

Conceptual Levee Alignment Path (Yellow Line)

1. Conceptual dimensions: Length 10,079ft (1.91mi), Footprint 82ft wide on ground, 14ft wide on top, 18ft tall.
2. On either end, the levee will terminate by merging with natural ground that rises higher.
3. It is assumed gravel and silt material for building the levee will be extracted from the surrounding land; thereby creating more fish and wildlife habitat.



Flood Solution (Levee) Data

Compiled: WCoogan, D Hanna

Release Volume:			
Suicide Release Volume 2024-08-06:	Cubic Meters		54,000,000
Suicide Release Volume 2024-08-06:	CF		1,890,000,000
Suicide Release Volume 2024-08-06:	AcFt		43,388

Levee Assumptions:			
		LF	
Length of Levee (reduce 10% for moraines)	LF	10,079	0.9
Length of Levee	mi		1.72
Height of Levee	ft		18
Height of Overflow Weir (Full Detention)	ft		15
Allowable Flow at Bankfull (before overflowing riverbanks)	CF/sec		20,000
Allowable Flow at Bankfull (before overflowing riverbanks)	AcFt/hr		1,653
Surface Area of Flood Basin at full Detention	acre		1,330
Max Detained by Basin Before Overflow	AcFt	Link Bergstrom Curve:	17,531
Time to Drain Full Detention (assuming no inflow)	Hrs		10.6

Levee/Control Structure Conceptual Pricing							
	L	W	H	CY	Price	Amt	
Fill	9,071	48	18	290275	35	\$10,159,632	
Riprap Water Side	9,071	1.5	18	9071	89	\$807,328	
Fabric Full Wrap (sq yds)	9,071	139	sy>	139695	9	\$1,257,254	
	<u>Qty</u>						
Clear Grub	19	acre			20000	\$374,839	
Control Outlet-Design	1	ea			200000	\$200,000	
---48" Piles	12	ea			180000	\$2,160,000	
---StrucConc 15W x18H x 225L	2250	cy			2500	\$5,625,000	
---SheetPiling 400L x 80deep	32000	sf			100	\$3,200,000	
Surveying (Design&Const)	1500	Hrs			200	\$300,000	
SWPP & Environmental	1	ea			125000	\$125,000	
Design/Inspect	1	ea			2000000	\$2,000,000	
Geotech/Mapping	1	ea			200000	\$200,000	
Contingencies	\$26,409,053	Subtotal			15%	\$3,961,358	
Levee Cost--Total Estimated							\$30,370,411

Feasibility Perspective:			
Residents in Mendenhall Valley (Census)			10,000
Households in Mendenhall Valley (Assessor)			4,700
Assessed Value of Households (Assessor)			\$1,470,000,000
Estimated Market Value Utils,Roads,Schools,Churches,Airport,SewerPlant,Etc			\$1,200,000,000
Est ReplcmtCostAllProperty(Upper Limit Estimate)		Factor	1.25
Levee Cost--As Percent of Replacement Value of All Prop			0.91%

Mendenhall Lake Levee. A Community-Based Permanent Solution to Glacial Outburst Flooding in Juneau. p 3/3

Mendenhall Lake w/Levee Storage Curve					Compiled: Frank Bergstrom
Note: determined by map takeoff of aerial photography on 'onX' software					
Lake					
	Elev	Area	Storage	CumStorg	17530.9 AcFt Storage at 15ft
	ft	Ac	AcFt	AcFt	
Normal Elev->	60	984.1	0.0	0.0	
	61	1007.2	1007.2	1007.2	
	62	1030.3	1030.3	2037.5	
	63	1053.4	1053.4	3090.8	
	64	1076.4	1076.4	4167.3	
	65	1099.5	1099.5	5266.8	
	66	1122.6	1122.6	6389.4	
	67	1145.7	1145.7	7535.0	
	68	1168.7	1168.7	8703.7	
	69	1191.8	1191.8	9895.5	
	70	1214.9	1214.9	11110.4	
	71	1238.0	1238.0	12348.4	
	72	1261.0	1261.0	13609.4	
	73	1284.1	1284.1	14893.5	
	74	1307.2	1307.2	16200.7	
+15ft Elev->	75	1330.3	1330.3	17530.9	
(Full	76	1353.3	1353.3	18884.3	
Detainment)	77	1376.4	1376.4	20260.7	
	78	1399.5	1399.5	21660.1	
	79	1422.6	1422.6	23082.7	
	80	1445.6	1445.6	24528.3	
	81	1468.7	1468.7	25997.0	
	82	1491.8	1491.8	27488.8	
	83	1514.9	1514.9	29003.6	
	84	1537.9	1537.9	30541.6	
	85	1561.0	1561.0	32102.6	

