



Skagway Small Boat Harbor Improvements

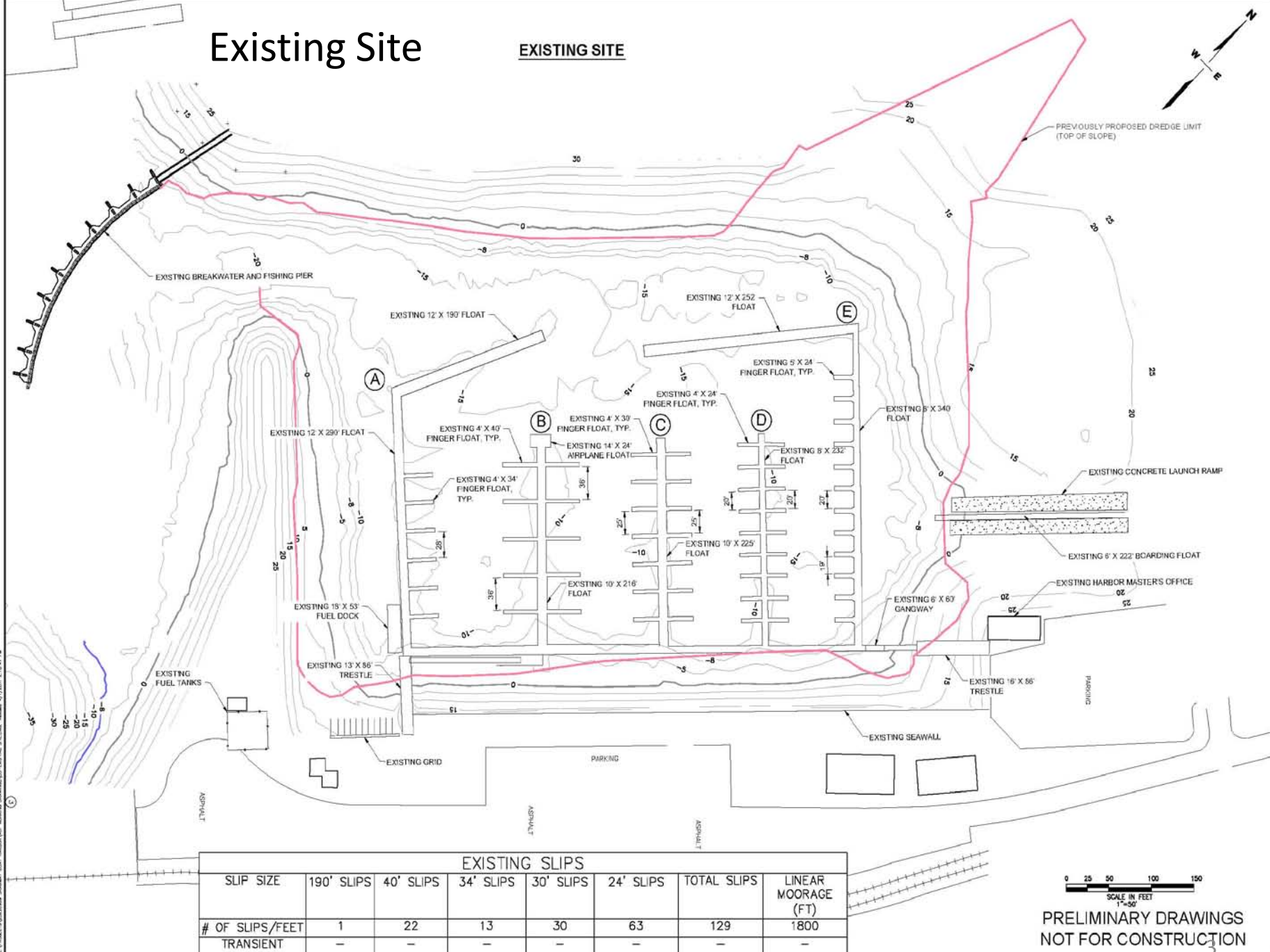
Concepts 1 & 2

April, 2011

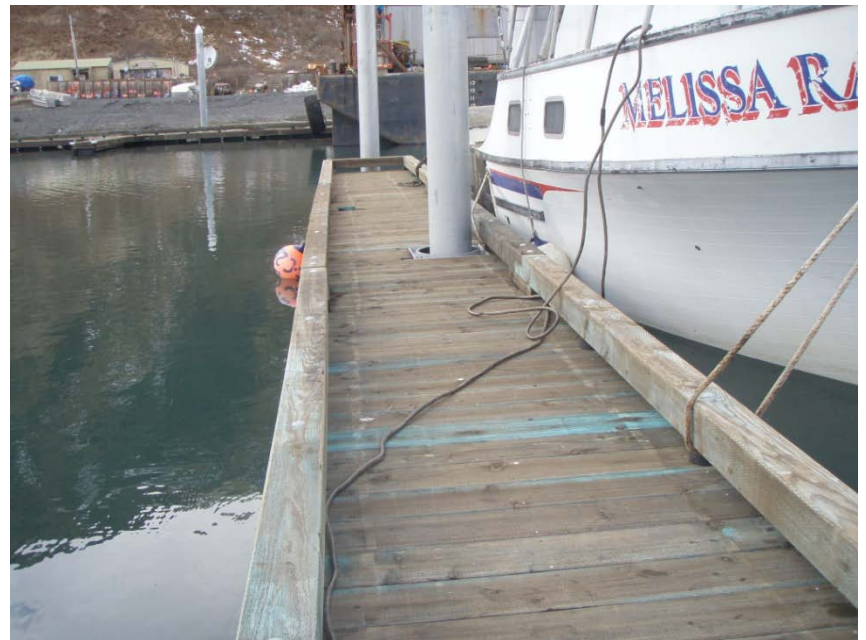


Existing Site

EXISTING SITE



PRELIMINARY DRAWINGS
NOT FOR CONSTRUCTION

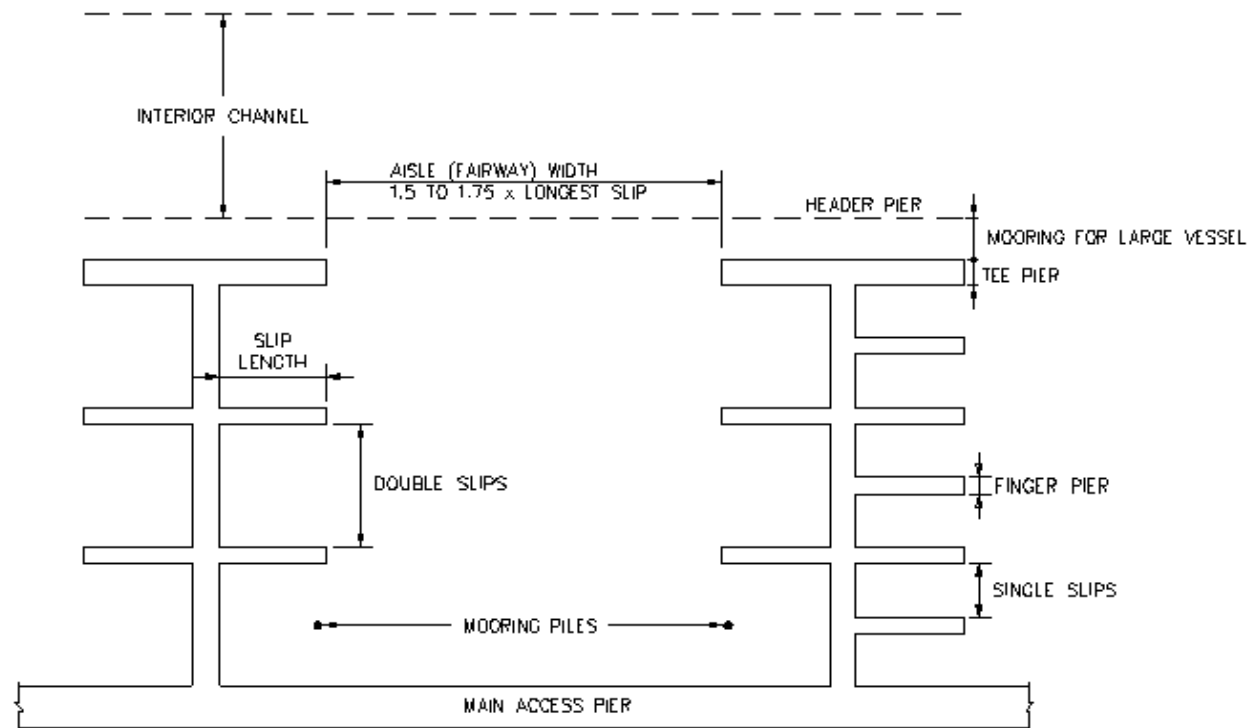




Seward

Design Criteria

- 1) No. 1 goal is to dredge the existing basin and replace the existing float system, gangways, and ramps.
- 2) Phase 1 Budget \$11.4 M.
- 3) ASCE Guidelines for Small Craft Harbors.
 - ASCE recommends main channels to be 75' wide, minimum, 100' preferred. Width is measured at control depth.
 - ASCE Aisle widths:



NOTES:
PLAN DIMENSIONS DEPEND ON THE NUMBER AND SIZE OF BOATS SERVED.

ASCE Float Layout Parameters,
Dimensions in feet

Slip Length	Single Slip Clear Width	Double Slip Clear Width
25	13	26
30	14	29
35	16	32
40	18	35
45	19	39
50	20	41
55	22	43
60	23	45

Finger Float widths, requested to be slightly wider. ASCE recommends 10% of boat length, with a minimum of any finger float to be 3-ft.

Skagway Harbor Committee Recommendations (for layout):

- Accommodate Annual and Waitlist vessel fleet (with flexibility)
- Maximize 30ft to 40-ft slips to meet rising demand (smaller vessels may moor 2 boats per slip).
- A Float for commercial users.
- Ferry Loading on South side of A Float or Dogleg of A.
- Access on S. Side of A Float should be improved for larger vessel moorage (dredge).
- Charters on North side of A Float (most are currently 32' to 36' length)
- Consider Future Plans in Phase 1.
- Linear/side tie moorage on east side. Modify trestles in both concepts to allow skiff access. Depth should be -6ft elev.
- Dredge to -18 ft on the west side of the harbor basin, full length of basin.
- Dredge to -14 ft in the rest of the basin.
- Focus on improving harbor in existing location.
- Phase 1: accommodate annual plus larger vessels in waitlist fleet at minimum (smaller vessels are trailer-able).
- Launch Ramp—replace boarding float at minimum.

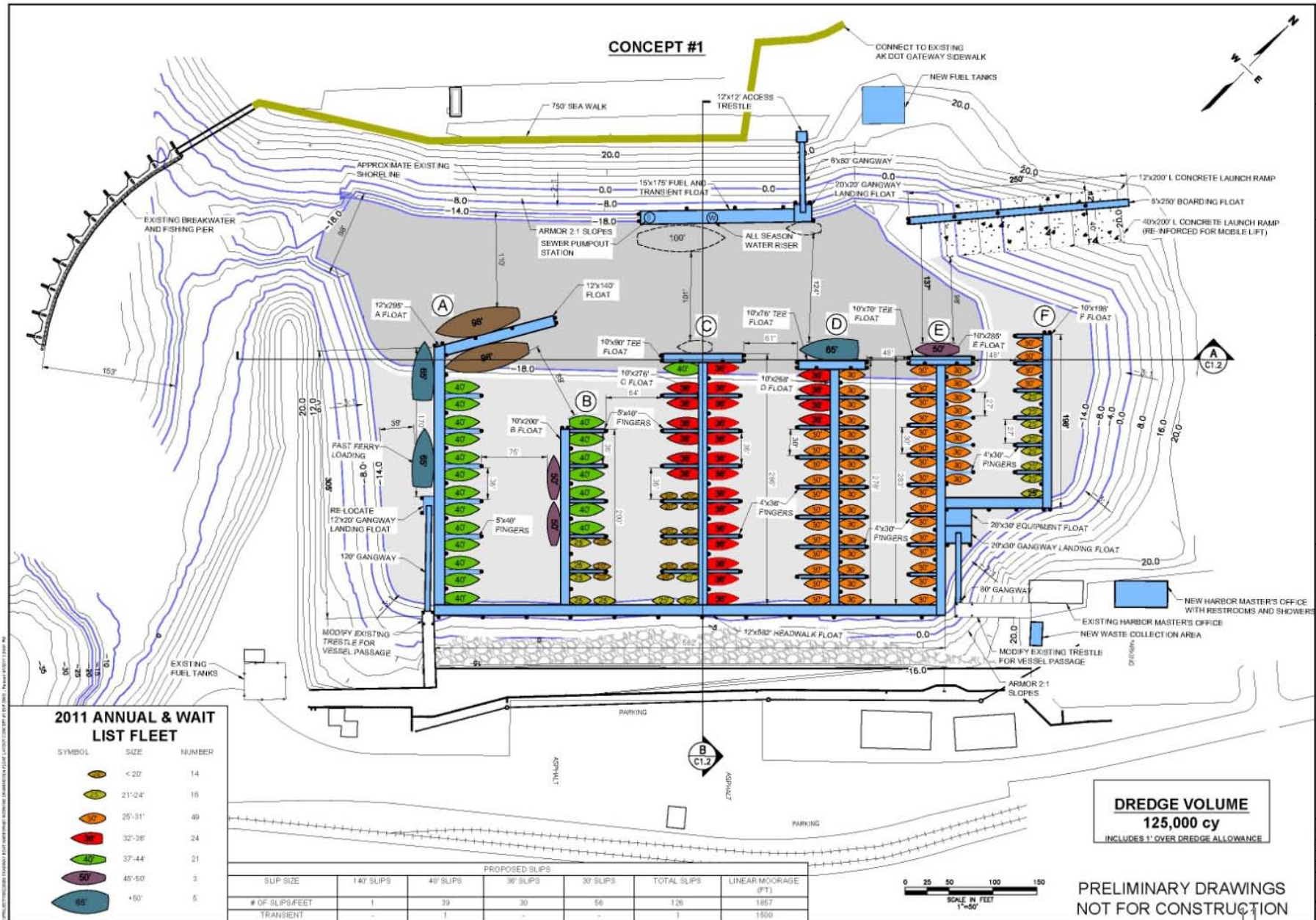
Skagway Harbor Committee Recommendations (for layout): continued

- Wider (12') Headwalk, A Float and West Side Float.
- One concept should consider accommodating commercial development. Larger slips do this. Also include drive down float.
- Future development should include a ship lift facility.
- All unprotected (no armor rock) shall be 3:1 slope. Steeper slopes will have rock protection.
- Consider sheetpile bulkheads where possible to maximize acreage in harbor basin.
- Future plan shall include a seawalk that connects wave barrier to Gateway project sidewalk (DOT).
- Moorage for large transient yachts (140ft length) should be provided.
- Fuel dock, drive-down dock, and launch ramp should be separate/independent structures.
- Move fuel dock (and sewer/water) to west side of harbor b/c nearshore end of A Float is inaccessible to larger vessels.
- Consider Finger floats on inside of A Float.
- Consider wider main floats and finger floats.

Skagway Harbor Committee Recommendations (for layout): continued

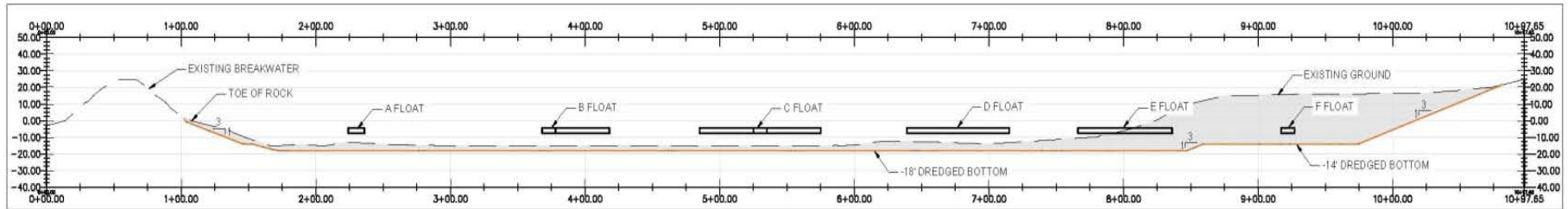
- Dredging along the western side of the harbor would give more space; Municipality owns the land but it is under long term lease to DOT for the ferry. May be possible to get some land back.
- Dredging to the north up to the High Tide Line of the existing beach could represent good balance between harbor and uplands uses.
- Consider sheetpiling in some areas; would reduce the slopes required and leave more space. Consider soldier pile wall on breakwater. Although, it is understood that the high cost of sheetpiling in some areas may not provide enough extra space to warrant it. A cost comparison will help to make decisions.
- Dredging should be completed in Phase 1, if possible to complete the entire new basin. (This later found may be impractical given permitting requirements)
- Include waste collection area.
- Include fish cleaning station, barge to remove waste from harbor area.
- Include removable airplane float.
- Include equipment float for a storage shed (for snowblower and other equipment).
- Year round water service at one location.

Concept No. 1—Full Build-Out

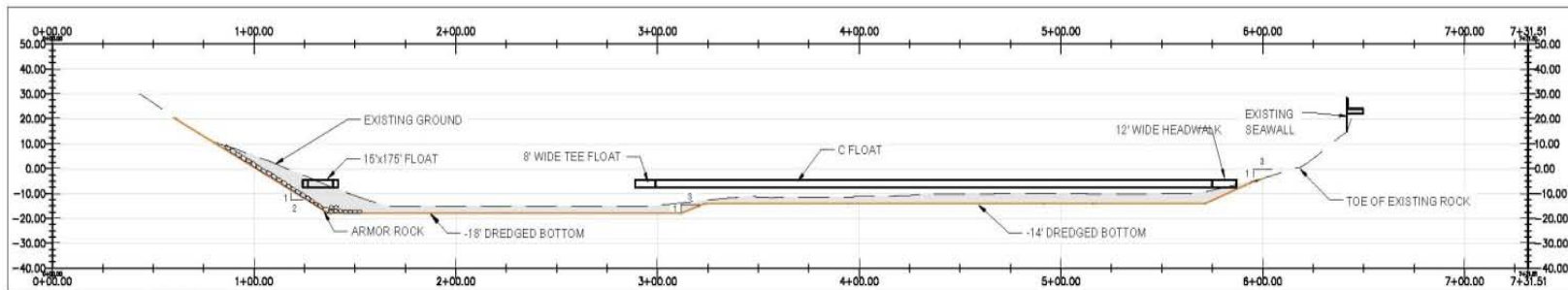
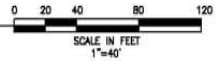


Dredge Cross Sections, Concept No. 1

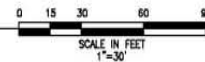
CONCEPT #1



A NE TO SW PROFILE, ALONG MID BASIN, PARALLEL TO SEAWALL
C1.2 SCALE: 1"=40'-0"



B NW TO SE PROFILE, DOWN THE MIDDLE OF "C" FLOAT
C1.2 SCALE: 1"=30'-0"



Concept 1

<u>Advantages</u>	<u>Disadvantages</u>
Least Costly Alternative.	
Moves float system west and allows all tide access to east side.	
Provides Dedicated Moorage for all Annual and Waitlist Vessels	Difficult to fit fleet in Ph.1. No remaining transient moorage in Ph.1.
Maximizes larger slips – more 30-40' slips in both Phase 1 and full build-out.	Aisle clearance between A & B is tight.
Full build-out maximizes overall moorage.	
Full build-out puts more of the smaller vessels in slips (i.e., 2 ea 20ft boats in one 40ft slip).	
Follows Standard—larger to smaller slips as you get further into the harbor.	
Rock protection (in lieu of sheetpile) decreases wave action in harbor.	Harbor basin slopes (i.e., no sheetpile) decrease overall acreage available.
West side development can occur in Phase 1	West side float in Ph1. Is shorter than full build-out.
Launch Ramp—low cost, multipurpose=can be used with a mobile lift in lieu of expensive ship lift dock facility.	No new launch ramp in Phase 1. (float only) , somewhat congested at launch ramp until future ramp is built.
Fuel float on the west side=more accessible. Sewer and water also available at this location.	Fuel float on west side sticks out further into channel.
	Ph. 1 also does not include roofs on gangways, equipment float, airplane float, HM office/restrooms and northward floats (E & F).
	North gangway is only 80'L. Although this meets ADA requirements, longer gangways are preferred.

Municipality of Skagway

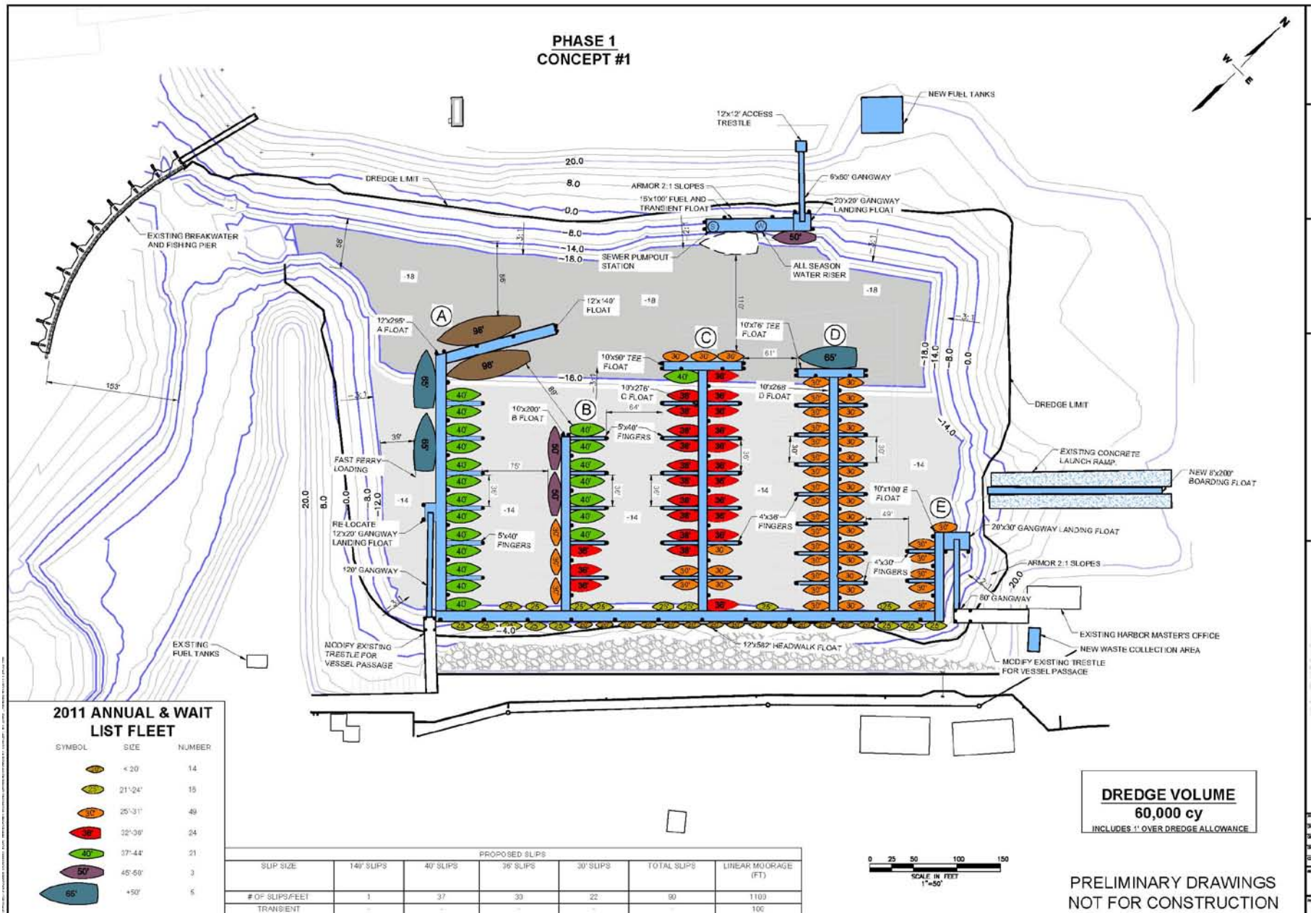
PRELIMINARY OPINION OF PROBABLE CONSTRUCTION COSTS

Concept #1

4/5/2011

Work Description	Price
Site Preparation	\$526,000
Dredging	\$5,290,000
A-F Floats System	\$5,766,375
West Side Fuel/Transient Float	\$921,000
Launch Ramp	\$1,000,700
Upland Ameneties	\$2,670,000
TOTAL BASE ITEM AMOUNT:	\$16,174,075
Budget-Level Estimate Contingency @ 25%:	\$4,043,519
TOTAL ESTIMATED PROJECT COST:	\$20,217,594

Phase 1—Concept No. 1



Municipality of Skagway

PRELIMINARY OPINION OF PROBABLE CONSTRUCTION COSTS

Concept #1, Phase 1

4/5/2011

Work Description	Price
Site Preparation	\$526,000
Dredging	\$3,000,000
A-F Floats System	\$4,697,985
West Side Fuel/Transient Float	\$792,775
Refurbish Existing Launch Ramp	\$168,300
Upland Ameneties	\$15,000
TOTAL BASE ITEM AMOUNT:	\$9,200,060
Budget-Level Estimate Contingency @ 25%:	\$2,300,015
TOTAL ESTIMATED PROJECT COST:	\$11,500,075

CONCEPT #2

2011 ANNUAL & WAIT LIST FLEET

SYMBOL	SIZE	NUMBER
15'x20'	14	
21'x24'	16	
25'x31'	49	
32'x36'	24	
37'x44'	21	
45'x50'	3	
65'	6	

DREDGE VOLUME
160,000 cy
INCLUDES 1' OVER DREDGE ALLOWANCE

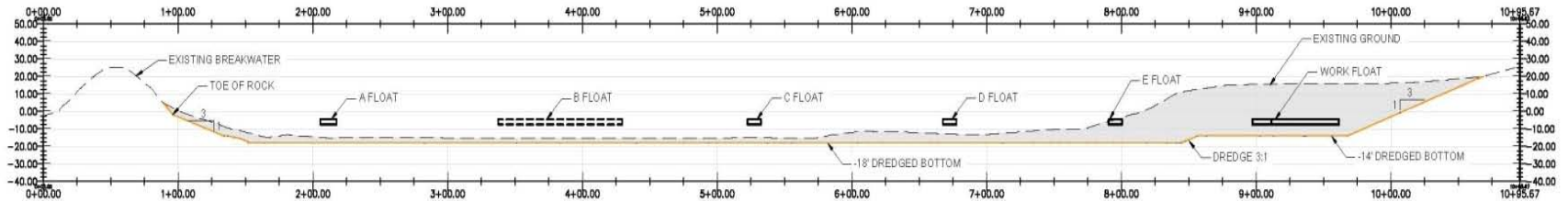
SLIP SIZE	160 SLIPS	42' SLIPS	40' SLIPS	36' SLIPS	30' SLIPS	25' SLIPS	TOTAL SLIPS	LINEAR MOORAGE (FT)
# OF SLIPS/FEET	2	10	10	36	40	20	118	2038
TRANSIENT	-	-	-	-	-	-	-	1738

**PRELIMINARY DRAWINGS
NOT FOR CONSTRUCTION**

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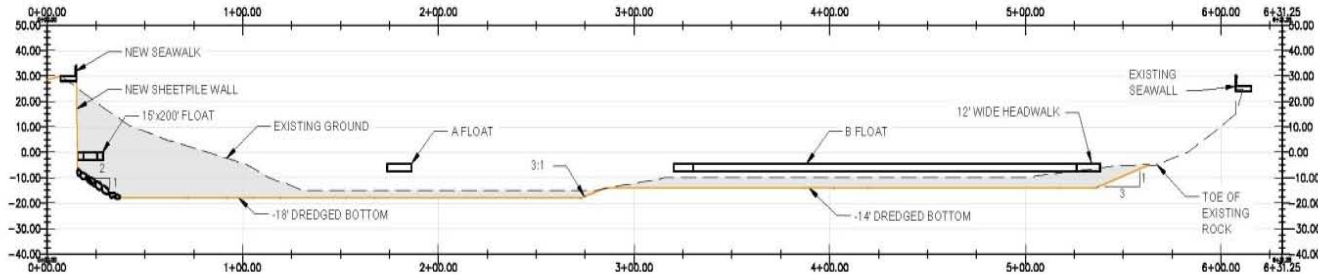
Dredge Cross Sections—Concept No. 2

CONCEPT #2



NOTE: FLOATS SHOWN AT EXTREME LOW TIDE

A NE TO SW PROFILE ALONG MID BASIN, PARALLEL TO SEA WALK
C2.2 SCALE: 1"=40'-0"



NOTE: FLOATS SHOWN AT EXTREME LOW TIDE

B NW TO SE PROFILE, DOWN THE MIDDLE OF B FLOAT
C2.2 SCALE: 1"=30'-0"

REVISIONS

Concept 2

<u>Advantages</u>	<u>Disadvantages</u>
Provides Dedicated Moorage for all Annual and Waitlist Vessels.	More costly alternative.
Moves float system west and allows all tide access to east side.	190ft dogleg on A sticks out further into channel.
Phase 1 better accommodates the fleet with some transient space available.	Less moorage in full build-out than C.1. (This is mainly due to Work float taking up space). Additional moorage is possible to the north, such that there would be more than C.1.
Provides for commercial facilities Drive Down Float, Work Float, etc.	Less number of 30-40' slips, replaced by smaller 24' slips.
36' slips on A Float= current charter boat size.	36' slips on A Floats does not follow standard—larger to smaller as you get further into harbor. Assumes charter vessels size does not increase in future.
Seawall on west side helps to maximize moorage space and alleviates channel restriction, and allows further westward expansion of main harbor area.	Seawall on west side is expensive, can't be done within budget for Phase 1.
Longer float on west side.	Sheetpile may cause some wave reflection within harbor basin
Dedicated ship lift facility	Ship Lift Dock facility is expensive.
190ft dogleg on A Float is preferred.	Phase 1 shortens A, B, C, and D float by 4 slips each.
Linear moorage on both A and B float is preferred by some.	Phase 1 also does not include West side development, HM Office/Restrooms, equipment float, airplane float.
Both gangways are 120' long. North-South oriented gangways preferred to maximize moorage on A Float.	Fuel Float relocated to west end of A float to provide easier access, but is close to entrance channel. This may cause some congestion for vessels accessing A Float during high winds.

Municipality of Skagway

PRELIMINARY OPINION OF PROBABLE CONSTRUCTION COSTS

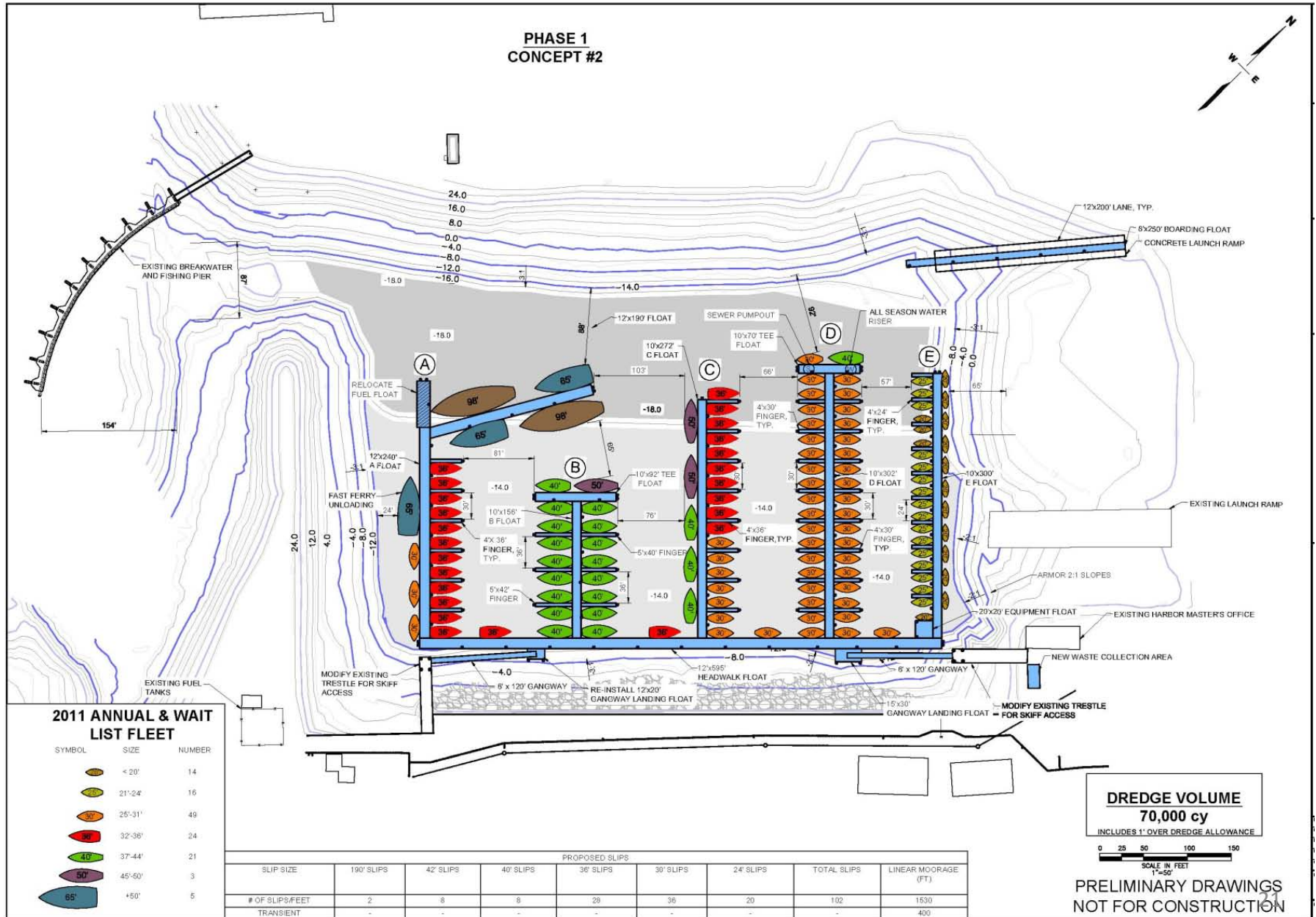
Concept #2

4/5/2011

Work Description	Price
Site Preparation	\$526,000
Sheet Pile Bulkhead	\$3,056,250
Dredging	\$5,675,000
Travel Lift Dock	\$2,000,000
A-E Floats System	\$5,718,670
Drive Down/Work Float System	\$1,502,100
West Side Fuel Float	\$688,000
Launch Ramp	\$1,000,700
Upland Ameneties	\$2,670,000
TOTAL BASE ITEM AMOUNT:	\$22,836,720
Budget-Level Estimate Contingency @ 25%:	\$5,709,180
TOTAL ESTIMATED PROJECT COST:	\$28,545,900

Phase 1—Concept No. 2

PHASE 1 CONCEPT #2





Municipality of Skagway

PRELIMINARY OPINION OF PROBABLE CONSTRUCTION COSTS

Concept #2, Phase 1

4/5/2011

Work Description	Price
Site Preparation	\$526,000
Dredging	\$2,750,000
A-E Floats System	\$5,241,280
Launch Ramp	\$998,200
Upland Ameneties	\$15,000
TOTAL BASE ITEM AMOUNT:	\$9,530,480
Budget-Level Estimate Contingency @ 25%:	\$2,382,620
TOTAL ESTIMATED PROJECT COST:	\$11,913,100



Moorage Summary

	140' or 190' slips	30' to 40' Slips	24' Slips	Linear moorage (side-tie) (ft)	Total Linear Feet of Moorage (Ft)
Existing	1	65	63	1265	5190
Concept 1 (Phase 1)	1	89	0	1350	4710
Concept 1 (Future)	1	126	0	1850	6350
Concept 2 (Phase 1)	2	80	20	1330	4745
Concept 2 (Future)	2	96	20	2035	6211

Sea-Lift Hydraulic Trailer



Sea-Lift Trailer

