Victorian Coastal Monitoring Program (VCMP)

Site Descriptions
(Including GORCAPA sites)

Version 4, May 2022

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VICTORIA State Government | Environment, Land, Water and Planning

Acknowledgment

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it. We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

We are committed to genuinely partner, and meaningfully engage, with Victoria's Traditional Owners and Aboriginal communities to support the protection of Country, the maintenance of spiritual and cultural practices and their broader aspirations in the 21st century and beyond.

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Victorian Coastal Monitoring Program: Site Descriptions

This document provides a summary of coastal sites monitored by the Victorian Coastal Monitoring Program (VCMP). A map of sites is provided in Fig. 1, with a summary of monitoring records in Table 1. This is followed by a brief description for each individual site, including survey history, wave climate and geomorphology. Surveys began in 2018 and over 450 surveys had been completed by Jan 2022. Beach surveys are obtained using DJI Phantom 4 drones, primarily by the VCMP science team and citizen science groups, with some survey data for the Great Ocean Road collected by the Great Ocean Road Coast and Park Authority (GORCAPA). Typically, surveys are conducted at low tide and the area of coverage extends from the backshore (e.g., dunes, infrastructure) to the active beach, extending down to the water line. VCMP drone survey data is publicly available at:

PropellerAero

- Go to: https://vcmp.prpellr.com/p/sites
- Login: Email – vcmp@deakin.edu.au; password – propellervcmp
- Use to view survey imagery in 2D and 3D

CoastKit

- Go to https://mapshare.vic.gov.au/coastkit/ then select "Victorian Coastal Monitoring Program" in the left panel.
- Use to view site locations, shoreline time series and rates of shoreline change.
- Site data is progressively being added to CoastKit and data for all sites will be available by March 2022.

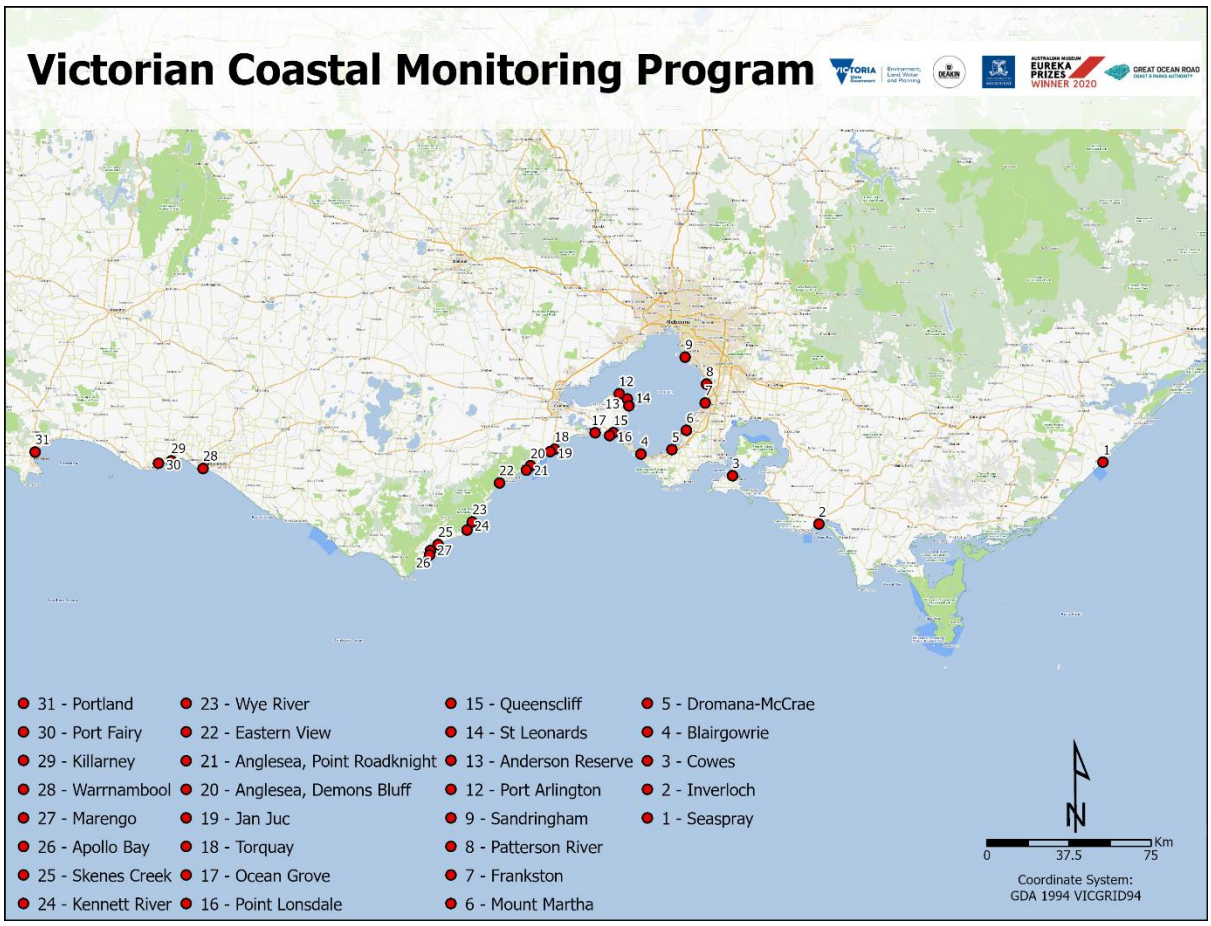


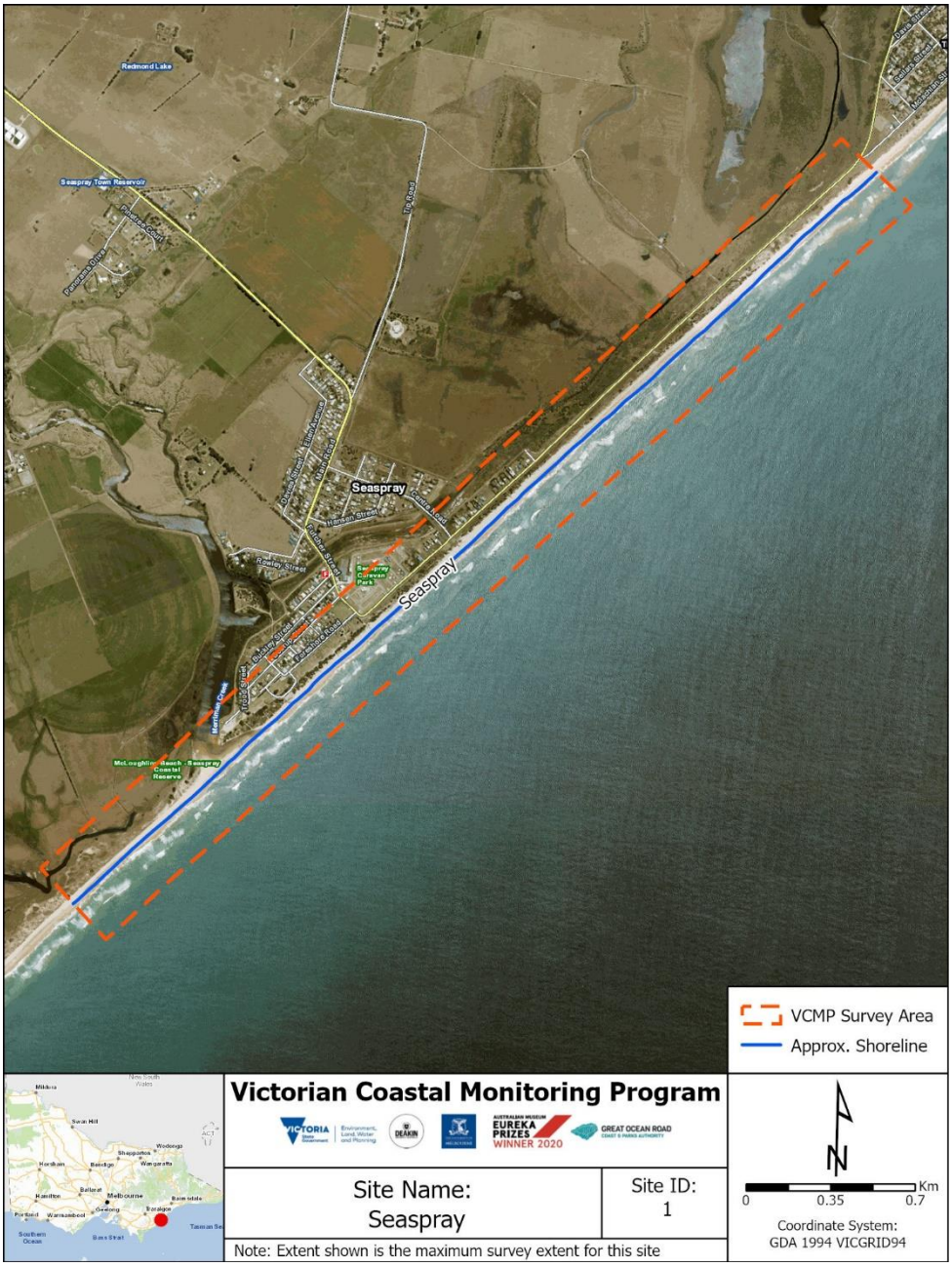
Figure 1. VCMP drone monitoring sites across Victoria.

Table 1: VCMP site list and survey record (to Jan 2022, May 2022)

Site-ID	Site name	Region	Surveyor	Start Date	Total Surveys	Survey frequency
1	**Seaspray**	Gipps.	VCMP	Aug-2018	23	6 - 8 weeks
36	**Walkerville**	Gipps.	VCMP	Mar-2022	2	4 / year
2	**Inverloch**	Gipps.	VCMP	Aug-2018	27	6 - 8 weeks
37	**Flinders**	W. Port	VCMP	Mar-2022	2	6 - 8 weeks
3	**Cowes**	W. Port	VCMP	Aug-2018	23	6 - 8 weeks
38	**Portsea**	PPB	VCMP	Mar-2022	2	6 - 8 weeks
4	**Blairgowrie**	PPB	VCMP	Dec-2020	8	6 - 8 weeks
39	**Rye**	PPB	VCMP	Mar-2022	2	6 - 8 weeks
5	**Dromana-McCrae**	PPB	VCMP	Oct-2020	9	6 - 8 weeks
6	**Mount Martha**	PPB	VCMP	May-2019	18	6 - 8 weeks
40	**Mount Eliza**	PPB	VCMP	May-2019	18	6 - 8 weeks
7	**Frankston**	PPB	VCMP	Apr-2018	1	One-off survey
8	**Patterson River**	PPB	VCMP	Mar-2021	7	6 - 8 weeks
9	**Sandringham**	PPB	VCMP	Dec-2020	8	6 - 8 weeks
10	**Altona**	PPB	VCMP	Early 2022	3	6 - 8 weeks
11	**WTP**	PPB	na	na	0	na
12	**Portarlington**	PPB	VCMP	Jun-2018	27	6 - 8 weeks
13	**Anderson Reserve**	PPB	VCMP	Nov-2020	3	Irregular
14	**St Leonards**	PPB	VCMP	Jun-2018	27	6 - 8 weeks
15	**Queenscliff**	PPB	VCMP	Apr-2018	22	6 - 8 weeks
16	**Point Lonsdale**	PPB	VCMP	Apr-2019	7	1 - 3 / year
17	**Ocean Grove**	BSW	VCMP	Apr-2019	23	6 - 8 weeks
32	**Point Impossible**	BSW	GORCAPA	Jun-2019	2	Irregular
18	**Torquay**	BSW	GORCAPA	Jun-2019	3	1 - 2 / year
19	**Jan Juc**	BSW	GORCAPA	Mar-2021	2	1 - 2 / year
20	**Anglesea, Demons Bluff**	BSW	VCMP	Jun-2018	27	6 - 8 weeks
21	**Anglesea, Point Roadknight**	BSW	VCMP	Jun-2018	26	6 - 8 weeks
22	**Eastern View**	BSW	GORCAPA	Mar-2021	2	1 - 2 / year
23	**Wye River**	BSW	GORCAPA	Apr-2021	6	Irregular
24	**Kennett River**	BSW	GORCAPA	Apr-2021	1	One-off survey
25	**Skenes Creek**	BSW	VCMP	Sep-2018	2	Irregular
26	**Apollo Bay**	BSW	VCMP	Jun-2018	42	6 - 8 weeks
27	**Marengo**	BSW	VCMP	Jun-2018	26	6 - 8 weeks
28	**Warrnambool**	BSW	VCMP	Jun-2018	27	6 - 8 weeks
29	**Killarney**	BSW	Deakin	Aug-2014	2	Irregular
30	**Port Fairy**	BSW	VCMP	Mar-2018	30	6 - 8 weeks
31	**Portland**	BSW	VCMP	Feb-2018	23	6 - 8 weeks
				TOTAL (ALL SITES)	**452**	

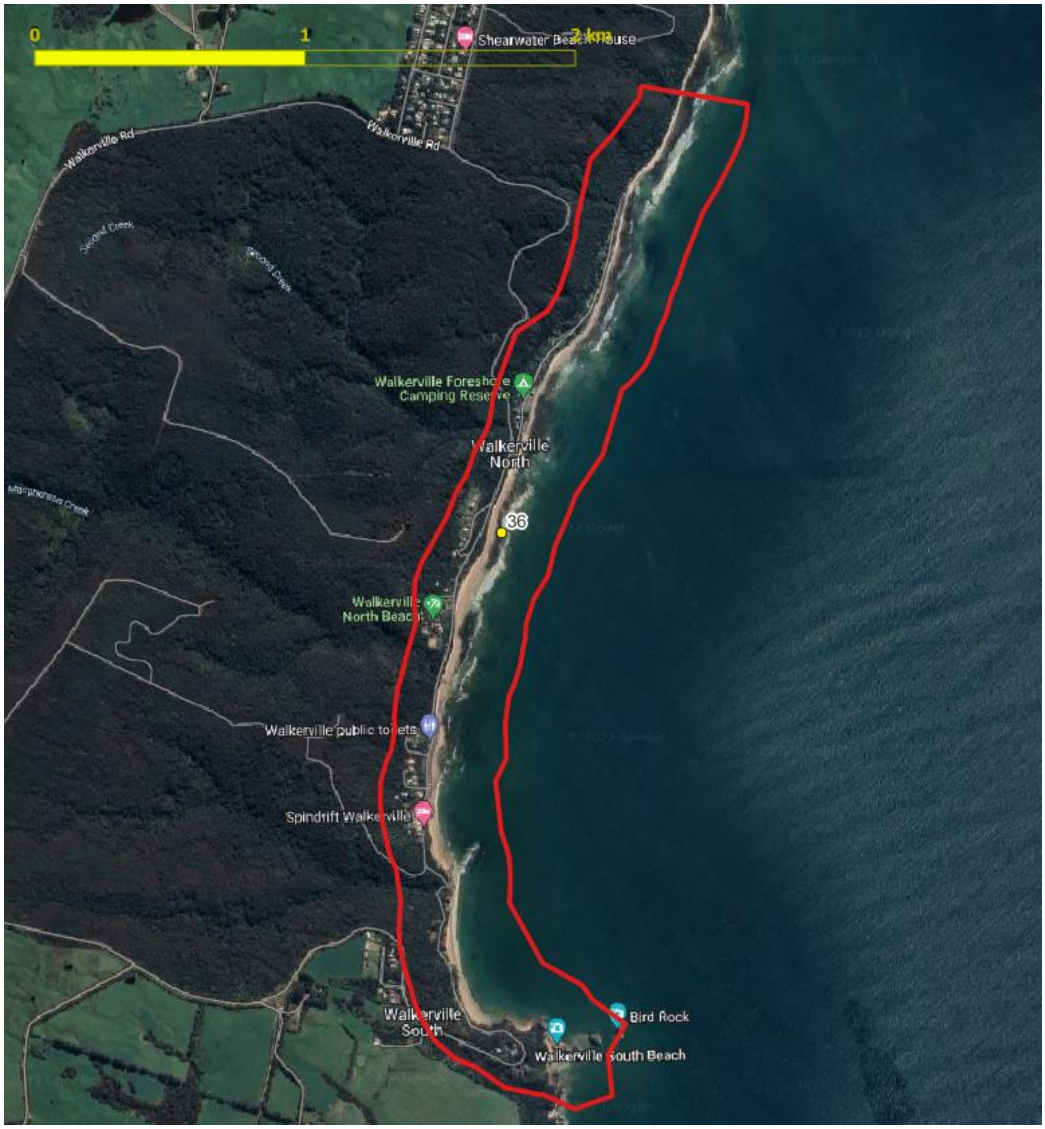
Site #1, Seaspray

Survey extent: 4 km alongshore.
Survey history: VCMP drone survey every 6 to 8 weeks since Aug 2018, with some gaps. Total of 23 surveys by Jan 2022.
Wave climate: Moderate energy swell-wind wave climate, exposed to East Coast Lows from the Tasman Sea, protected from Southern Ocean swells from the southwest.
Tidal regime: Semi-diurnal, spring tidal range approx. 2 m.
Geomorphology: Sandy beach and shoreface, backed by a vegetated dune up to 8 m high. Road and housing behind dune. Merriman Creek inlet to southwest of survey area.



Site #36, Walkerville North

Survey extent: 2.5 km alongshore.
Survey history: VCMP drone survey every 3 months, since Mar 2022. Total of 2 surveys by Jun 2022.
Wave climate: Low-moderate energy swell-wind wave climate, semi-protected from Southern Ocean swells from the southwest, with limited fetch to the east.
Tidal regime: Semi-diurnal, spring tidal range 1.5 to 2 m.
Geomorphology: Undulating shoreline of mostly rocky platform back by perched beaches, interspersed with small sandy embayments, backed variously by low vegetated dune, with a narrow buffer to the road in some sections.
Coastal structures: Low revetments back some section, with a small seawall to the south of the site.



Site #2, Inverloch

Survey extent: Maximum extent is 4 km alongshore. Majority of surveys focus on a 1.5 km section around Inverloch Surf Beach.
Survey history: VCMP drone survey every 6 to 8 weeks since Aug 2018, with some gaps. Total of 27 surveys by Jan 2022.
Wave climate: Moderate-high energy, exposed to southwest Southern Ocean swells.
Tidal regime: Semi-diurnal, spring tidal range >2 m.
Geomorphology: Survey area covers Surf Beach extending into the entrance to Andersons Inlet, mostly backed by vegetated dune. The inlet channels and adjacent shoreline are highly dynamic, which has resulted in rapid erosion events over recent years.
Coastal structures: Sections of the estuary around the boat ramp are protected by revetment.

Site #37, Flinders

Survey extent: 2.5 km alongshore.
Survey history: VCMP drone surveys in March and May 2022, may be become a regular site in future.
Wave climate: Moderate-low energy swell-wind wave climate, semi-protected from Southern Ocean swells from the southwest, with limited fetch to the east.
Tidal regime: Semi-diurnal, spring tidal range approx. 3 m.
Geomorphology: East-facing narrow beach backed by low vegetated dune, with rock platforms in the intertidal to subtidal in some areas, narrow buffer to a carpark in the mid-southern section, adjacent to a pier extending offshore. The bay is used for vessel moorings.
Coastal Structures: One short seawall is present, protecting the yacht club to the south of the site.

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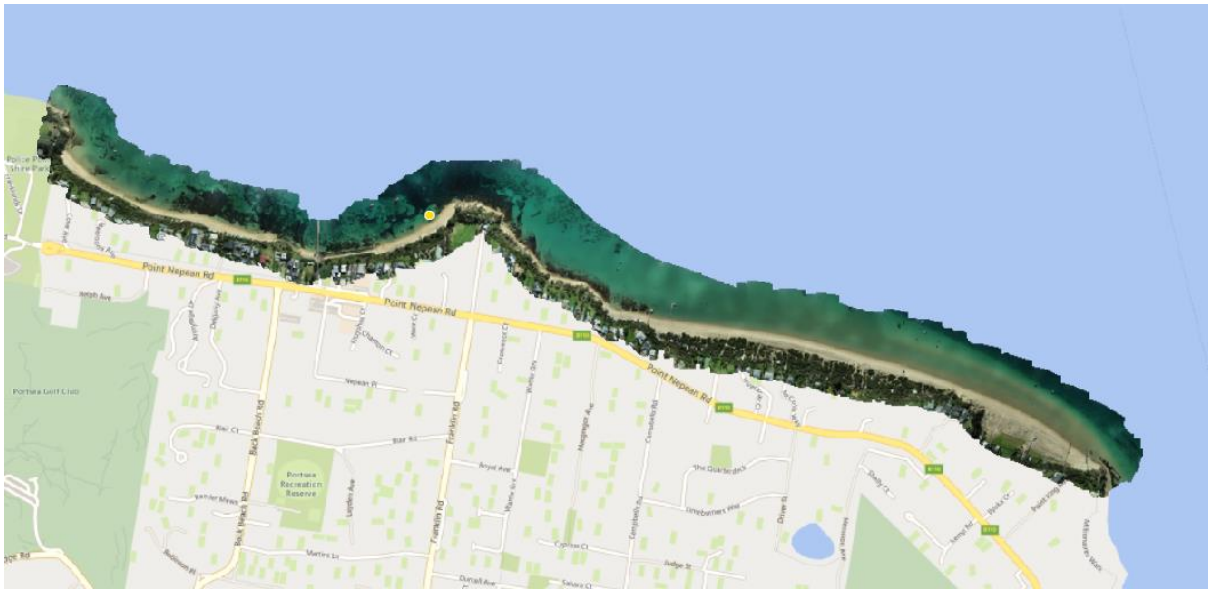
Site #3, Cowes

Survey extent: Maximum extent is 3 km alongshore.
Survey history: VCMP drone survey every 6 to 8 weeks since Aug 2018, with some gaps. Total of 23 surveys by Jan 2022.
Wave climate: Low energy, fetch-limited wind waves. Mostly protected from refracted swell from the southwest.
Tidal regime: Semi-diurnal, spring tidal range >2 m.
Geomorphology: Located to the north of Phillip Island, narrow low-energy beach, backed by low vegetated barrier, with a narrow buffer to housing to the west. Wide, shallow, multi-barred terrace in the intertidal to shallow subtidal, widening toward the west.
Coastal structures: Groyne-field to the west of the site.

Site #38, Portsea

Survey extent: 3.3 km alongshore.
Survey history: VCMP drone surveys in March and May 2022, may be become a regular site in future.
Wave climate: Moderate-low energy swell-wind wave climate. Mostly low energy wind waves generated in the Bay. The region around Portsea Pier can also be impacted by swell waves that have been refracted through the entrance to Port Phillip Bay.
Tidal regime: Semi-diurnal, spring tidal range up to 1.6 m.
Geomorphology: North facing, with foredune up to 6 m, perched on bedrock bluff which climbs to elevations above 15 – 20 m onshore of the beach. Houses back the beach in several sections. Erosion issues have occurred around Portsea Pier to the west of the site, which contrasts with rapid shoreline accretion around Point King to the east. The inter- to subtidal is mostly sandy bed, with exposed rock and seagrass in some areas.
Coastal structures: Multiple protection structures have been constructed in the region around Portsea Pier, including seawalls, groynes and a large temporary Geotextile sandbag revetment, immediately east of the pier.



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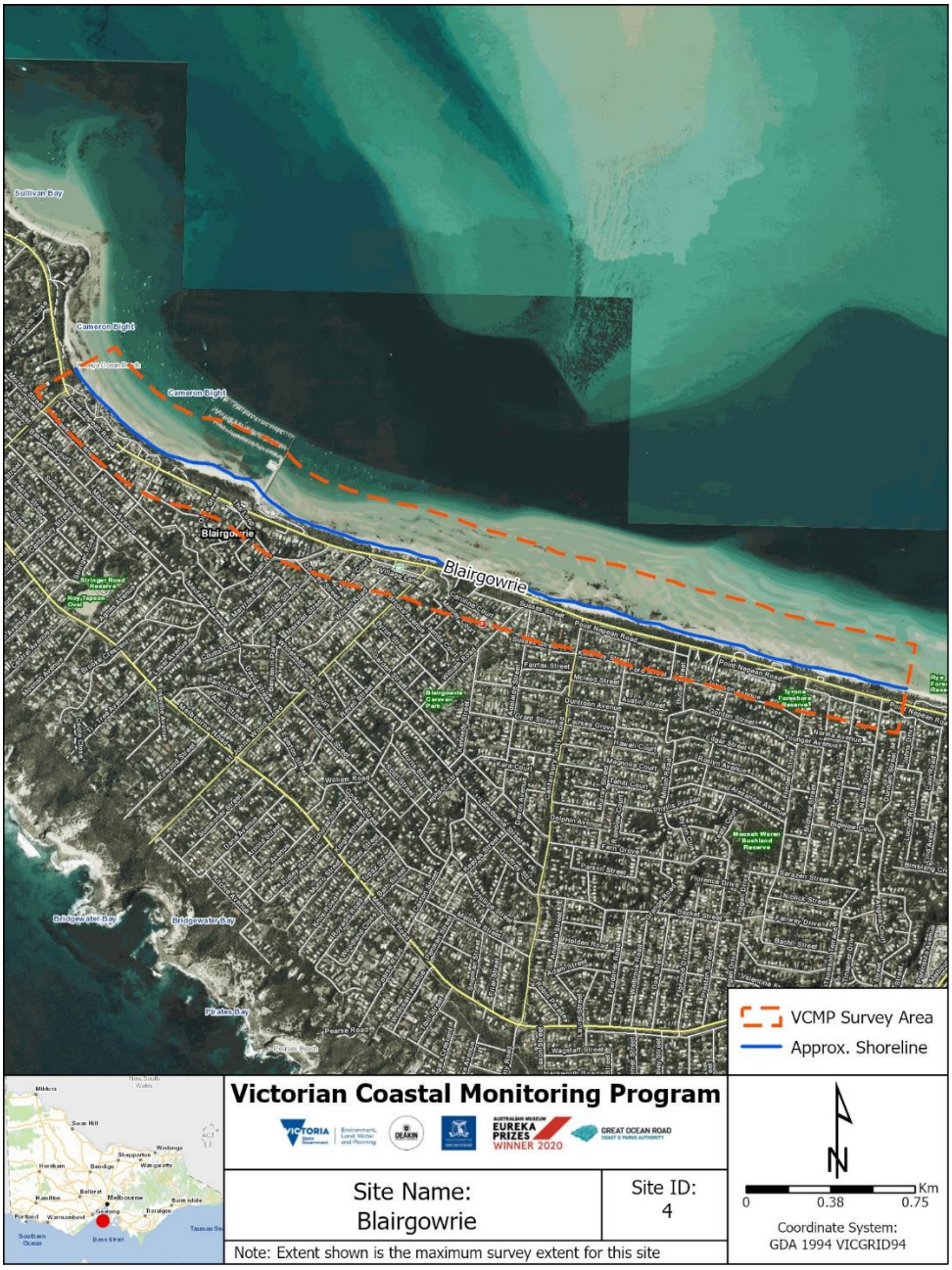
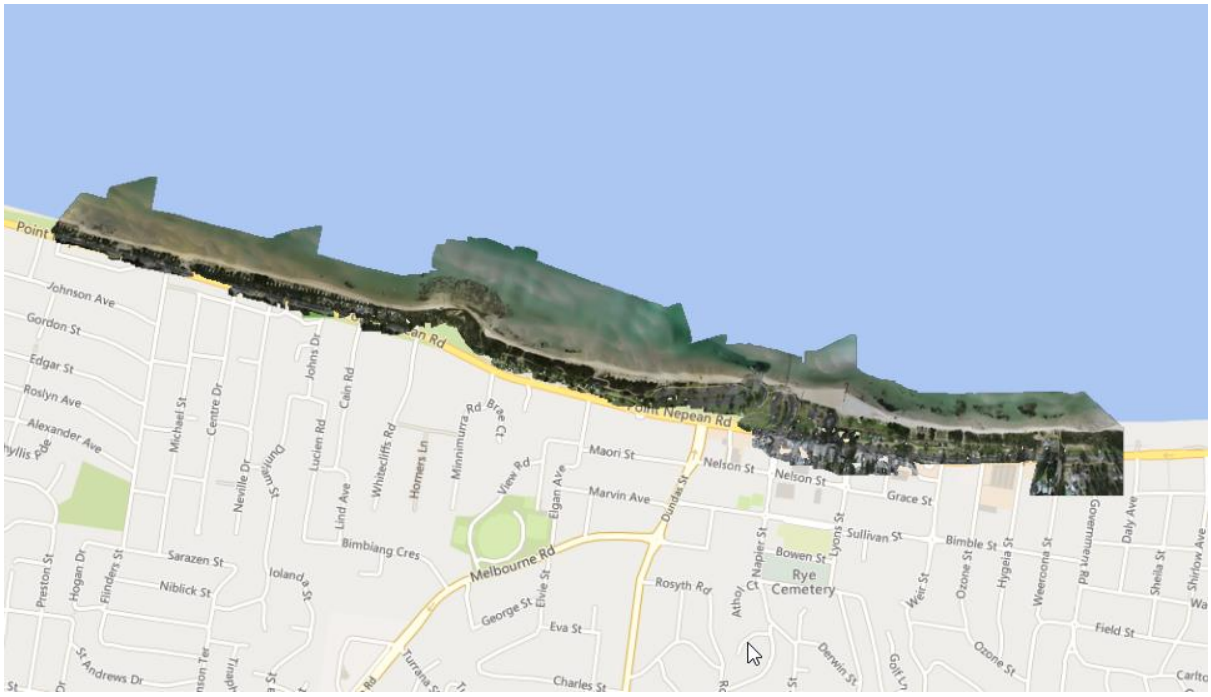
Site #4, Blairgowrie

Survey extent: Maximum extent is 3.5 km alongshore.
Survey history: VCMP drone survey every 6 to 8 weeks since Dec 2020, with some gaps. Total of 8 surveys by Jan 2022.
Wave climate: Low energy, fetch-limited wind waves, locally generated within PPB. Protected from refracted swell from the entrance.
Tidal regime: Semi-diurnal, reduced tides in Port Phillip Bay, spring tidal range <1 m.
Geomorphology: Located in Port Phillip Bay, to the west of the Mornington Peninsula. Narrow low-energy beach, backed by low vegetated barrier, with a narrow buffer to the roads and infrastructure in some areas. Wide, shallow, multi-barred terrace in the intertidal to shallow subtidal.
Coastal structures: Wooden groynes at irregular intervals. Seawalls in some sections, varying from wood to concrete composition. Blairgowrie Marina is to the west of the site.



Site #39, Rye

Survey extent: 3.5 km alongshore, overlapping with Blairgowrie site, extending eastward.
Survey history: VCMP drone surveys in March and May 2022, may be become a regular site in future.
Wave climate: Low energy, fetch-limited wind waves, locally generated within PPB. Protected from refracted swell from the entrance.
Tidal regime: Semi-diurnal, reduced tides in Port Phillip Bay, spring tidal range <1 m.
Geomorphology: North facing, narrow sandy beach, backed low vegetated dune, and a wide multi-barred terrace in the shallow subtidal. Infrastructure includes beach huts to the west and Rye Pier to the east. Various interventions and reclamation have occurred around the pier.
Coastal Structures: Isolated seawalls are present, including around Rye Pier, small wooden groynes to the west of the site, one large groyne is east of the pier.



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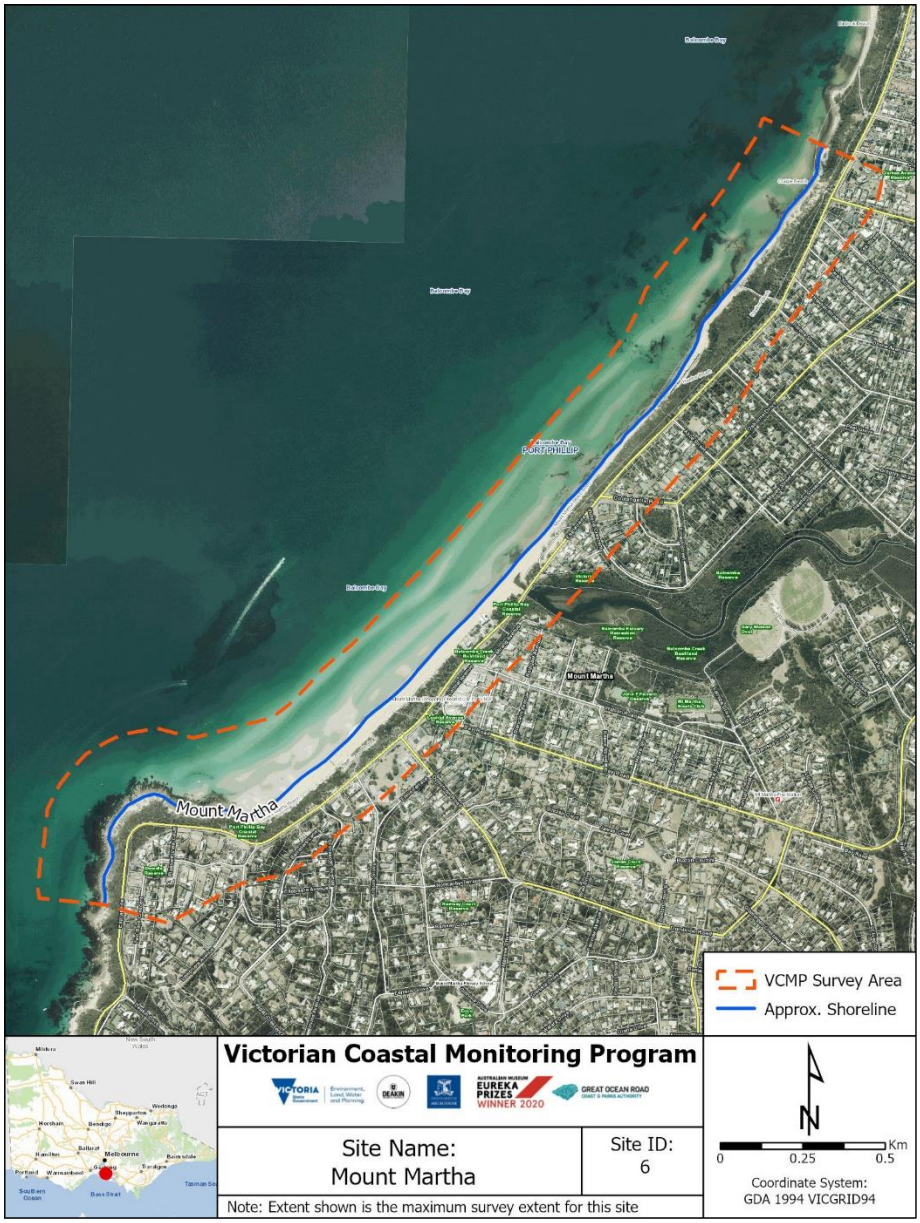
Site #5, Dromana-McCrae

Survey extent: Maximum extent is 4 km alongshore.
Survey history: VCMP drone survey every 6 to 8 weeks since Oct 2020, with some gaps. Total of 9 surveys by Jan 2022.
Wave climate: Low energy, fetch-limited wind waves, locally generated within PPB. No exposure to ocean swell.
Tidal regime: Semi-diurnal, reduced tides in Port Phillip Bay, spring tidal range <1 m.
Geomorphology: Located in Port Phillip Bay, to the east of the Mornington Peninsula. Dromana is to the east of the site; McCrae is to the west. Dromana is immediately backed by beach huts and the Nepean Hwy. McCrae has a wider buffer with low vegetated dune. The central section is backed by road, with cliffs onshore of the road. Offshore the site is a wide, multi-barred subtidal terrace.
Coastal structures: Wooden groynes at McCrae, high seawall at mid-section, low seawall to eastern end of Dromana.

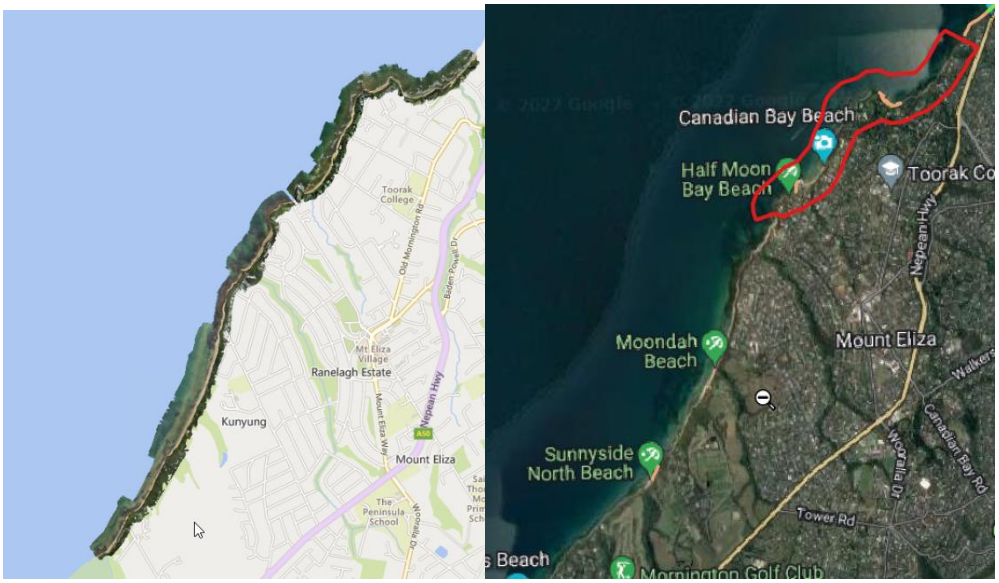
Site #6, Mt Martha

Survey extent: Maximum extent is 3 km alongshore.
Survey history: VCMP drone survey every 6 to 8 weeks since May 2019, with some gaps. Total of 18 surveys by Jan 2022.
Wave climate: Low energy, fetch-limited wind waves, locally generated within PPB. Seasonal changes in wave direction. No exposure to ocean swell.
Tidal regime: Semi-diurnal, reduced tides in Port Phillip Bay (PPB), spring tidal range <1 m.
Geomorphology: 3km-long sandy beach between rocky headlands, located to southeast of PPB. The narrow beach is backed by bluffs and soft cliffs up to 20 m high, with a road running along the crest. Sections of the beach feature beach huts that back immediately onto the steep bluff. Balcombe Creek enters the bay through an intermittently open/closed inlet at the mid-section of the site.
Coastal structures: Sections of revetment and seawall to the northeast, backing beach huts in some areas.



Site #40, Mt Eliza

Survey extent: Maximum distance of 6 km alongshore.
Survey history: VCMP drone surveys were conducted in March (3.7 km extent) and May 2022 (6 km extent). May be become a regular site in future.
Wave climate: Low energy, fetch-limited wind waves, locally generated within PPB. Seasonal changes in wave direction. No exposure to ocean swell.
Tidal regime: Semi-diurnal, reduced tides in Port Phillip Bay (PPB), spring tidal range <1 m.
Geomorphology: Narrow sandy beach backed by steep bluff and cliffs >20 m high in sections, with a number of small headlands and rock platforms dividing sections of beach. Some sections of the escarpment crest have built infrastructure (roads, housing). Beach huts are present at the mid-north of the site. The shallow nearshore is a mix of sandy bed and exposed rock platforms.
Coastal structures: Isolated sections of revetment to the northeast.

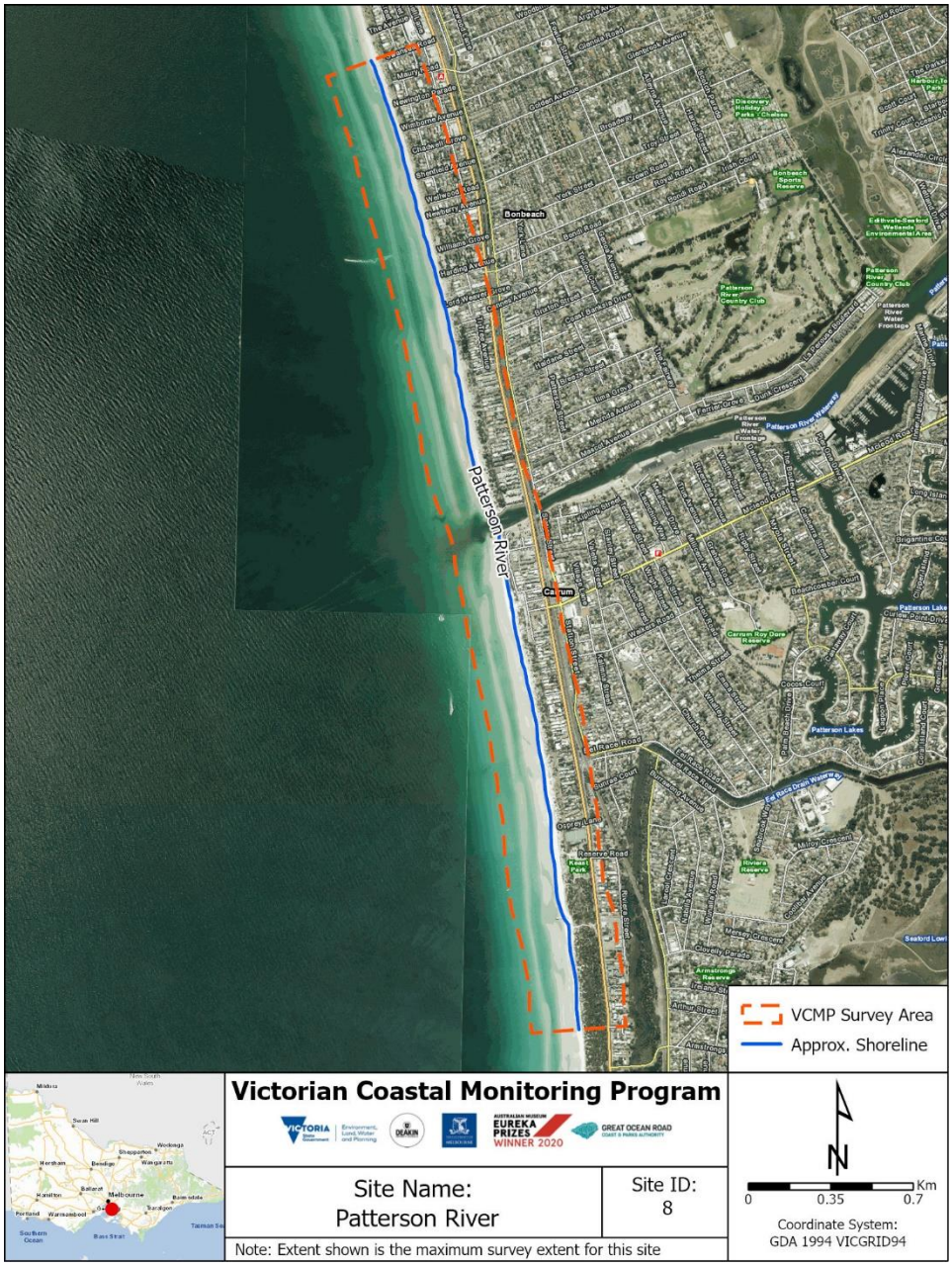


Site #7, Frankston

Survey extent: 350 m alongshore extent.
Survey history: One-off survey conducted in Apr 2018.
Wave climate: Low energy, fetch-limited wind waves, locally generated within PPB. Seasonal changes in wave direction. No exposure to ocean swell.
Tidal regime: Semi-diurnal, reduced tides in Port Phillip Bay (PPB), spring tidal range <1 m.
Geomorphology: Southern point of 30-km long sandy embayment to east of PPB. Narrow sandy beach backed by a vegetated dune up to 5 m high containing walking paths and carpark, widening northward, backed by Nepean Hwy. Multiple shallow bars offshore.

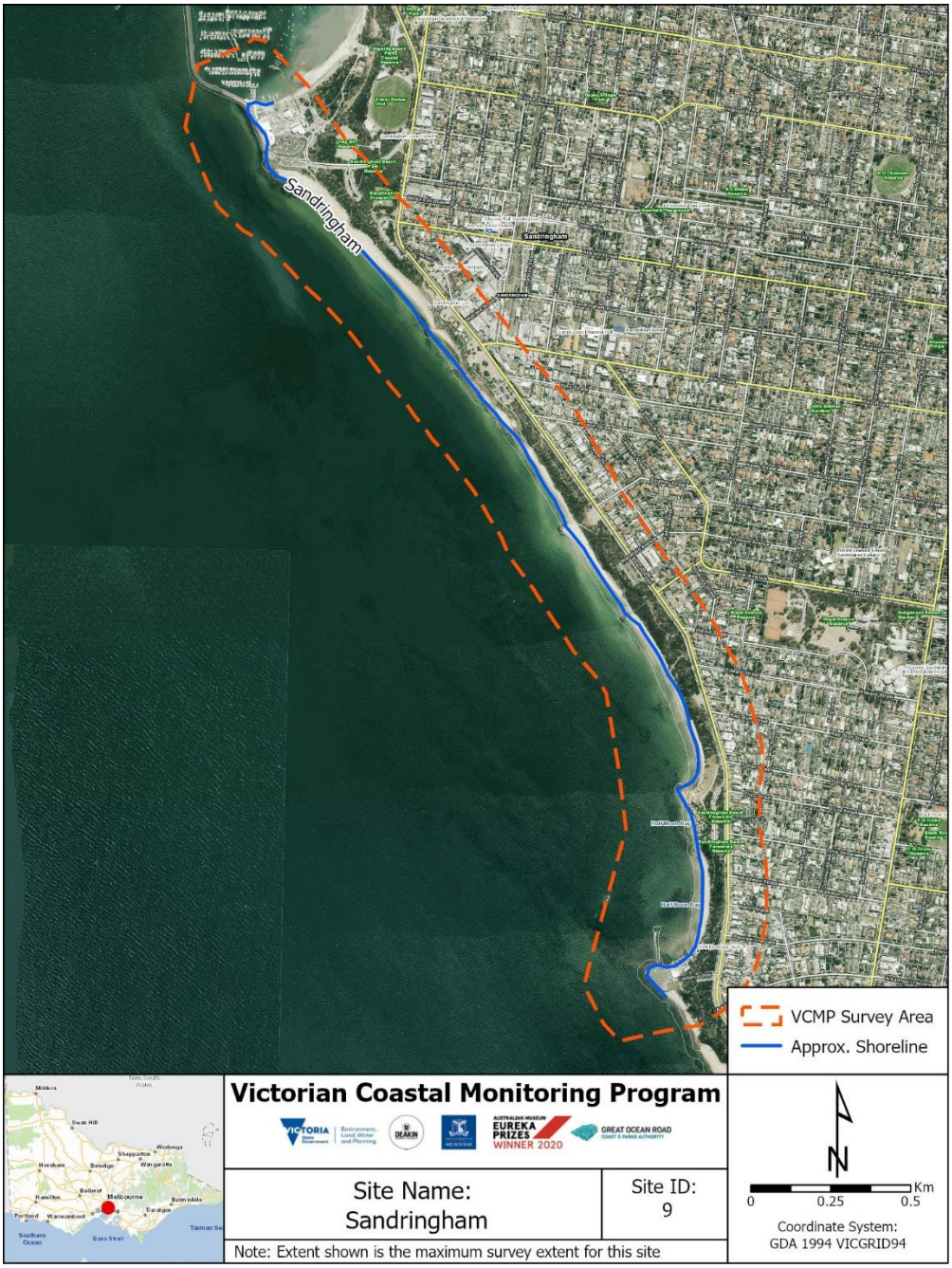
Site #8, Patterson River

Survey extent: Maximum 3.5 km alongshore extent, some surveys are limited to north of the river.
Survey history: VCMP drone survey every 6 to 8 weeks since Mar 2021, with some gaps. Total of 7 surveys by Jan 2022.
Wave climate: Low energy, fetch-limited wind waves, locally generated within PPB. Seasonal changes in wave direction. No exposure to ocean swell.
Tidal regime: Semi-diurnal, reduced tides in Port Phillip Bay (PPB), spring tidal range <1 m.
Geomorphology: The site comprises the narrow sandy beach surrounding the Patterson River inlet, to the east of PPB. Multiple shallow bars occur offshore. The beach is mostly backed by low vegetated dune.
Coastal structures: Training walls are in place around the river mouth. A section of revetment is present south of the river.



Site #9, Sandringham

Survey extent: Maximum 3.2 km alongshore extent, from Half Moon Bay to Sandringham Yacht Club.
Survey history: VCMP drone survey every 6 to 8 weeks since Dec 2020, with some gaps. Total of 8 surveys by Jan 2022.
Wave climate: Low energy, fetch-limited wind waves, locally generated within PPB. Seasonal changes in wave direction. No exposure to ocean swell.
Tidal regime: Semi-diurnal, reduced tides in Port Phillip Bay (PPB), spring tidal range <1 m.
Geomorphology: Coarse sand beach and shoreface backed by soft cliffs up to 35 m high.
Coastal structures: Two large groynes at southern end with isolated sections of seawall and revetment along the backshore.



Site #10, Altona

Survey extent: Maximum distance of 3.5 km alongshore.
Survey history: VCMP drone surveys from Feb 2022 at 6 to 8-week intervals.
Wave climate: Low energy, fetch-limited wind waves, locally generated within PPB. Seasonal changes in wave direction.
Tidal regime: Semi-diurnal, reduced tides in Port Phillip Bay (PPB), spring tidal range <1 m.
Geomorphology: Narrow sandy beach, widened toward the east through beach renourishment. A highly dynamic flying-spit is rapidly extending northeast from the southwest of the site, creating a narrow channel extending north from Laverton Creek, between the mainland and the spit, as new land is created.
Coastal structures: Most of the shoreline is backed by seawalls or revetment. Several groynes are built along Altona Beach, used to maintain a wide beach, in combination with beach renourishment.

Site #12, Portarlington

Survey extent: 800 m alongshore extent.
Survey history: VCMP drone survey every 6 to 8 weeks since Jun 2018, with some gaps. Total of 27 surveys by Jan 2022.
Wave climate: Low energy, fetch-limited wind waves, locally generated within PPB. Seasonal changes in wave direction. No exposure to ocean swell.
Tidal regime: Semi-diurnal, reduced tides in Port Phillip Bay (PPB), spring tidal range <1 m.
Geomorphology: Narrow sandy beaches backed by grass-covered low dunes and bluffs up to 5 m in elevation. Rocky outcrops occur in the nearshore, with a small headland between sandy bays.
Coastal structures: Scattered boulders have been placed to the east of the site where erosion of the bluff has occurred.

Site #13, Anderson Reserve

Survey extent: Maximum 2.5 km alongshore extent, added as an extension to the St Leonards site to cover an area of sand renourishment.
Survey history: Three VCMP drone surveys were conducted over the period Nov 2020 to May 2021.
Wave climate: Low energy, fetch-limited wind waves, locally generated within PPB. Seasonal changes in wave direction. No exposure to ocean swell.
Tidal regime: Semi-diurnal, reduced tides in Port Phillip Bay (PPB), spring tidal range <1 m.
Geomorphology: Very narrow sandy beaches backed very low dunes (< 2 m AHD), mostly grass-covered with footpaths, parks and campground areas. Low headlands divide beach sections, with the largest at Indented Head / Wrathalls Reserve. Shallow nearshore with bars and some sections of outcrop.
Coastal structures: Two wooden groynes were installed at Anderson Reserve in 2020. Low wooden seawalls back some sections.

Site #14, St Leonards

Survey extent: Maximum 4 to 7 km alongshore extent from south St Leonards to Anderson Reserve (see Site #13), though most surveys cover only 2-3 km around St Leonards itself.
Survey history: VCMP drone survey every 6 to 8 weeks since Jun 2018, with some gaps. Total of 27 surveys by Jan 2022.
Wave climate: Low energy, fetch-limited wind waves, locally generated within PPB. Seasonal changes in wave direction. No exposure to ocean swell.
Tidal regime: Semi-diurnal, reduced tides in Port Phillip Bay (PPB), spring tidal range <1 m.
Geomorphology: East facing, very narrow sandy beaches backed very low dunes (< 2 m AHD), with footpaths, grassed areas, and the road near to the beach (~10 m) in some sections. Low headlands occur to the north and south. Shallow nearshore with bars and some sections of outcrop.
Coastal structures: Isolated low wooden seawalls are found in some sections; a single groyne and St Leonards Pier are located to the south.

Site #15, Queenscliff, The Narrows (Dog Beach)

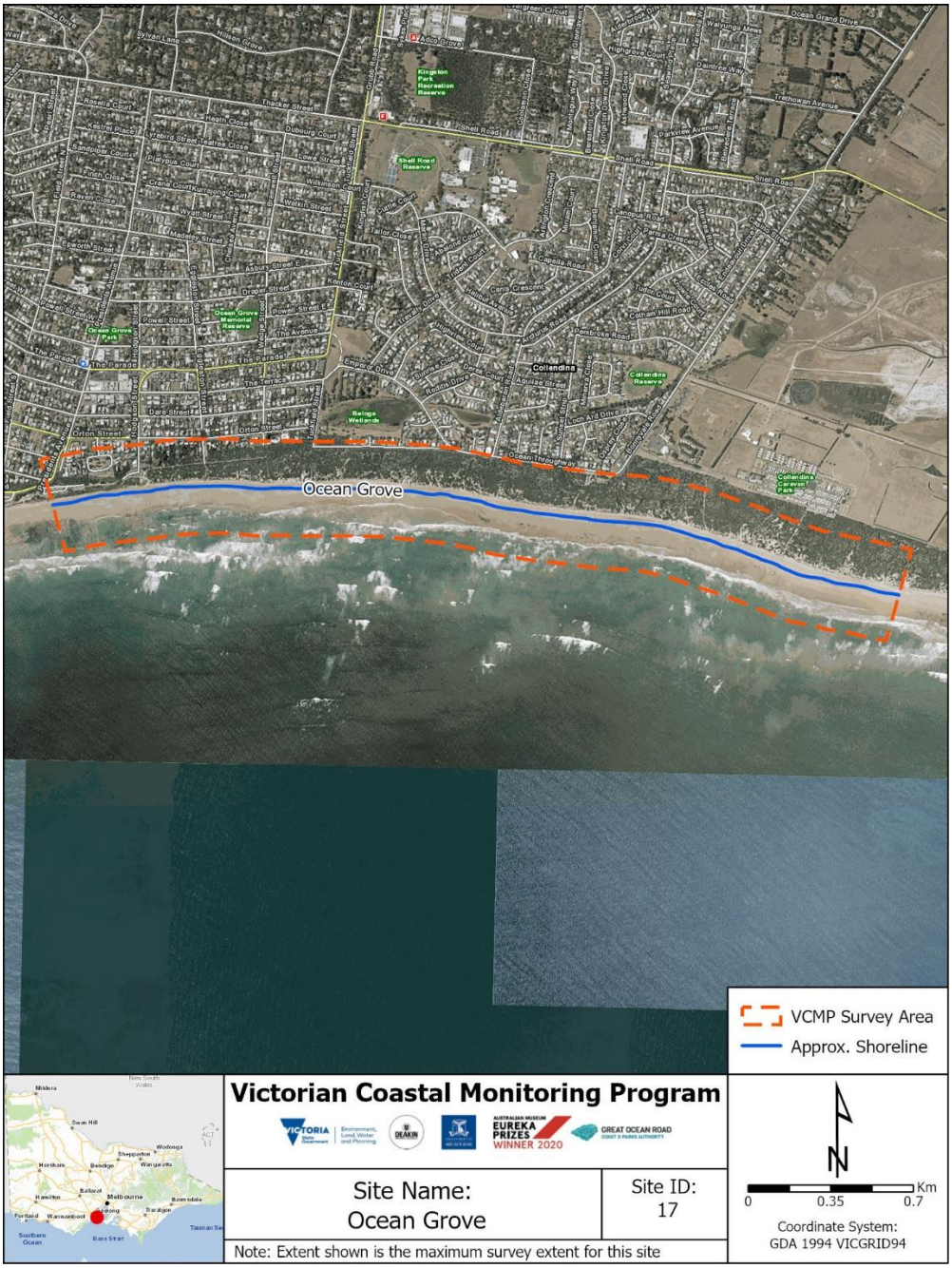
Survey extent: Maximum 1.2 km alongshore extent surrounding the eroded section of bluff, northwest of the end of the revetment.
Survey history: VCMP drone survey every 6 to 8 weeks since Apr 2018, with some gaps. Total of 22 surveys by Jan 2022.
Wave climate: Low-moderate energy, partial exposure to swell waves refracted through the bay entrance, as well as locally generated wind waves.
Tidal regime: Semi-diurnal, partially reduced tides near entrance to Port Phillip Bay (PPB), spring tidal range <1.5 m.
Geomorphology: Faces south, toward Port Phillip Heads, with a wide, low-gradient beach relative to other parts of PPB. The western section is backed by a revetment, with little to no beach at high-tide. Downdrift (east) of the revetment, an eroded embayment has formed, eroding into the 10 – 15m high bluffs, coming within a few metres of a marked track ("Lovers Walk").
Coastal structures: Rock armour revetment extends from the west of the site around toward the southwest. A low wooden retaining wall has been placed at the toe of the eroded bluff.

Site #16, Point Lonsdale

Survey extent: Maximum 1 km alongshore extent focussing on the area around the three groynes.
Survey history: VCMP drone survey have been undertaken irregularly since Apr 2019, with 1 to 3 surveys per year. Total of 7 surveys by Jan 2022.
Wave climate: Low-moderate energy, partial exposure to swell waves refracted through the bay entrance, as well as locally generated wind waves.
Tidal regime: Semi-diurnal, partially reduced tides near entrance to Port Phillip Bay (PPB), spring tidal range <1.5 m.
Geomorphology: Faces east, with Port Phillip Heads to the southeast. Beaches occur to the southwest of each groyne, due to longshore drift to the northeast, rock outcrops occur in the nearshore.
Coastal structures: Three large rock armour groynes are present, with a cement seawall and promenade backing the beach.

Site #17, Ocean Grove

Survey extent: Maximum 3 km alongshore extent.
Survey history: VCMP drone survey every 6 to 8 weeks since Apr 2019, with some gaps. Total of 23 surveys by Jan 2022.
Wave climate: Moderate-high energy, exposed to swell waves from the southwest, and local wind waves.
Tidal regime: Semi-diurnal, spring tidal range approx. 1.5 m.
Geomorphology: Wide, flat beach and intertidal, with fine-grained sand. Backed by dunes, increasing in height to the east, and perched on bedrock (>20 m elevation).
Coastal structures: The site was extended westward in late 2021 to cover a carpark situated on the perched dunes. Small sections of loose rock armour defence and several paths / stairways are located in this area.



Site #32, Point Impossible

Survey extent: 1.4 km alongshore.
Survey history: Two GORCAPA drone surveys have been conducted at irregular intervals since Jun 2019.
Wave climate: Moderate-high energy, obliquely exposed to southwesterly swell waves.
Tidal regime: Semi-diurnal, spring tidal range approx. 1.5 m.
Geomorphology: Sandy beach backed by vegetated dunes with exposed rock platforms in the shallow subtidal. Point Impossible itself is at the centre of the site, with an intermittently open inlet, Thompson Creek, exiting immediately to the north.
Coastal structures: None

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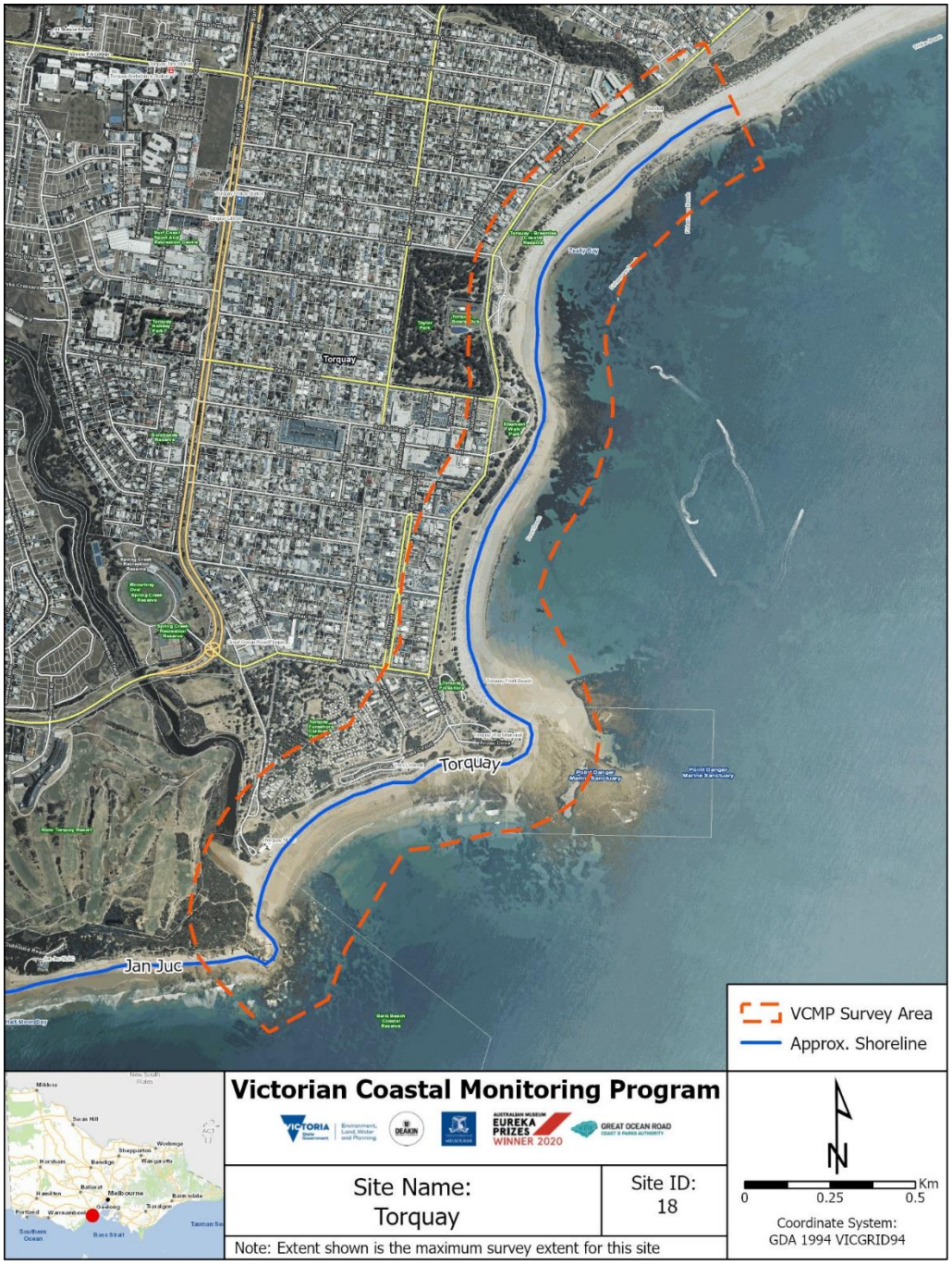
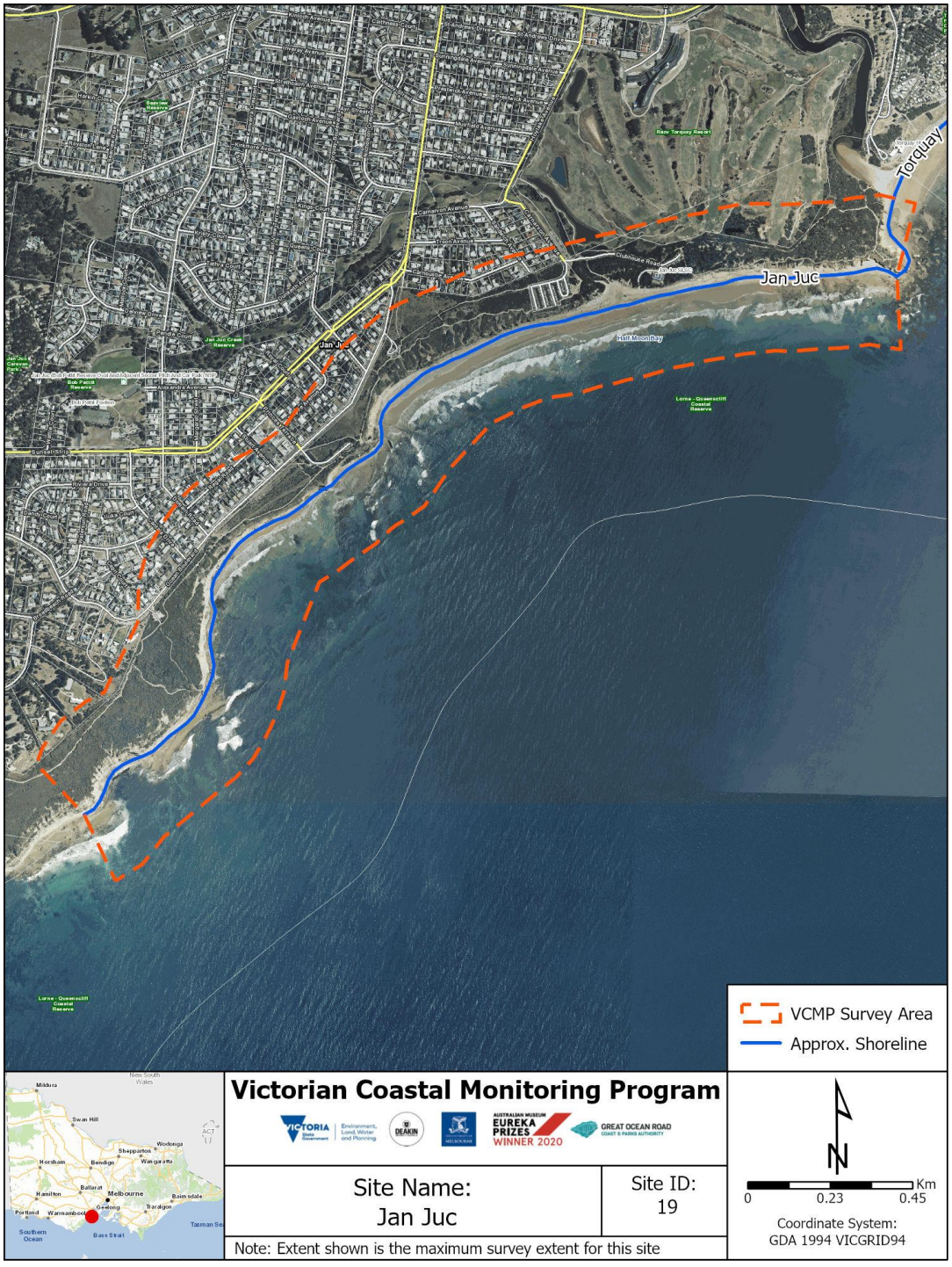
Site #18, Torquay

Survey extent: Maximum 2.5 km alongshore extent (5 km when combined with adjacent Jan Juc, Site #19).
Survey history: Three GORCAPA drone surveys have been conducted at irregular intervals since Jun 2019.
Wave climate: Moderate-high energy, with the southeast facing section partially exposed to southwest swells, and the more protected east facing beaches exposed only to easterly wind waves.
Tidal regime: Semi-diurnal, spring tidal range approx. 1.5 m.
Geomorphology: The site comprises several bays between headlands, with orientation varying from southeast to east facing. Extensive rocky outcrop occurs in the nearshore and intertidal. The beach is backed by a grass-covered dune, bluffs and soft cliffs, up to 8 m high.



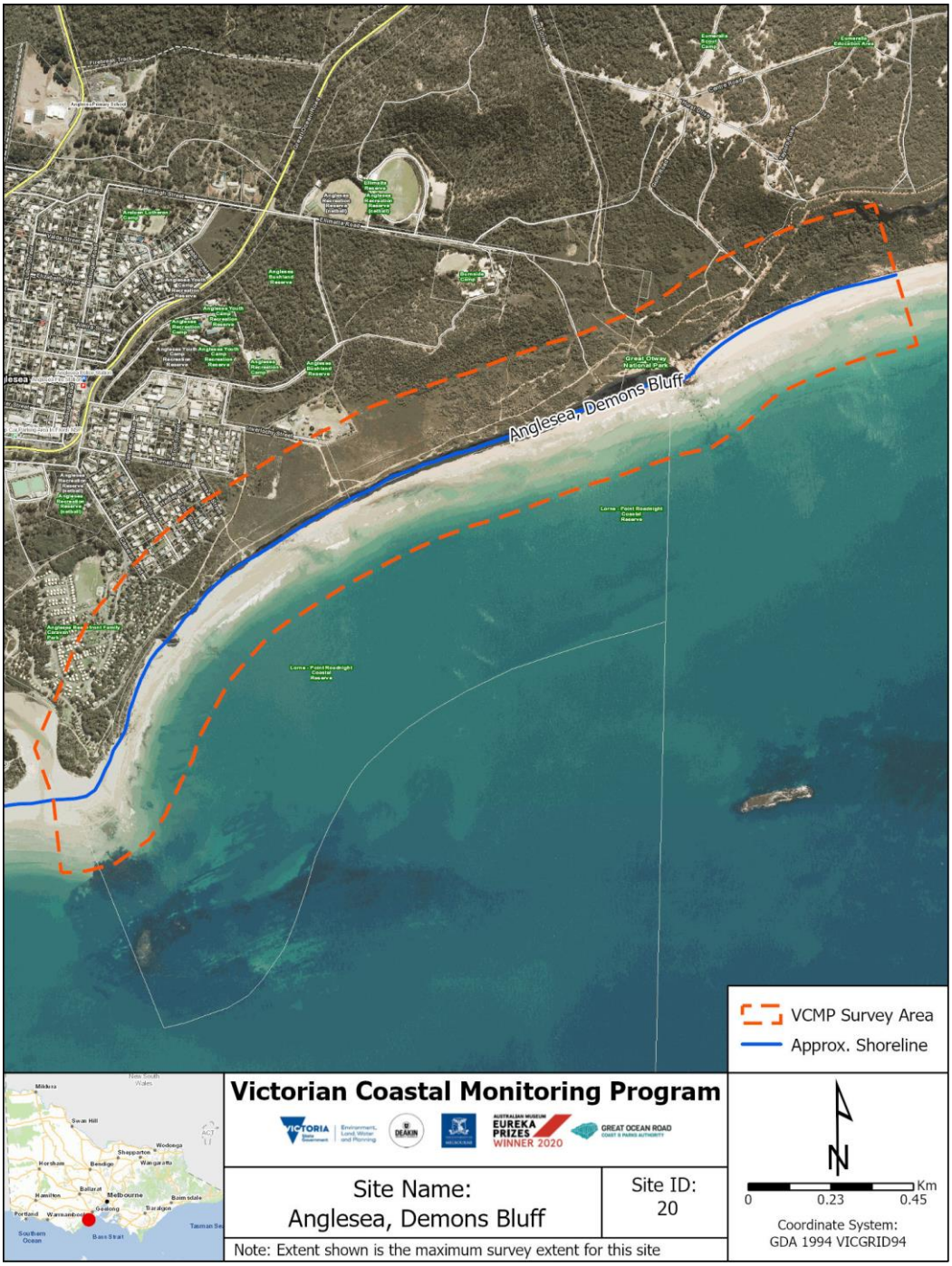
Site #19, Jan Juc

Survey extent: Maximum 2.5 km alongshore extent (up to 5 km when combined with adjacent Torquay, Site #18).
Survey history: Two GORCAPA drone surveys have been conducted, in Mar and Nov 2021.
Wave climate: High energy, exposed to southwest swells, and easterly wind waves.
Tidal regime: Semi-diurnal, spring tidal range approx. 1.5 m.
Geomorphology: Rocky bay-and-headland coast, with shore platforms in some areas and extensive rocky outcrop in the nearshore. The backshore is comprised of bluffs and soft-rock cliffs, increasing to >40 m height toward the southwest.



Site #20, Anglesea, Demons Bluff

Survey extent: Maximum 2.5 km alongshore extent (up to 4.5 km when combined with adjacent Point Roadknight, Site #21).
Survey history: VCMP drone survey every 6 to 8 weeks since Jun 2018, with some gaps. Total of 27 surveys by Jan 2022.
Wave climate: Moderate-high energy, partially exposed to southwest swells, and easterly wind waves.
Tidal regime: Semi-diurnal, spring tidal range approx. 1.5 m.
Geomorphology: Low-gradient beach backed by soft, highly-erodible cliffs, with heights exceeding 40 m AHD to the northeast. The Anglesea River is an intermittently open / closed inlet to the southwest of the site.



Site #21, Anglesea, Point Roadknight

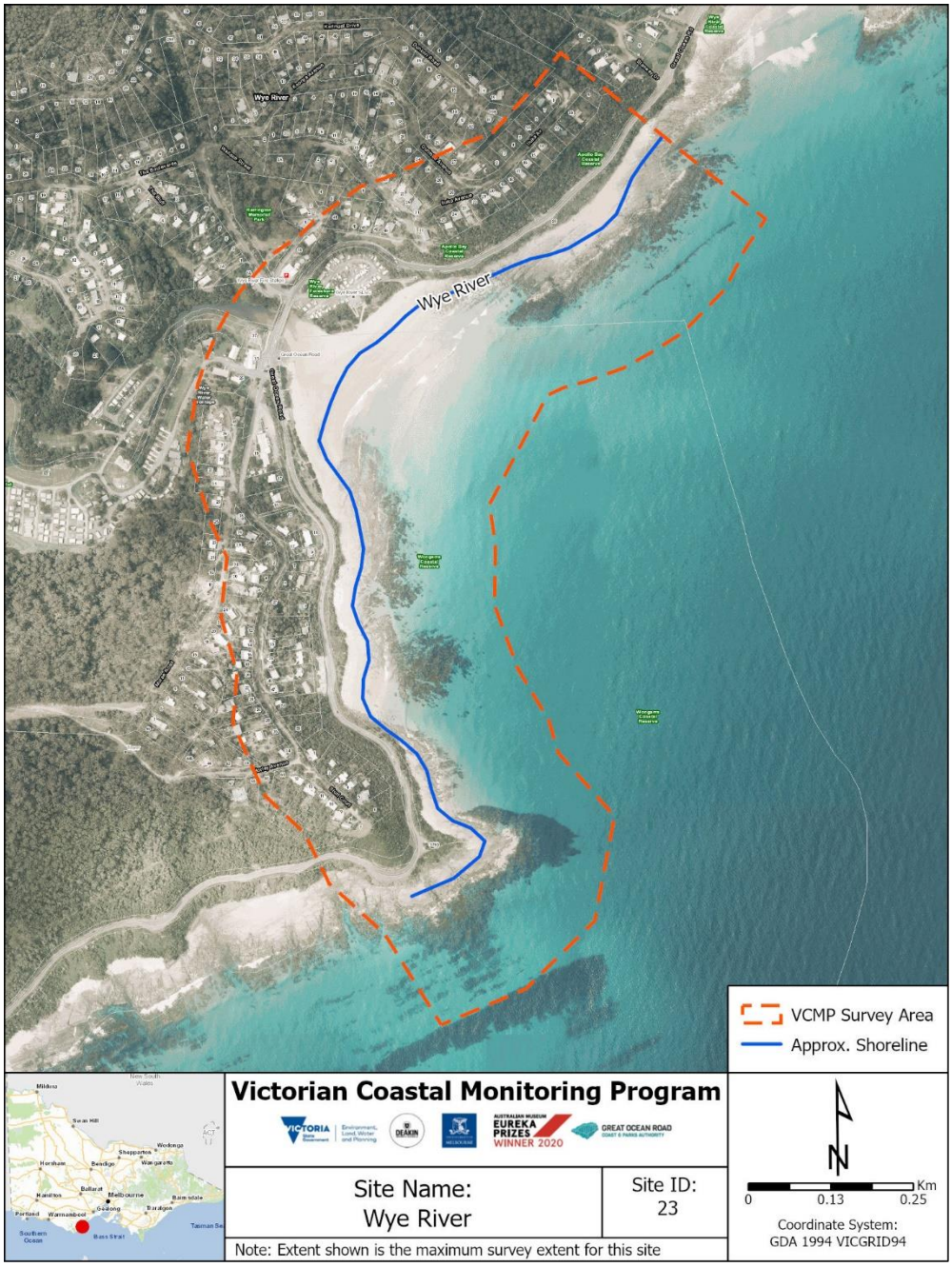
Survey extent: Maximum 2 km alongshore extent (up to 4.5 km when combined with adjacent Demons Bluff, Site #20).
Survey history: VCMP drone survey every 6 to 8 weeks since Jun 2018, with some gaps. Total of 26 surveys by Jan 2022.
Wave climate: Moderate energy, partially exposed to southwest swells, and easterly wind waves. Exposure increase to the northeast; southern corner is most protected.
Tidal regime: Semi-diurnal, spring tidal range approx. 1.5 m.
Geomorphology: Sandy beach backed by soft, highly-erodible bluffs and cliffs, with heights exceeding 30 m AHD to the northeast. The Anglesea River is an intermittently open / closed inlet to the northeast of the site.

Site #22, Eastern View

Survey extent: Maximum 1.5 km alongshore extent.
Survey history: Two GORCAPA surveys, conducted in Mar and Apr 2021.
Wave climate: Moderate-high energy, partially exposed to southwest swells, and easterly wind waves.
Tidal regime: Semi-diurnal, spring tidal range approx. 1.5 m.
Geomorphology: Southeast facing sandy beach backed by low dune, eroding in some areas, with minimal buffer to the Great Ocean Road (<5 m in some sections). Onshore of the road, the terrain rises steeply into bluffs and cliffs. Shore platforms and rocky outcrops occur in some areas of the intertidal to nearshore.

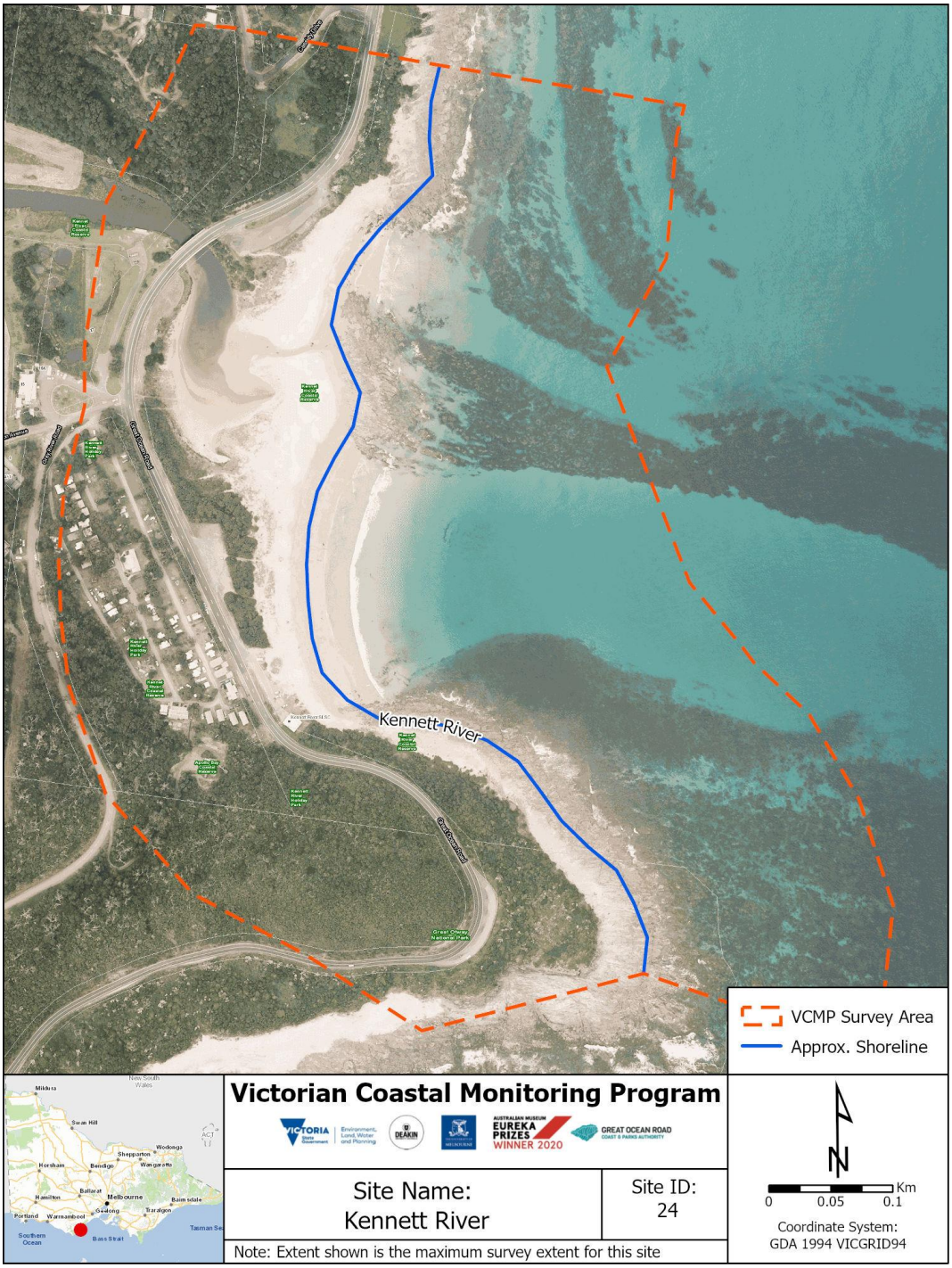
Site #23, Wye River

Survey extent: Maximum 1.5 km alongshore extent, most surveys focus on the pocket beach and inlet.
Survey history: Six GORCAPA surveys were conducted during 2021, prompted by concerns of dune and riverbank erosion.
Wave climate: Moderate-high energy, partially exposed to southwest swells, and easterly wind waves.
Tidal regime: Semi-diurnal, spring tidal range approx. 2 m.
Geomorphology: Wye River is a pocket beach around a small inlet. Shore platforms occur to the northeast and southwest. The northeast beach is backed by a dune, upon which a surf club is located. Behind the dune is a low lying area, utilised as a camping ground. Shifting of the river channel in 2020 was associated with dune and riverbank erosion.



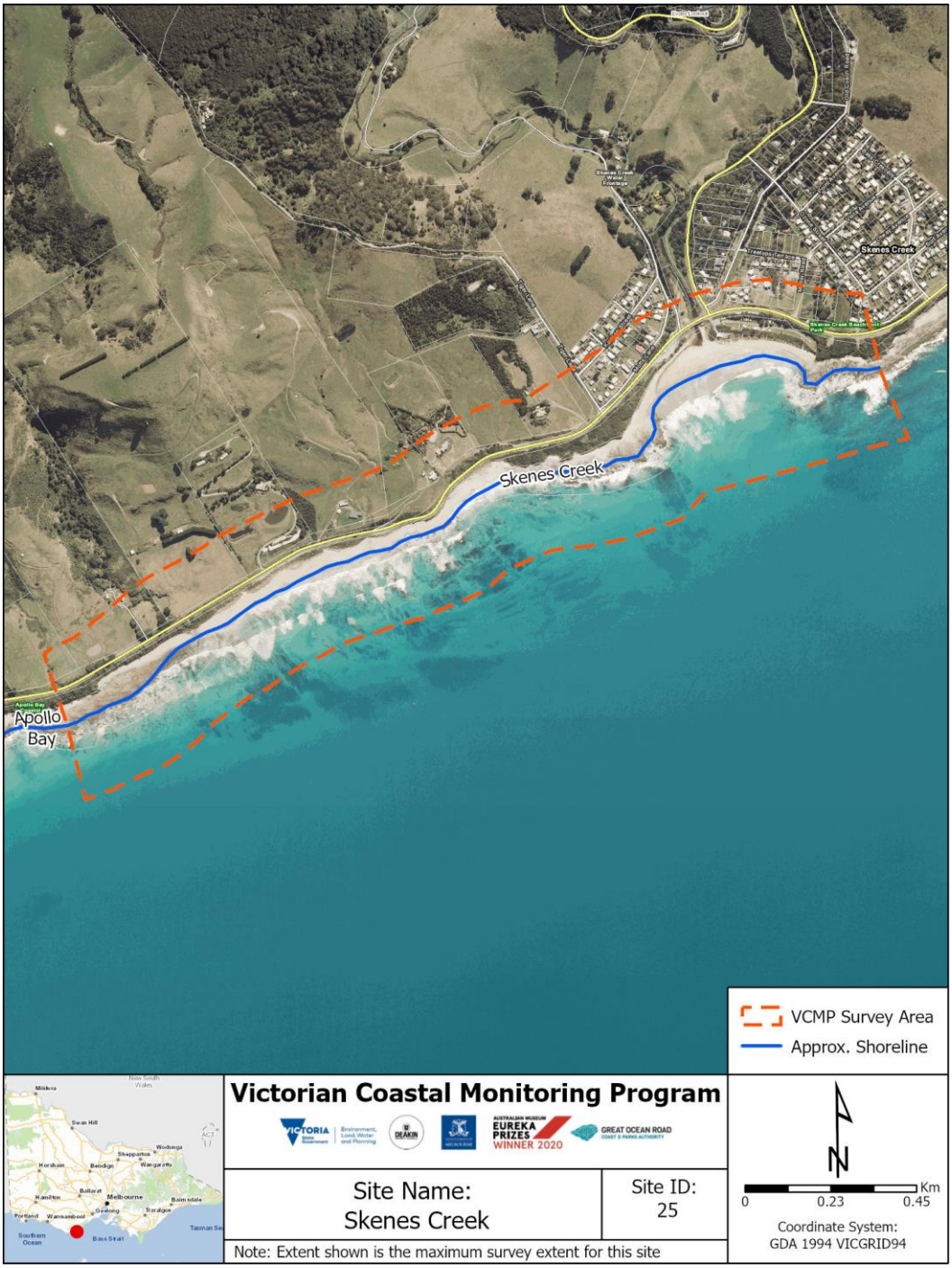
Site #24, Kennett River

Survey extent: 500 m alongshore extent.
Survey history: One-off GORCAPA survey in Apr 2021.
Wave climate: Moderate energy, protected from southwest swells, exposed to easterly wind waves.
Tidal regime: Semi-diurnal, spring tidal range approx. 2 m.
Geomorphology: East facing pocket beach around a small inlet. Shore platforms and outcrops are extensive, with limited areas of sand coverage.



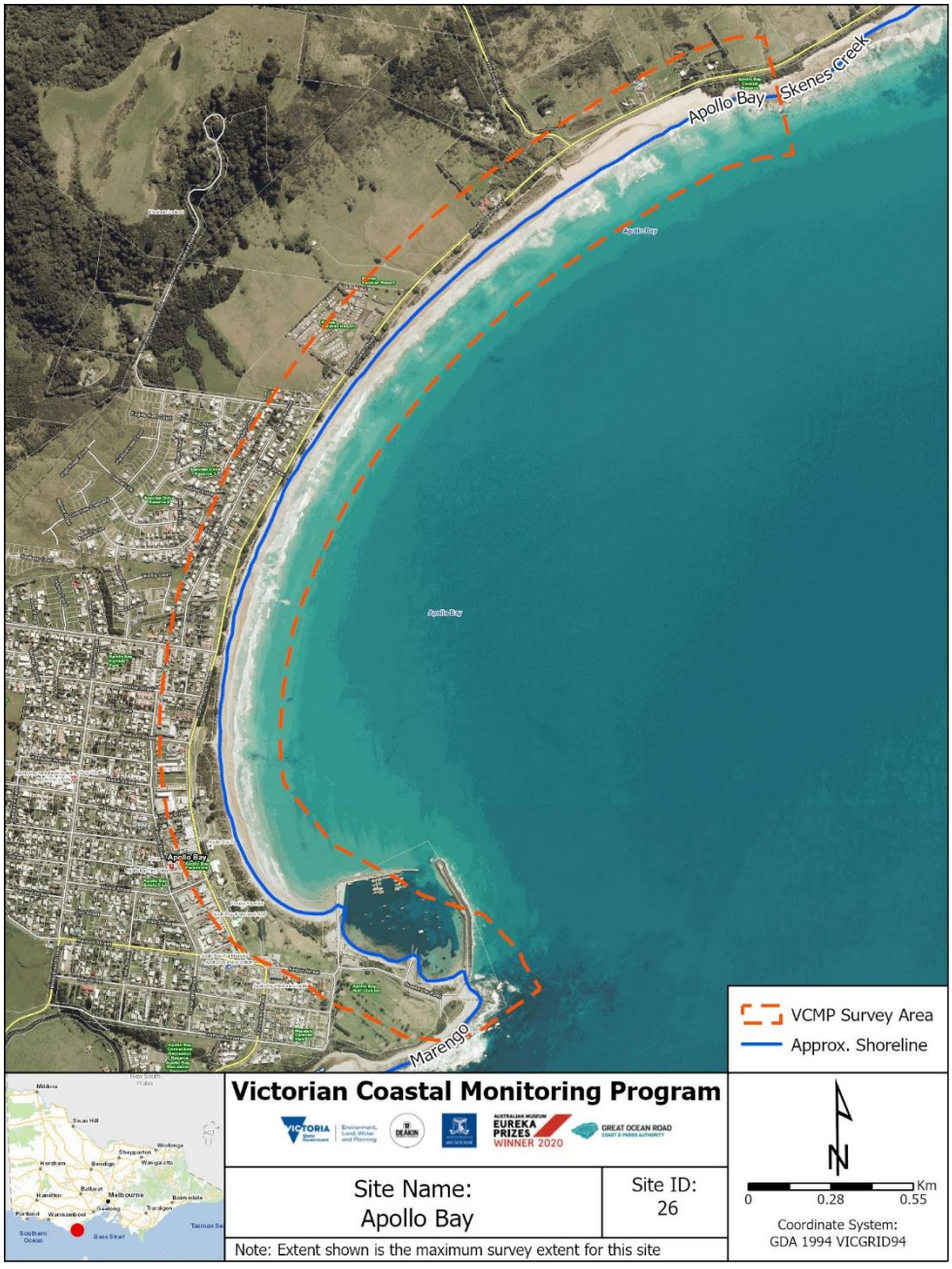
Site #25, Skenes Creek

Survey extent: Maximum 2.2 km alongshore extent (up to 9 km when combined with adjacent Apollo Bay and Marengo sites). Some surveys only cover the Skenes Creek pocket beach (500 m alongshore)
Survey history: Two VCMP surveys have been conducted, in Sep 2018 and May 2019.
Wave climate: High energy, exposed to southwest swells and easterly wind waves.
Tidal regime: Semi-diurnal, spring tidal range approx. 1.5 m.
Geomorphology: Pocket beach around Skenes Creek, extending to the southwest as a series of shore platforms and rocky outcrops, capped by perched beaches. Backed by a narrow vegetated dune with minimal buffer to the Great Ocean Road (<10 m in places).



Site #26, Apollo Bay

Survey extent: Maximum 4 km alongshore extent (up to 9 km when combined with adjacent Skenes Creek and Marengo sites).
Survey history: VCMP drone survey every 6 to 8 weeks since Jun 2018, with some gaps. Total of 42 surveys by Jan 2022.
Wave climate: Moderate - high energy, partially exposed to southwest swells and easterly wind waves, with protection increasing toward the southwest (toward the harbour).
Tidal regime: Semi-diurnal, spring tidal range approx. 1.5 m.
Geomorphology: Log-spiral geometry, intermediate embayed beach, with a harbour built to the southwest and increasing exposure to the northeast. The backshore is developed with pathways, parks and carparks, with a limited buffer to the Great Ocean Road (<10 m in some areas).
Coastal structures: Concerns over recent erosion events prompted the construction of three groynes and a revetment approx. 1 km north of the harbour.



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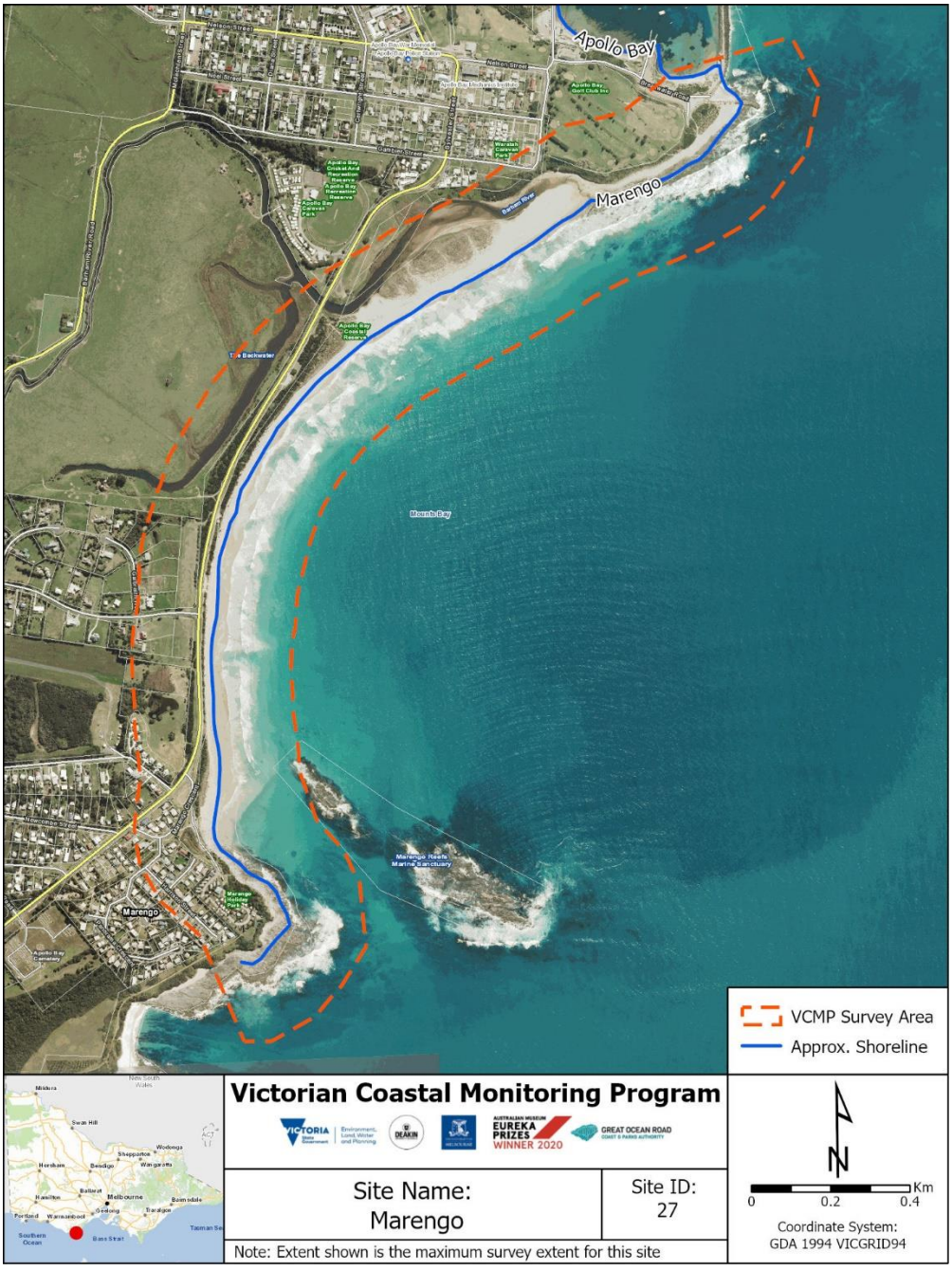
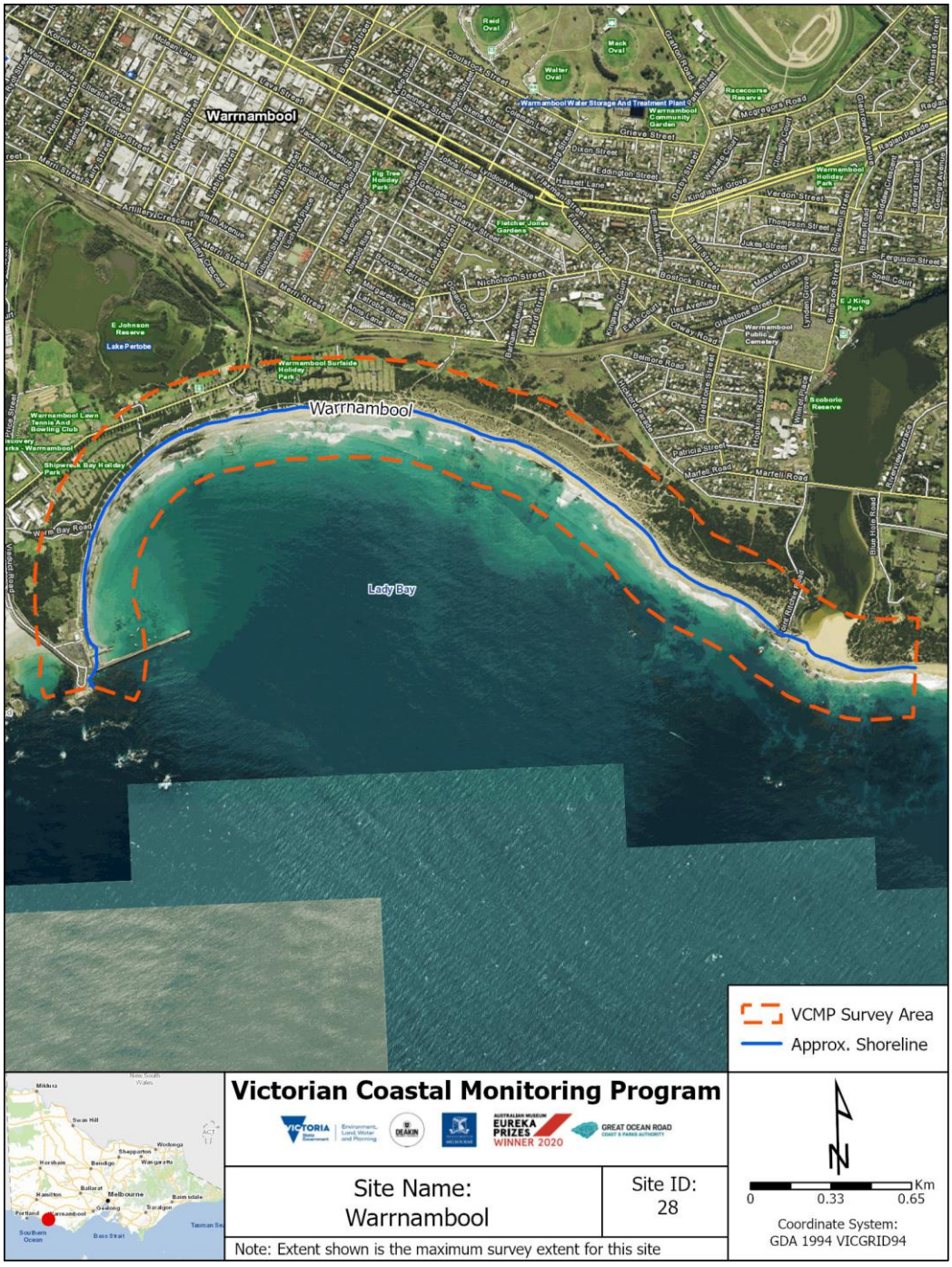
Site #27, Marengo

Survey extent: Maximum 2.5 km alongshore extent (up to 9 km when combined with adjacent Apollo Bay and Skenes Creek sites).
Survey history: VCMP drone survey every 6 to 8 weeks since Jun 2018, with some gaps. Total of 26 surveys by Jan 2022.
Wave climate: Moderate-high energy, partially exposed to southwest swells and easterly wind waves, with protection increasing toward the southwest.
Tidal regime: Semi-diurnal, spring tidal range approx. 1.5 m.
Geomorphology: Intermediate embayed beach, backed by a 5 m dune, with the Great Ocean Road running along the crest, as near as 10 m to the active beach in some areas. The northern section is a low barrier backed by a lagoon (Barham River) with an intermittent inlet at the northern end of the beach.



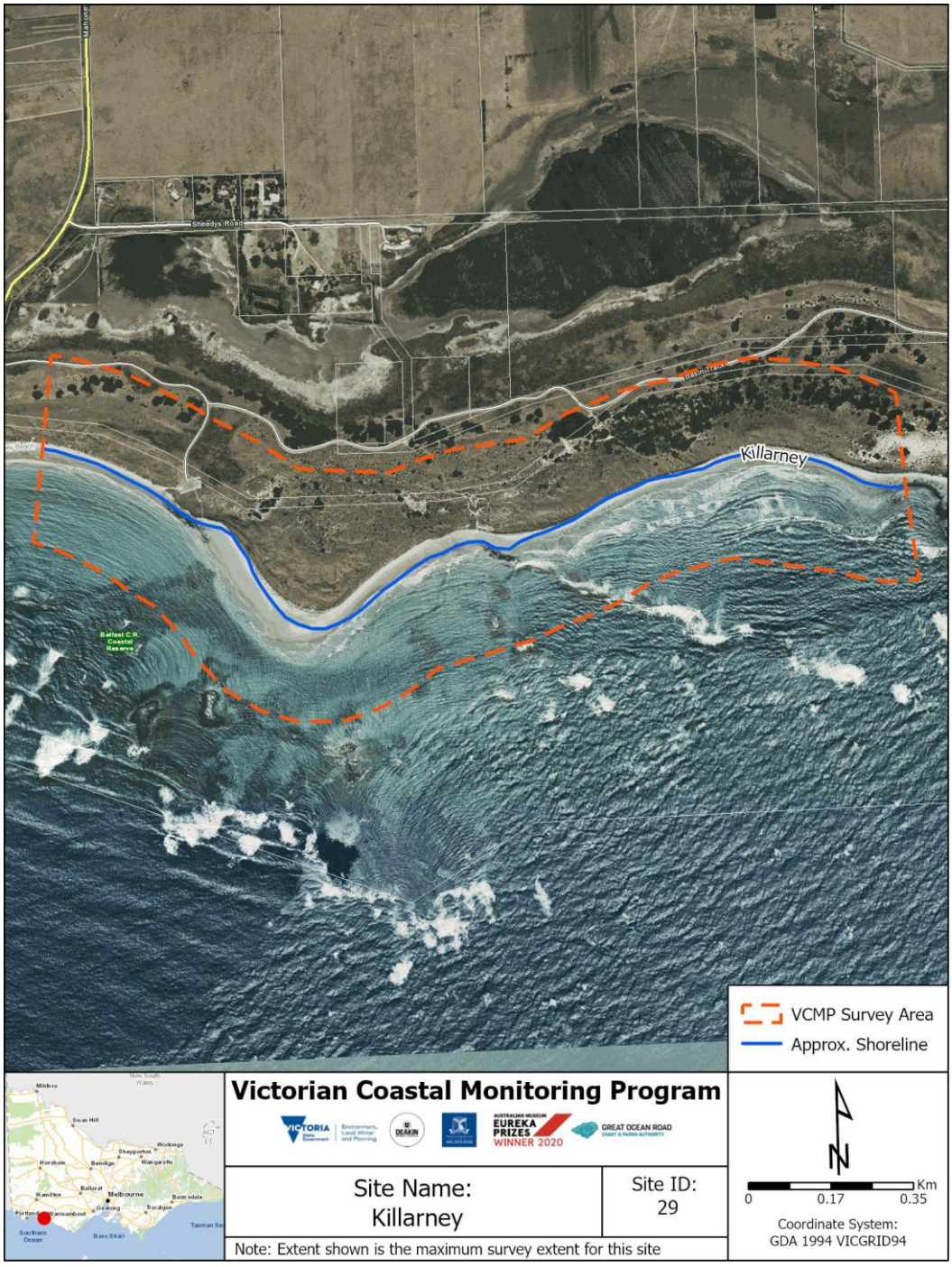
Site #28, Warrnambool

Survey extent: Maximum 4 km alongshore extent, from Warrnambool Pier to Hopkins River.
Survey history: VCMP drone survey every 6 to 8 weeks since Jun 2018, with some gaps. Total of 27 surveys by Jan 2022.
Wave climate: Moderate-high energy, exposed to southwest swells, with increasing protection toward the west.
Tidal regime: Semi-diurnal, spring tidal range approx. 1 m.
Geomorphology: Log-spiral geometry, intermediate embayed beach, mostly backed by vegetated dune, with heights exceeding 10 m AHD. Hopkins River inlet intermittently open to the east of the site. The long pier at the southwest has resulted in significant accretion across the west of the bay.



Site #29, Killarney

Survey extent: 1.6 km alongshore extent.
Survey history: Archival surveys by Deakin, from Aug 2014 and Oct 2015.
Wave climate: Moderate-high energy, exposed to southwest swell, some protection from offshore outcrops.
Tidal regime: Semi-diurnal, spring tidal range approx. 1 m.
Geomorphology: Sandy beach backed by scrub vegetated dunes, with extensive outcrops in the intertidal and nearshore. Offshore outcrops rising above sea level provide wave protection, with a large salient onshore of the main outcrop.



Site #30, Port Fairy

Survey extent: Maximum 5.8 km alongshore extent, though most surveys only covers 2-3 km in the vicinity of the landfill sites.
Survey history: VCMP drone survey every 6 to 8 weeks since Mar 2018, with some gaps. Total of 30 surveys by Jan 2022.
Wave climate: Moderate - high energy, partially exposed to southwest swell, increasingly protected to the southwest.
Tidal regime: Semi-diurnal, spring tidal range < 1 m.
Geomorphology: Log-spiral bay geometry, intermediate sandy beach, 5.8 km long. The protected southwest corner is backed by parks, paths and housing. The mid- to northeast is backed by dunes up to 10 m AHD, with two relict landfill sites buried in the dunes, which have been partially exposed by storm erosion in recent years. Moyne River inlet is at the southwest corner.
Coastal structures: Revetment and river training walls to the southwest. The easternmost landfill site is fronted by a low wall of rock armour, placed on the active beachface in front of the dunes.

Site #31, Portland, Dutton Way

Survey extent: Maximum 9 km alongshore extent, though most surveys cover 2-3 km around Dutton Way.
Survey history: VCMP drone survey every 6 to 8 weeks since Feb 2018, with some gaps. Total of 23 surveys by Jan 2022.
Wave climate: Moderate-high energy, partially exposed to southwest swell, increasingly protected to the southwest.
Tidal regime: Semi-diurnal, spring tidal range <1 m.
Geomorphology: Portland is at the western end of a large (60 km long) log-spiral shaped bay. The region around Dutton Way experiences a chronic longshore sediment budget deficit, and the beach has progressively eroded, with no high tide beach in many sections.
Coastal structures: Extensive (7 km) rock armour revetment around Dutton Way in the erosive region, with severe terminal erosion having occurred beyond the end point of the revetment.