

## 26 Cable Bay

### Description and geomorphology

Cable Bay is located at the southern end of Doubtless Bay, approximately 23 km east of Kaitaia.

The site is approximately 1 km long north facing embayment situated between Te Kuihi Point in the west and a rock reef in the east. The rock headland and reef are relatively erosion resistant basalt marine lavas known as Tangihua Volcanics. An area of basalt nearshore reef also exists near the western end of the site.

Opoi Stream mouth is located approximately 200 m from the eastern extent of the site and has a localised effect on the shoreline position. The stream meanders east along the backshore for approximately 80 m forming a small lagoon before cutting through the beach. There is erosion along the backshore edge of the stream.

The site morphology changes at the location of the nearshore reef situated approximately 200 m west of the Opoi Stream mouth (cell 26D). The backshore rises in elevation up to RL 8 m and comprises weakly consolidated colluvium material. The basalt reef extends through the beach up to the backshore area under the colluvium material. The rock reef has a width of approximately 200 m (Photograph C).

The shoreline west of the rock reef comprises relatively low lying unconsolidated beach sand, which extends to Owhetu Stream. Owhetu Stream mouth is located at the western end of the site and has formed a relatively wide intertidal area.

The site has a relatively steep sandy beach comprising medium to coarse sand with a shell component. The beach has a berm width of approximately 5 – 15 m above the high tide line. The berm width is widest at the eastern end.

### Local considerations

There is an erosion protection structure located on the western bank of Owhetu Stream. The structure is a rock revetment which is fronting a private dwelling. There are two streams that enter the site and influence the shoreline



*Site Photograph A (looking east)*



*Site Photograph B (Opoi Stream mouth)*



*Site Photograph C (reef at western end)*

position. There is a greater level of uncertainty in these areas because fluvial processes also effect shoreline movement. The resulting hazard zones are dashed in these areas to reflect this uncertainty.

### Coastal Erosion Hazard Assessment

The site is split into six cells based on differences in geomorphology, exposure and dune height. Adopted component values are presented within Table 26-1.

Histograms of individual components and resultant CEHZ distances using a Monte Carlo technique are shown in Figure 26-1 to Figure 26-4.

Coastal Erosion Hazard Zone widths are presented within Table 26-2 to 26-4 and Figure 26-5. CEHZ's have been mapped in agreement

with the calculated values, although lines have been dashed around stream entrances to reflect the increased uncertainty due to fluvial processes.

Figure 26-6 shows the available historic shorelines for Cable Bay.

**Table 26-1 Component values for Erosion Hazard Assessment**

Site		26. Cable Bay					
Cell		26A	26B	26C	26D	26E	26F
Cell centre (NZTM)	E	1643637	1643669	1643755	1643955	1644158	1644339
	N	6127945	6127954	6128043	6127957	6127912	6127888
Chainage, m (from N/W)		0-95	95-220	220-340	340-600	600-760	760-980
Morphology		Dune	Dune	Dune	Weakly consolidated colluvium	Dune	Dune
Short-term (m)	Min	5	5	5	0	10	10
	Mode	10	10	10	0	15	15
	Max	15	15	15	0	20	20
Dune/Cliff elevation (m above toe or scarp)	Min	1.0	1.1	1.8	5.2	3.6	2.6
	Mode	1.1	1.7	3.4	6.7	4.6	3.2
	Max	1.2	3.6	4.4	7.5	6.0	4.6
Stable angle (deg)	Min	30	30	30	26.6	30	30
	Mode	32	32	32	30.2	32	32
	Max	34	34	34	33.7	34	34
Long-term (m) -ve erosion +ve accretion	Min	0.1	0.1	0	-0.02	0.05	-0.05
	Mode	0	0	-0.05	-0.05	0	-0.1
	Max	-0.05	-0.05	-0.1	-0.07	-0.05	-0.15
Closure slope (beaches)	Min	0.05	0.05	0.05	0.75	0.05	0.05
	Mode	0.047	0.047	0.047	0.5	0.045	0.045
	Max	0.026	0.026	0.026	0.25	0.025	0.025
SLR 2080 (m)	RCP 2.6	0.16	0.16	0.16	0.16	0.16	0.16
	RCP 4.5	0.21	0.21	0.21	0.21	0.21	0.21
	RCP 8.5M	0.33	0.33	0.33	0.33	0.33	0.33
	RCP 8.5H+	0.51	0.51	0.51	0.51	0.51	0.51
SLR 2130 (m)	RCP 2.6	0.28	0.28	0.28	0.28	0.28	0.28
	RCP 4.5	0.42	0.42	0.42	0.42	0.42	0.42
	RCP 8.5M	0.85	0.85	0.85	0.85	0.85	0.85
	RCP 8.5H+	1.17	1.17	1.17	1.17	1.17	1.17

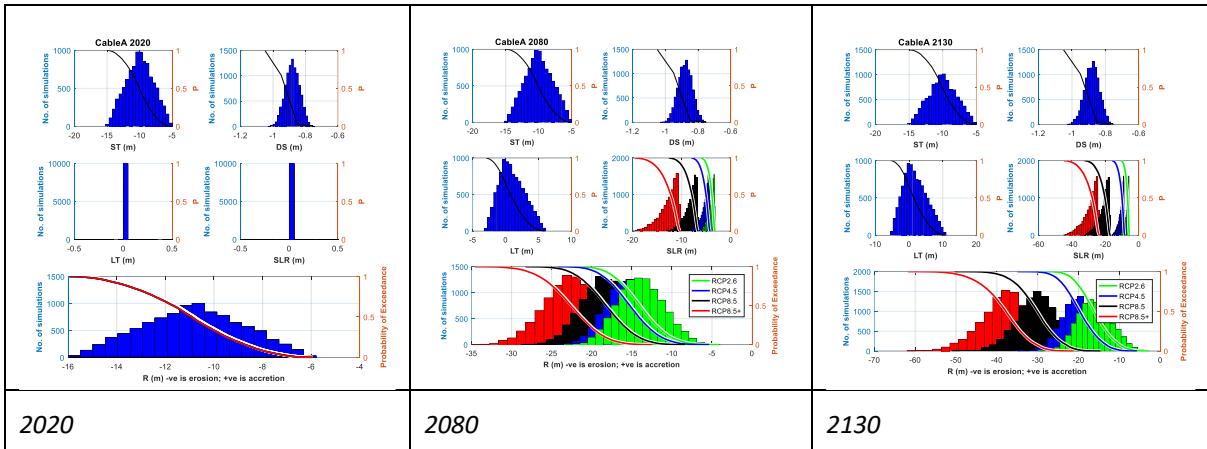


Figure 26-1 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 26A

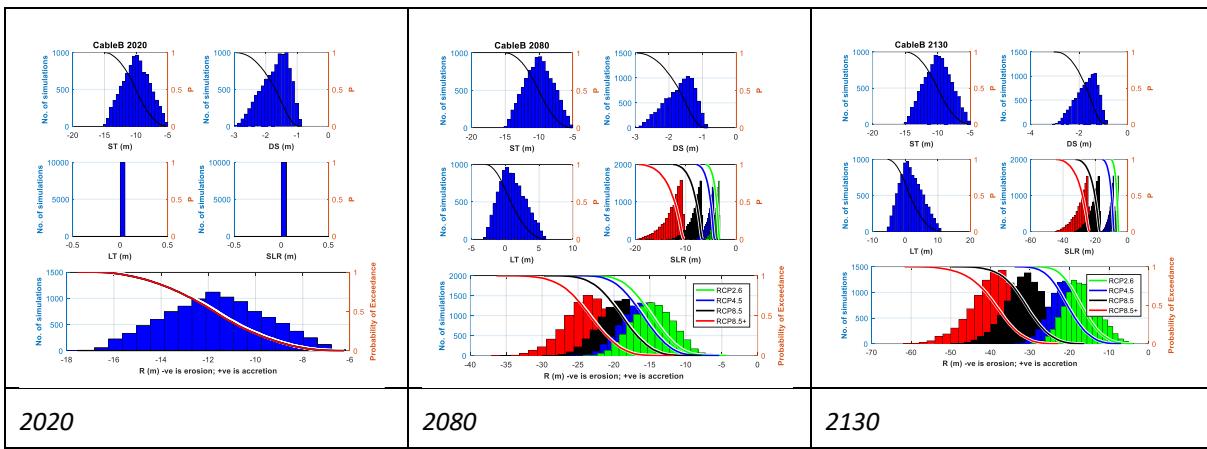


Figure 26-2 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 26B

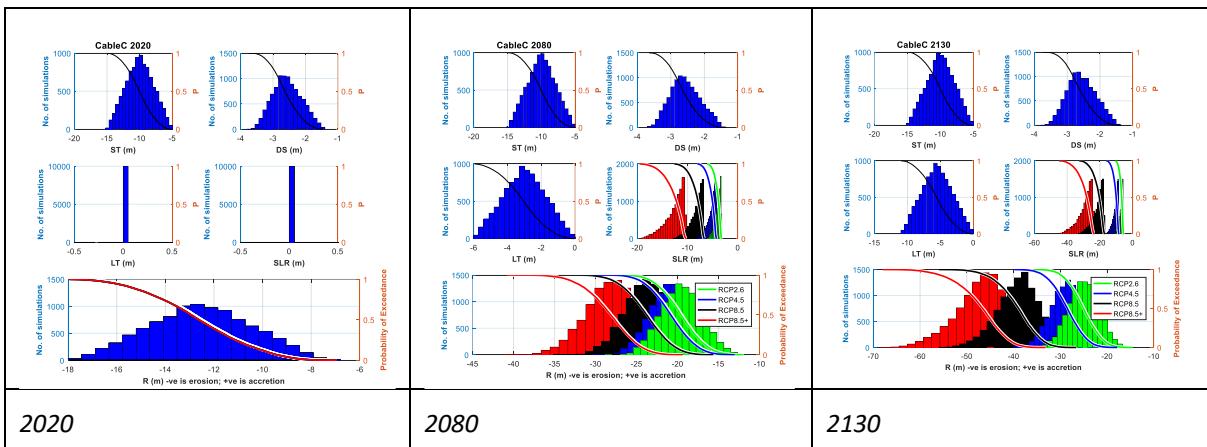


Figure 26-3 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 26C

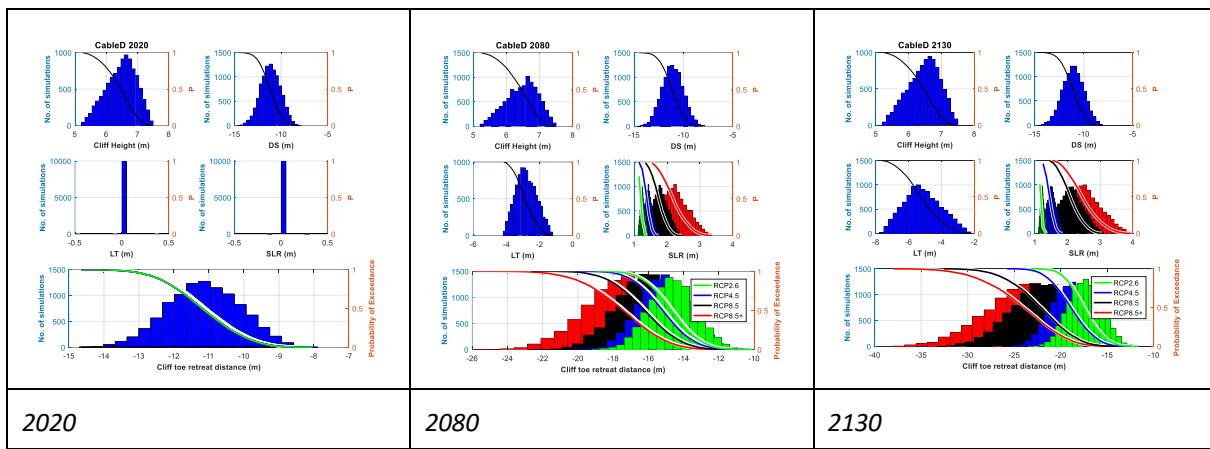


Figure 26-4 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 26D

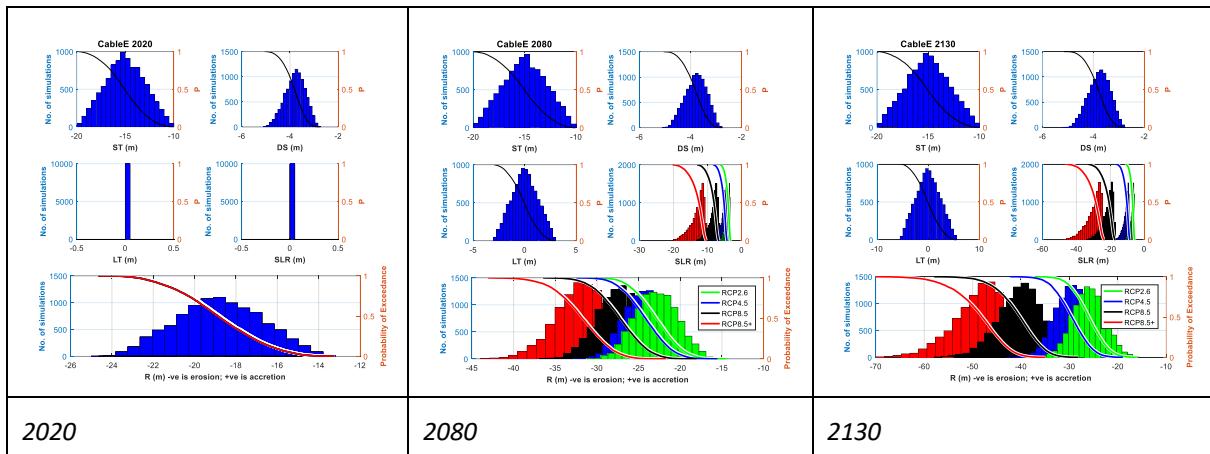


Figure 26-5 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 26E

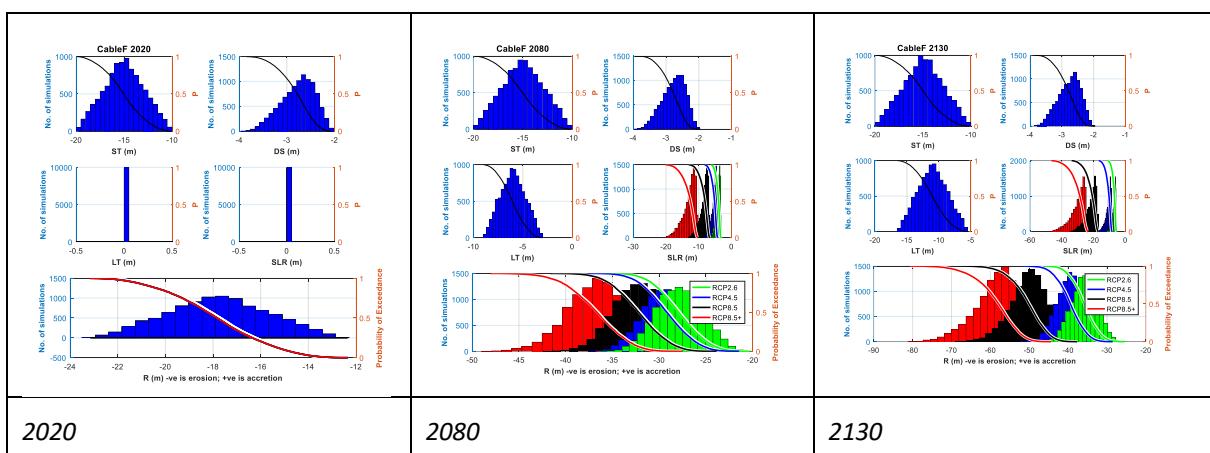


Figure 26-6 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 26F

**Table 26-2 Coastal Erosion Hazard Zone Widths for 2020**

Site		26. Cable					
Probability of CEHZ (m) Exceedance		A	B	C	D	E	F
	Min	-6	-6	-7	-8	-13	-12
	99%	-7	-7	-8	-9	-14	-13
	95%	-7	-8	-9	-9	-15	-14
	90%	-8	-9	-10	-10	-16	-15
	80%	-9	-10	-11	-10	-17	-16
	70%	-10	-11	-11	-11	-18	-17
	66%	-10	-11	-12	-11	-18	-17
	60%	-10	-11	-12	-11	-18	-17
	50%	-11	-12	-13	-11	-19	-18
	40%	-11	-12	-13	-11	-19	-18
	33%	-12	-13	-14	-12	-20	-19
	30%	-12	-13	-14	-12	-20	-19
	20%	-13	-14	-14	-12	-21	-20
	10%	-14	-15	-15	-12	-22	-21
	5%	-14	-15	-16	-13	-22	-21
	1%	-15	-16	-17	-14	-23	-22
	Max	-16	-17	-18	-14	-24	-23

**Table 26-3 Coastal Erosion Hazard Zone Widths Projected for 2080**

Site		26. Cable																							
Cell		26A				26B				26C				26D				26E							
RCP scenario	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	
Probability of CEHZ (m) Exceedance	Min	-4	-5	-8	-12	-4	-5	-8	-12	-12	-13	-16	-19	-10	-10	-11	-11	-14	-16	-18	-22	-20	-21	-24	-28
	99%	-7	-9	-11	-15	-8	-9	-12	-16	-14	-15	-18	-22	-12	-12	-13	-13	-17	-18	-21	-25	-22	-24	-26	-30
	95%	-9	-10	-13	-17	-10	-11	-14	-18	-15	-17	-19	-23	-12	-13	-13	-14	-19	-20	-23	-27	-24	-25	-28	-32
	90%	-10	-11	-14	-18	-11	-12	-15	-19	-16	-17	-20	-24	-13	-13	-14	-15	-20	-21	-24	-28	-25	-26	-29	-33
	80%	-11	-13	-16	-20	-12	-13	-16	-20	-17	-19	-21	-26	-13	-14	-15	-16	-21	-22	-25	-29	-26	-27	-30	-34
	70%	-12	-14	-16	-21	-13	-14	-17	-22	-18	-19	-22	-27	-14	-14	-15	-16	-21	-23	-26	-30	-26	-28	-31	-35
	66%	-13	-14	-17	-21	-13	-15	-18	-22	-18	-20	-23	-27	-14	-15	-15	-17	-22	-23	-26	-30	-27	-28	-31	-35
	60%	-13	-14	-17	-22	-14	-15	-18	-22	-19	-20	-23	-27	-14	-15	-16	-17	-22	-23	-26	-31	-27	-28	-31	-36
	50%	-14	-15	-18	-23	-15	-16	-19	-23	-20	-21	-24	-28	-15	-15	-16	-17	-23	-24	-27	-32	-28	-29	-32	-37
	40%	-15	-16	-19	-23	-15	-17	-20	-24	-20	-21	-24	-29	-15	-15	-17	-18	-24	-25	-28	-32	-29	-30	-33	-37
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	5%	-19	-20	-23	-28	-19	-21	-24	-29	-24	-25	-28	-34	-17	-17	-19	-21	-27	-28	-32	-37	-32	-33	-37	-42
	1%	-20	-21	-25	-31	-21	-22	-26	-32	-25	-26	-30	-36	-18	-18	-20	-23	-28	-30	-34	-39	-33	-35	-39	-44
	Max	-23	-24	-28	-35	-24	-25	-30	-36	-28	-30	-34	-41	-19	-20	-23	-26	-31	-32	-36	-43	-36	-38	-42	-48
CEHZ1		-17			-18			-23			-15			-26			-31								

**Table 26-4 Coastal Erosion Hazard Zone Widths Projected for 2130**

Site		26. Cable																							
Cell		26A				26B				26C				26D				26E							
RCP scenario	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	
Probability of CEHZ (m) Exceedance	Min	-3	-6	-15	-21	-4	-7	-16	-23	-15	-18	-27	-33	-12	-12	-13	-14	-16	-19	-28	-35	-26	-29	-38	-44
	99%	-7	-10	-19	-26	-7	-11	-20	-27	-18	-21	-30	-37	-13	-14	-16	-17	-19	-22	-31	-38	-29	-32	-42	-49
	95%	-9	-12	-22	-29	-10	-13	-23	-30	-20	-23	-33	-40	-14	-15	-17	-18	-21	-24	-34	-41	-31	-34	-44	-51
	90%	-10	-14	-24	-31	-11	-15	-25	-32	-21	-24	-34	-41	-15	-16	-18	-19	-22	-25	-35	-42	-32	-35	-45	-52
	80%	-12	-16	-26	-33	-13	-17	-27	-34	-22	-26	-36	-43	-16	-17	-19	-21	-23	-27	-37	-44	-33	-36	-47	-54
	70%	-14	-17	-28	-35	-15	-18	-28	-36	-23	-27	-37	-44	-16	-18	-20	-22	-24	-28	-38	-45	-34	-38	-48	-55
	66%	-14	-18	-28	-36	-15	-19	-29	-36	-24	-27	-37	-45	-17	-18	-21	-22	-25	-28	-38	-46	-34	-38	-48	-56
	60%	-15	-19	-29	-36	-16	-19	-30	-37	-24	-28	-38	-45	-17	-18	-21	-23	-25	-29	-39	-47	-35	-39	-49	-57
	50%	-16	-20	-30	-38	-17	-21	-31	-39	-25	-28	-39	-47	-17	-19	-22	-24	-26	-29	-40	-48	-36	-39	-50	-58
	40%	-17	-21	-31	-39	-18	-22	-32	-40	-26	-29	-40	-48	-18	-19	-23	-25	-27	-30	-41	-49	-37	-40	-51	-59
	33%	-18	-22	-32	-40	-19	-22	-33	-41	-26	-30	-41	-49	-18	-20	-23	-26	-27	-31	-42	-50	-37	-41	-52	-60
	30%	-18	-22	-33	-41	-19	-23	-34	-42	-27	-30	-41	-49	-18	-20	-24	-26	-28	-31	-43	-51	-38	-41	-52	-61
	20%	-20	-23	-34	-43	-20	-24	-35	-44	-28	-31	-43	-51	-19	-21	-25	-28	-29	-32	-44	-53	-39	-42	-54	-63
	10%	-21	-25	-37	-46	-22	-26	-38	-47	-29	-33	-45	-54	-20	-22	-26	-30	-30	-34	-46	-56	-40	-44	-56	-66
	5%	-22	-26	-39	-48	-23	-27	-40	-50	-30	-34	-47	-57	-20	-22	-28	-31	-31	-35	-48	-58	-41	-45	-58	-69
	1%	-25	-29	-42	-53	-26	-30	-43	-54	-32	-37	-50	-61	-21	-24	-30	-34	-34	-38	-53	-64	-43	-48	-62	-73
	Max	-30	-35	-50	-62	-29	-34	-50	-62	-36	-40	-56	-68	-23	-26	-33	-38	-37	-42	-58	-70	-46	-52	-68	-81
CEHZ2		-39				-40				-47				-28				-48				-58			
CEHZ3		-48				-50				-57				-31				-58				-69			





Notes: Dashed CEHZ indicates greater uncertainty around stream mouths and backshore topography.  
Northland 0.4m Rural Aerial Photos (2014-2016).

A4 SCALE 1:4,000

0 0.1 0.2 (km)



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1012360_Historicv2.mxd		
SCALE (AT A4 SIZE)		
1:4,000		
PROJECT No.		
1012360		

**NORTHLAND REGIONAL COUNCIL**  
Historic Shorelines  
Cable Bay  
Site: 26

FIGURE No.  
Figure 26-8

Rev. 1