



City of Homer

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Public Works

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Memorandum 20-073

TO: Marvin Yoder, City Manager
FROM: Carey Meyer, City Engineer
DATE: May 28, 2020
SUBJECT: Seawall Alternatives

Seawall maintenance costs have been increasing. The special service district mil rate that funds this effort will need to be increased. The wall was battered this winter – significant damage threatens the wall’s integrity. 20 of the 85 wood panels needs significant rebuild (cost approaching \$100,000). In addition, sinkholes behind the wall are more frequent, indicating failure of the fiberglass sheet piling along the toe.

Damage to the wall is a direct result of erosion at the bottom of the wall. Erosion of the toe exposes the fiberglass sheet pile (below the protective timber face). This makes it easier for wave forces to get behind the timber panels, breaking them and damaging the sheet pile. Holes in the sheet pile at the bottom of the wall allow material from behind the wall to escape. The wall is structurally supported by tie-rodged concrete blocks buried behind the wall. Protection the toe of the wall from erosion will significantly reduce maintenance costs and extend wall life.

This year’s maintenance budget has been spent (approximately \$45,000). This will get us through the summer, but another winter like the last one, I fear, may very well result in complete wall failure.

The City has been looking at workable, affordable solutions. Protecting the toe of the wall with armor rock seems to be the most practical cost effective solution. Public Works has prepared a map, conceptual cost estimate, and spreadsheets (all attached) to help the Council and property owners evaluate what property is benefitted, how improvement/maintenance districts might be established, calculating potential assessments under each potential assessment method (for both construction of the armor rock improvements and the special service district funding long term maintenance).

Currently, the most realistic approach seems to be the creation of a special service district (SAD) for the cost of placement of the armor rock (administered by the City, assessment methods not yet determined); and a special service district for long-term maintenance costs (collected by the Borough similar to the existing SDD, mil rate not yet determined).

Financing for the armor rock placement has also not been determined; options being considered include direct City financing and use of low interest ADEC/EPA revolving loan funds.

The following is a brief introduction to the maps, cost estimates, and spreadsheets attached:

The **map** shows historical erosion, projected erosion, lots potentially impacted by erosion as defined in the Coastal Erosion Study (updated in 2006). The map shows potential expanded special assessment/service district boundaries. The map shows more lots than those immediately behind the wall that benefit from the wall (i.e. - loss of Krueth Way eliminates road access and utilities serving several lots). Lots shaded beige are properties that currently contribute to seawall maintenance; lots shaded blue are properties that one could argue also benefit from the existence of the seawall.

Conceptual Cost Estimate shows the estimated cost of placing armor rock (as defined in the HDR memo) that evaluated alternative methods of protecting the toe of the wall from erosion. This cost reflects discussions with local contractors (that complete this type of work using rock produced from across the Bay).

Spreadsheet #1 Seawall SAD Analysis – Current District Members Only reflects physical characteristics of lots that currently remain in the original district; and potential assessment costs (under several assessment methodologies) for a \$1.47M armor rock improvement.

Spreadsheet #2 Seawall Special Assessment District (SAD) – Armored Toe Improvement reflects the physical characteristics of each of the lots potentially benefitted by the seawall; and estimates assessments (for a \$1.47M project) under several different assessment methods.

Spreadsheet #3 Seawall Overall Assessment Analysis reflects the KPB tax value of each of the lots potentially benefitted by seawall (**blue** columns), and calculates in the **orange** column, 1) total annual assessments (for both rock placement and maintenance) if only those lots that are located directly behind the wall are included (base on equal share assessments for rock placement), and 2) the same for an expanded district (**green** columns).

#1 SEAWALL SPECIAL ASSESSMENT DISTRICT (SAD) ANALYSIS - Current District Members Only

EST. ARMOR ROCK IMPROVEMENT COST = \$1,474,824

PARCEL ID	KPB PARCEL_ID	LOT ADDRESS	OWNER	LOT CHARACTERISTICS							ALTERNATIVE ASSESSMENTS METHODS				
				DIRECT WALL FRONTAGE (LF)	KPB LAND VALUE	KPB STRUCTURE VALUE	TOTAL ASSESSED VALUE	TAXABLE VALUE	LOT AREA (SF)	BENEFITTED LOT AREA (SF)	DIRECT WALL FRONTAGE	KPB PROPRTY VALUE	LOT AREA	BENIFITTED LOT AREA	EQUAL SHARE
A	17718019	829 OCEAN DRIVE LOOP	NEWBY REVOCABLE TRUST	200	\$ 127,200	\$ 325,500	\$ 452,700	\$ 102,700	50,682	39,500	\$180,407	\$185,222	\$157,056.65	\$233,891	\$105,344.57
B	17718016	869 OCEAN DRIVE LOOP	SZAJKOWSKI JOHN J & JANET L	100	\$ 120,900	\$ 366,800	\$ 487,700	\$ 137,700	25,329	18,719	\$90,203	\$199,543	\$78,491.14	\$110,841	\$105,344.57
			HOMER CITY OF	30	TBD		TBD	TBD	TBD	TBD	\$27,061	TBD	TBD	TBD	TBD
C	17717701	895 OCEAN DRIVE LOOP	HUEPER MARILYN	110	\$ 117,000	\$ 461,500	\$ 578,500	\$ 528,500	25,679	17,122	\$99,224	\$236,694	\$79,575.74	\$101,384	\$105,345
D	17717702	917 OCEAN DRIVE LOOP	NORMAN W SCHUMACHER TRUST	115	\$ 64,600	\$ 118,900	\$ 183,500	\$ 183,500	26,568	10,582	\$103,734	\$75,079	\$82,330.63	\$62,659	\$105,345
E	17717703	939 OCEAN DRIVE LOOP	IRWIN PATRICK L	100	\$ 53,700	\$ 71,900	\$ 125,600	\$ 75,600	27,411	7,209	\$90,203	\$51,389	\$84,942.98	\$42,687	\$105,345
F	17717704	957 OCEAN DRIVE LOOP	PFEFFER MARK E REVOCABLE TRUST	100	\$ 44,900	\$ 1,500	\$ 46,400	\$ 46,400	28,247	6,128	\$90,203	\$18,985	\$87,533.63	\$36,286	\$105,345
G	17717705	979 OCEAN DRIVE LOOP	ABBOTT FINDLAY	100	\$ 31,900	\$ 1,500	\$ 33,400	\$ -	29,075	5,310	\$90,203	\$13,666	\$90,099.49	\$31,442	\$105,345
H	17717706	997 OCEAN DRIVE LOOP	HOMER CITY OF	100	\$ 2,100	\$ -	\$ 2,100	\$ -	29,977	3,414	\$90,203.30	\$859	\$92,894.66	\$20,215	\$105,345
I	17717707	1017 OCEAN DRIVE LOOP	HOMER CITY OF	100	\$ 2,600	\$ -	\$ 2,600	\$ -	42,759	5,500	\$90,203.30	\$1,064	\$132,504.35	\$32,567	\$105,345
			HOMER CITY OF	60	TBD		TBD	TBD	TBD	TBD	\$54,121.98	TBD	TBD	TBD	TBD
J	17717904	3102 LAKE ST	JUMP CHARLENE A	100	\$ 106,000	\$ 148,300	\$ 254,300	\$ -	30,555	12,735	\$90,203.30	\$104,047	\$94,685.81	\$75,408	\$105,345
K	17717903	1065 KRUETH WAY	GOODE LARRY JACK LIVING TRUST	140	\$ 111,500	\$ 405,100	\$ 516,600	\$ 516,600	37,135	13,948	\$126,284.62	\$211,367	\$115,076.33	\$82,590	\$105,345
L	17923036	1103 KRUETH WAY	KING LAWRENCE A	130	\$ 96,700	\$ 320,700	\$ 417,400	\$ 417,400	56,319	56,319	\$117,264.29	\$170,779	\$174,524.95	\$333,482	\$105,345
M	17923026	1121 SEA BREEZE CT	FRANKLIN CAMARRON JAY	75	\$ 73,200	\$ 181,400	\$ 254,600	\$ 254,600	17,180	15,890	\$67,652.48	\$104,170	\$53,238.49	\$94,089	\$105,345
N	17923028	1137 SEA BREEZE CT	LAWER DAVID A	75	\$ 94,000	\$ 155,200	\$ 249,200	\$ 249,200	49,008	36,695	\$67,652.48	\$101,960	\$151,869.15	\$217,282	\$105,345
				1,635	\$ 1,046,300	\$ 2,558,300	\$ 3,604,600	\$ 2,512,200	475,924	249,071	\$ 1,474,824	\$ 1,474,824	\$ 1,474,824	\$ 1,474,824	\$ 1,474,824

#2 SEAWALL SPECIAL ASSESSMENT DISTRICT (SAD) ANALYSIS - ARMORED TOE IMPROVEMENT

EST. ARMOR ROCK IMPROVEMENT COST = \$1,474,824

PARCEL ID	KPB PARCEL_ID	LOT ADDRESS	OWNER	LOT CHARACTERISTICS								ALTERNATIVE ASSESSMENTS METHODS					
				DIRECT WALL FRONTAGE (LF)	KPB LAND VALUE	KPB STRUCTURE VALUE	TOTAL ASSESSED VALUE	TAXABLE VALUE	LOT AREA (SF)	BENEFITTED LOT AREA (SF)	% TIERED BENEFIT	DIRECT WALL FRONTAGE	KPB PROPRTY VALUE	LOT AREA	BENEFITTED LOT AREA	TIERED BENEFIT	EQUAL SHARE
A	17718019	829 OCEAN DRIVE LOOP	NEWBY REVOCABLE TRUST	200	\$ 127,200	\$ 325,500	\$ 452,700	\$ 102,700	50,682	39,500	100	\$190,916	\$107,185	\$102,738	\$122,101	\$71,943	\$56,724
B	17718016	869 OCEAN DRIVE LOOP	SZAJKOWSKI JOHN J & JANET L	100	\$ 120,900	\$ 366,800	\$ 487,700	\$ 137,700	25,329	18,719	100	\$95,458	\$115,471	\$51,345	\$57,864	\$71,943	\$56,724
C	17717701	895 OCEAN DRIVE LOOP	HUEPER MARILYN	110	\$ 117,000	\$ 461,500	\$ 578,500	\$ 528,500	25,679	17,122	100	\$105,004	\$136,970	\$52,054	\$52,927	\$71,943	\$56,724
D	17717702	917 OCEAN DRIVE LOOP	NORMAN W SCHUMACHER TRUST	115	\$ 64,600	\$ 118,900	\$ 183,500	\$ 183,500	26,568	10,582	100	\$109,777	\$43,447	\$53,856	\$32,711	\$71,943	\$56,724
E	17717703	939 OCEAN DRIVE LOOP	IRWIN PATRICK L	100	\$ 53,700	\$ 71,900	\$ 125,600	\$ 75,600	27,411	7,209	100	\$95,458	\$29,738	\$55,565	\$22,284	\$71,943	\$56,724
F	17717704	957 OCEAN DRIVE LOOP	PFEFFER MARK E REVOCABLE TRUST	100	\$ 44,900	\$ 1,500	\$ 46,400	\$ 46,400	28,247	6,128	100	\$95,458	\$10,986	\$57,260	\$18,943	\$71,943	\$56,724
G	17717705	979 OCEAN DRIVE LOOP	ABBOTT FINDLAY	100	\$ 31,900	\$ 1,500	\$ 33,400	\$ -	29,075	5,310	100	\$95,458	\$7,908	\$58,938	\$16,414	\$71,943	\$56,724
H	17717706	997 OCEAN DRIVE LOOP	HOMER CITY OF	100	\$ 2,100	\$ -	\$ 2,100	\$ -	29,977	3,414	100	\$95,458	\$497	\$60,767	\$10,553	\$71,943	\$56,724
I	17717707	1017 OCEAN DRIVE LOOP	HOMER CITY OF	100	\$ 2,600	\$ -	\$ 2,600	\$ -	42,759	5,500	100	\$95,458	\$616	\$86,677	\$17,001	\$71,943	\$56,724
J	17717904	3102 LAKE ST	JUMP CHARLENE A	100	\$ 106,000	\$ 148,300	\$ 254,300	\$ -	30,555	12,735	100	\$95,458	\$60,210	\$61,939	\$39,366	\$71,943	\$56,724
K	17717903	1065 KRUETH WAY	GOODE LARRY JACK LIVING TRUST	140	\$ 111,500	\$ 405,100	\$ 516,600	\$ 516,600	37,135	13,948	100	\$133,641	\$122,314	\$75,277	\$43,116	\$71,943	\$56,724
L	17923036	1103 KRUETH WAY	KING LAWRENCE A	130	\$ 96,700	\$ 320,700	\$ 417,400	\$ 417,400	56,319	56,319	100	\$124,095	\$98,827	\$114,165	\$174,091	\$71,943	\$56,724
M	17923026	1121 SEA BREEZE CT	FRANKLIN CAMARRON JAY	75	\$ 73,200	\$ 181,400	\$ 254,600	\$ 254,600	17,180	15,890	100	\$71,593	\$60,281	\$34,826	\$49,119	\$71,943	\$56,724
N	17923028	1137 SEA BREEZE CT	LAWER DAVID A	75	\$ 94,000	\$ 155,200	\$ 249,200	\$ 249,200	49,008	36,695	100	\$71,593	\$59,002	\$99,345	\$113,430	\$71,943	\$56,724
O	17923029	1143 SEA BREEZE CT	LAWER DAVID A & BETSY		\$ 99,100	\$ 452,700	\$ 551,800	\$ 551,800	46,649	28,273	50		\$130,648	\$94,563	\$87,397	\$35,971	\$56,724
P	17923030		LAWER CHILDRENS TRUST		\$ 37,600	\$ -	\$ 37,600	\$ 37,600	13,510	13,510	50		\$8,902	\$27,386	\$41,762	\$35,971	\$56,724
Q	17923033	1136 SEA BREEZE CT	LAWER SARAH 2012 TRUST		\$ 62,800	\$ 145,300	\$ 208,100	\$ 208,100	25,035	25,035	50		\$49,271	\$50,749	\$77,387	\$35,971	\$56,724
R	17923027	1120 SEA BREEZE CT	LAWER SARAH 2012 TRUST		\$ 31,300	\$ 1,500	\$ 32,800	\$ 32,800	15,726	15,726	50		\$7,766	\$31,878	\$48,612	\$35,971	\$56,724
S	17717807		SCHEFFEL TIM		\$ 42,400	\$ -	\$ 42,400	\$ 42,400	21,504	21,504	50		\$10,039	\$43,591	\$66,472	\$35,971	\$56,724
T	17717808	1054 KRUETH WAY	MATTHEWS KELLY E		\$ 38,200	\$ 455,100	\$ 493,300	\$ 443,300	14,294	14,294	50		\$116,797	\$28,976	\$44,185	\$35,971	\$56,724
U	17717614	3119 LAKE ST	TALBOTT JOSEPH C		\$ 58,200	\$ 210,700	\$ 268,900	\$ -	15,539	15,539	50		\$63,667	\$31,499	\$48,034	\$35,971	\$56,724
V	17717615	1002 OCEAN DRIVE LOOP	JAMES HARRY W		\$ 59,100	\$ 223,700	\$ 282,800	\$ -	16,096	16,096	50		\$66,958	\$32,628	\$49,755	\$35,971	\$56,724
W	17717616	984 OCEAN DRIVE LOOP	SOTELO ED		\$ 46,300	\$ -	\$ 46,300	\$ 46,300	30,038	30,038	50		\$10,962	\$60,891	\$92,852	\$35,971	\$56,724
X	17717610	964 OCEAN DRIVE LOOP	O'CONNOR ABIGAIL		\$ 37,900	\$ 19,100	\$ 57,000	\$ 57,000	13,942	13,942	50		\$13,496	\$28,262	\$43,097	\$35,971	\$56,724
Y	17717611	946 OCEAN DRIVE LOOP	HAAS ANDREW H		\$ 37,900	\$ 166,900	\$ 204,800	\$ 154,800	13,942	13,942	50		\$48,490	\$28,262	\$43,097	\$35,971	\$56,724
Z	17718013	811 OCEAN DRIVE LOOP	RENNER MARTIN		\$ 117,300	\$ 281,300	\$ 398,600	\$ 338,600	25,349	20,139	100		\$94,375	\$51,385	\$62,253	\$71,943	\$56,724
				1,545	\$ 1,597,100	\$ 4,233,300	\$ 5,830,400	\$ 4,086,300	702,199	477,109		\$ 1,474,824	\$ 1,474,824	\$ 1,474,824	\$ 1,474,824	\$ 1,474,824	\$ 1,474,824

#3 SEAWALL OVERALL ASSESSMENT ANALYSIS

EST. ARMOR ROCK IMPROVEMENT COST = \$1,474,824

PARCEL ID	KPB PARCEL ID	LOT ADDRESS	OWNER	LOT CHARACTERISTICS				ASSESSMENT SCENARIOS - Equal Share Assessment							
				KPB LAND VALUE	KPB STRUCTURE VALUE	TOTAL ASSESSED VALUE	TAXABLE	CURRENT DISTRICT BOUNDARY				POTENTIAL EXPANDED DISTRICT BOUNDARY			
								TOTALSAD EQUAL SHARE ASSESSMENT (ARMOR ROCK TOE)	ANNUALSAD EQUAL SHARE ASSESSMENT (ARMOR ROCK TOE) 30 YRS @ 2%	ANNUALSSD ASSESSMENT (20 MIL) FOR MAINTENANCE	TOTALANNUAL ASSESSMENT (ROCK + MAINTENANCE)	TOTALSAD EQUAL SHARE ASSESSMENT (ARMOR ROCK TOE)	ANNUALSAD EQUAL SHARE ASSESSMENT (ARMOR ROCK TOE) 30 YRS @ 2%	ANNUALSSD ASSESSMENT (6 MIL) FOR MAINTENANCE	TOTALANNUAL ASSESSMENT (CONST + MAINTENANCE)
A	17718019	829 OCEAN DRIVE LOOP	NEWBY REVOCABLE TRUST	\$ 127,200	\$ 325,500	\$ 452,700	\$ 102,700	\$105,345	\$4,704	\$2,054	\$6,758	\$56,724	\$2,533	\$616	\$3,149
B	17718016	869 OCEAN DRIVE LOOP	SZAJKOWSKI JOHN J & JANET L	\$ 120,900	\$ 366,800	\$ 487,700	\$ 137,700	\$105,344.57	\$4,704	\$2,754	\$7,458	\$56,724	\$2,533	\$826	\$3,359
C	17717701	895 OCEAN DRIVE LOOP	HUEPER MARILYN	\$ 117,000	\$ 461,500	\$ 578,500	\$ 528,500	\$105,344.57	\$4,704	\$10,570	\$15,274	\$56,724	\$2,533	\$3,171	\$5,704
D	17717702	917 OCEAN DRIVE LOOP	2016 NORMAN W SCHUMACHER REVOCABLE TRUST	\$ 64,600	\$ 118,900	\$ 183,500	\$ 183,500	\$105,344.57	\$4,704	\$3,670	\$8,374	\$56,724	\$2,533	\$1,101	\$3,634
E	17717703	939 OCEAN DRIVE LOOP	IRWIN PATRICK L	\$ 53,700	\$ 71,900	\$ 125,600	\$ 75,600	\$105,344.57	\$4,704	\$1,512	\$6,216	\$56,724	\$2,533	\$454	\$2,986
F	17717704	957 OCEAN DRIVE LOOP	PFEFFER MARK E REVOCABLE TRUST	\$ 44,900	\$ 1,500	\$ 46,400	\$ 46,400	\$105,344.57	\$4,704	\$928	\$5,632	\$56,724	\$2,533	\$278	\$2,811
G	17717705	979 OCEAN DRIVE LOOP	ABBOTT FINDLAY	\$ 31,900	\$ 1,500	\$ 33,400	\$ -	\$105,345	\$4,704	\$0	\$4,704	\$56,724	\$2,533	\$0	\$2,533
H	17717706	997 OCEAN DRIVE LOOP	HOMER CITY OF	\$ 2,100	\$ -	\$ 2,100	\$ -	\$105,345	\$4,704	\$0	\$4,704	\$56,724	\$2,533	\$0	\$2,533
I	17717707	1017 OCEAN DRIVE LOOP	HOMER CITY OF	\$ 2,600	\$ -	\$ 2,600	\$ -	\$105,345	\$4,704	\$0	\$4,704	\$56,724	\$2,533	\$0	\$2,533
J	17717904	3102 LAKE ST	JUMP CHARLENE A	\$ 106,000	\$ 148,300	\$ 254,300	\$ -	\$105,345	\$4,704	\$0	\$4,704	\$56,724	\$2,533	\$0	\$2,533
K	17717903	1065 KRUETH WAY	GOODE LARRY JACK LIVING TRUST	\$ 111,500	\$ 405,100	\$ 516,600	\$ 516,600	\$105,345	\$4,704	\$10,332	\$15,036	\$56,724	\$2,533	\$3,100	\$5,632
L	17923036	1103 KRUETH WAY	KING LAWRENCE A	\$ 96,700	\$ 320,700	\$ 417,400	\$ 417,400	\$105,345	\$4,704	\$8,348	\$13,052	\$56,724	\$2,533	\$2,504	\$5,037
M	17923026	1121 SEA BREEZE CT	FRANKLIN CAMARRON JAY	\$ 73,200	\$ 181,400	\$ 254,600	\$ 254,600	\$105,345	\$4,704	\$5,092	\$9,796	\$56,724	\$2,533	\$1,528	\$4,060
N	17923028	1137 SEA BREEZE CT	LAWER DAVID A	\$ 94,000	\$ 155,200	\$ 249,200	\$ 249,200	\$105,345	\$4,704	\$4,984	\$9,688	\$56,724	\$2,533	\$1,495	\$4,028
O	17923029	1143 SEA BREEZE CT	LAWER DAVID A & BETSY	\$ 99,100	\$ 452,700	\$ 551,800	\$ 551,800					\$56,724	\$2,533	\$3,311	\$5,844
P	17923030		CUDDY JANE TRUSTEE LAWER CHILDRENS TRUST	\$ 37,600	\$ -	\$ 37,600	\$ 37,600					\$56,724	\$2,533	\$226	\$2,758
Q	17923033	1136 SEA BREEZE CT	LAWER SARAH 2012 IRREVOCABLE TRUST	\$ 62,800	\$ 145,300	\$ 208,100	\$ 208,100					\$56,724	\$2,533	\$1,249	\$3,781
R	17923027	1120 SEA BREEZE CT	LAWER SARAH 2012 IRREVOCABLE TRUST	\$ 31,300	\$ 1,500	\$ 32,800	\$ 32,800					\$56,724	\$2,533	\$197	\$2,730
S	17717807		SCHEFFEL TIM	\$ 42,400	\$ -	\$ 42,400	\$ 42,400					\$56,724	\$2,533	\$254	\$2,787
T	17717808	1054 KRUETH WAY	MATTHEWS KELLY E	\$ 38,200	\$ 455,100	\$ 493,300	\$ 443,300					\$56,724	\$2,533	\$2,660	\$5,193
U	17717614	3119 LAKE ST	TALBOTT JOSEPH C	\$ 58,200	\$ 210,700	\$ 268,900	\$ -					\$56,724	\$2,533	\$0	\$2,533
V	17717615	1002 OCEAN DRIVE LOOP	JAMES HARRY W	\$ 59,100	\$ 223,700	\$ 282,800	\$ -					\$56,724	\$2,533	\$0	\$2,533
W	17717616	984 OCEAN DRIVE LOOP	SOTELO ED	\$ 46,300	\$ -	\$ 46,300	\$ 46,300					\$56,724	\$2,533	\$278	\$2,811
X	17717610	964 OCEAN DRIVE LOOP	O'CONNOR ABIGAIL	\$ 37,900	\$ 19,100	\$ 57,000	\$ 57,000					\$56,724	\$2,533	\$342	\$2,875
Y	17717611	946 OCEAN DRIVE LOOP	HAAS ANDREW H	\$ 37,900	\$ 166,900	\$ 204,800	\$ 154,800					\$56,724	\$2,533	\$929	\$3,462
Z	17718013	811 OCEAN DRIVE LOOP	RENNER MARTIN	\$ 117,300	\$ 281,300	\$ 398,600	\$ 338,600					\$56,724	\$2,533	\$2,032	\$4,564
				\$ 1,597,100	\$ 4,233,300	\$ 5,830,400	\$ 4,086,300	\$1,474,824	\$65,851	\$50,244		\$1,418,100	\$65,851	\$26,549	

Seawall - Armor Rock Toe Protection

Conceptual Cost Estimate

5/28/2020

Assumptions:

Wall length = 1700 LF

Filter rock (type 2) = 75 lbs to 300 lbs (200 lb average)

Armor Stone (type 3) = 750 lb to 2250 lb (1500 lb average)

Armor Stone (type 4) = 1000 lb to 3000 lb (2000 lb average)

25% of armor rock is type 3; 75% of armor rock is type 4

Item of Work	Quantity	Quantity Unit	Unit Price	Item Cost
Mobilization/Demobilization	1	LS	\$20,000	\$20,000
Geotextile Fabric	4,722	SY	\$6	\$28,333
F&I Filter Stone (Type 2)	7,064	Tons	\$70	\$494,511
F&I Primary Armor Stone (Type 3)	1,704	Tons	\$85	\$144,821
F&I Primary Armor Stone (Type 4)	6,609	Tons	\$105	\$693,902

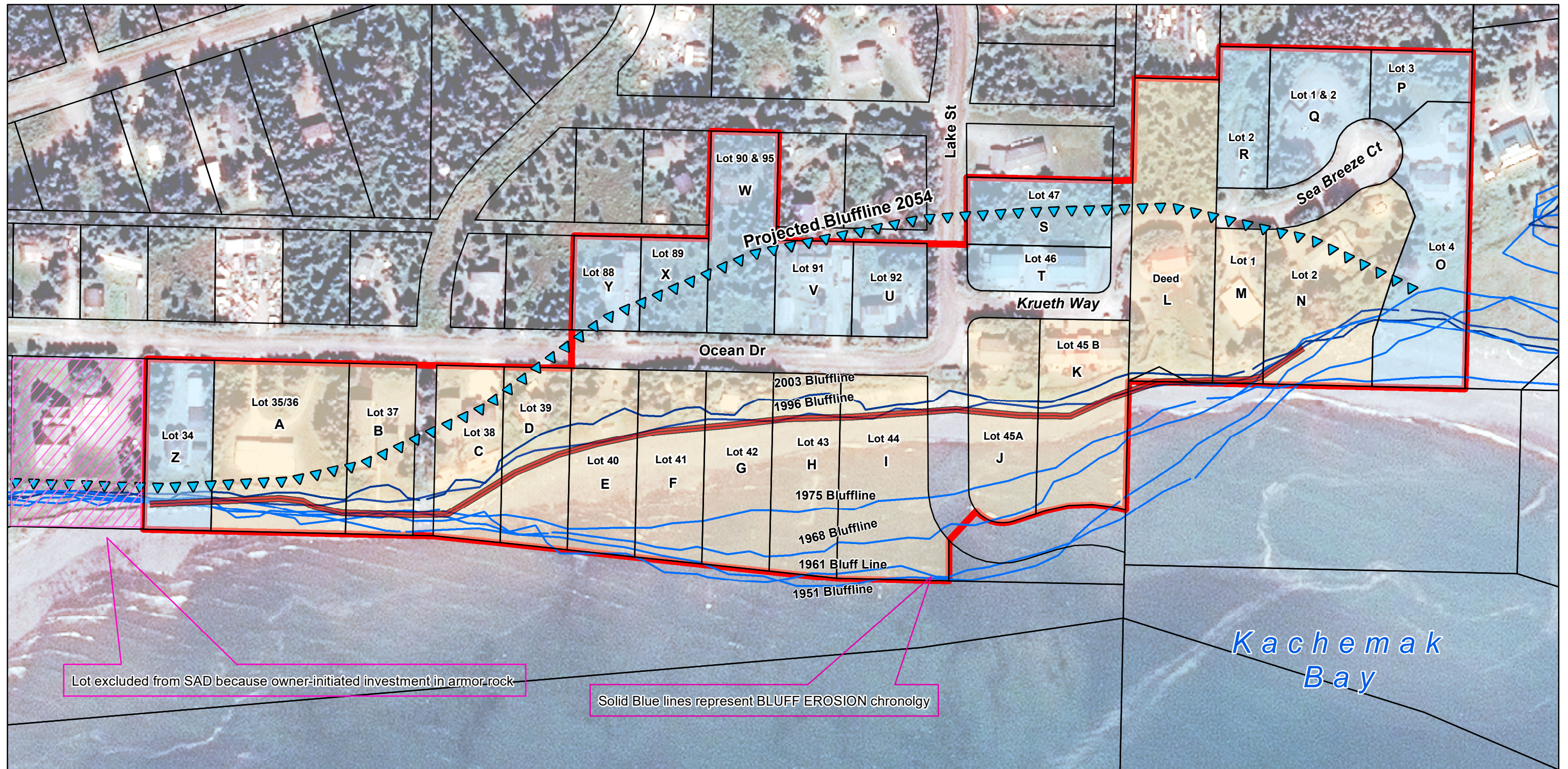
Total Construction **\$1,381,568**

Design \$69,078

Permitting \$10,362

Inspection \$13,816

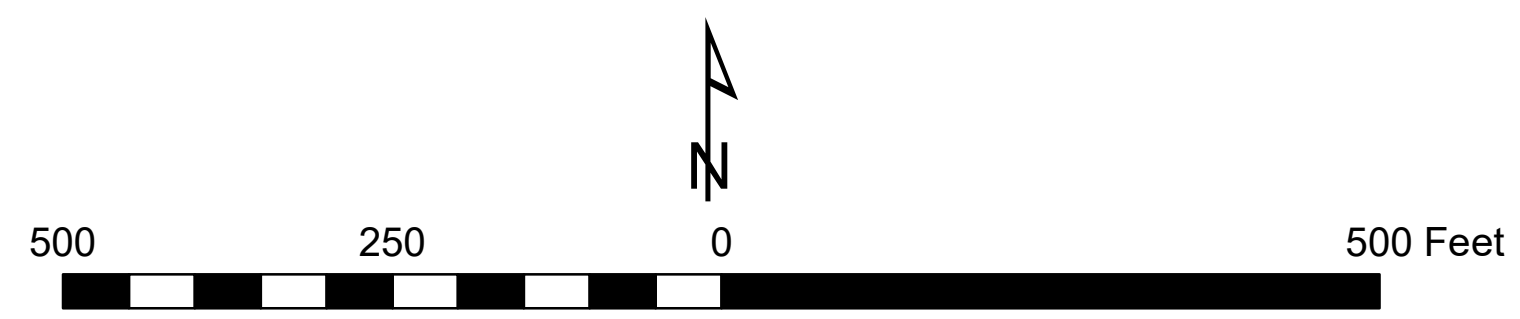
Total Project Cost **\$1,474,824**



POTENTIAL SEAWALL SPECIAL ASSESSMENT/SERVICE DISTRICT MAP

Legend

- ▲▲▲ Projected Bluffline 2054
- Seawall - Sheet Pile
- Original Construction LID
- Other Parcels Benefiting
- Potential SAD District Boundary



DEPT OF PUBLIC WORKS
March 11, 2020

Disclaimer:
It is expressly understood the City of Homer, its council, board, departments, employees and agents are not responsible for any errors or omissions contained herein, or deductions, interpretations or conclusions drawn therefrom.