
33	<i>AC</i>	Watt	2700	Watt	2700
Battery					
34	<i>Voltage/capacity</i>	V/Ah	24/180	V/Ah	24/180
Transmission					
35	<i>Type</i>		Converter		Converter
36	<i>Type of gearshift</i>		Automatic		Automatic
37	<i>Number of gears fwd/rev</i>		4/3		4/3
38	<i>Model</i>		ZF Ergopower		ZF Ergopower
Operating pressure					
39	<i>Main hydraulic</i>	kPa	22500	Psi	3260
Fuel tank					
40	<i>Volume</i>	Litre	1000	gallon	264
Engine					
41	<i>Manufacturer, type</i>		Cummins QSM11		
42	<i>Rating ISO 3046</i>	kW/hp	268/360	kW/hp	268/360
43	<i>Torque ISO 3046</i>	Nm-r/min	1830/1400	lb-ft/rpm	1350/2100
44	<i>Stroke/no of cyl./cyl. volume</i>	cm ³	4/6/10800	in ³	4/6/660