



## Black Rock revetment

The Black Rock seawall and promenade, constructed in the 1930s, have endured significant storm damage since 2009, requiring ongoing, costly maintenance. They have outlasted their design life and now need a long-term solution to protect them, the adjacent cliffs, and enable the public continued access to the promenade and Ricketts Point Marine Sanctuary (RPMS). Public infrastructure, such as Beach Road, also needs protection from storm damage and erosion.

The Department of Environment, Land, Water and Planning (DELWP) initially proposed to construct a rock revetment in several stages, with the first stage in the vicinity of Quiet Corner near the northern boundary of RPMS but it is more cost-effective and less disruptive to the community to complete the construction in one stage. The height and width of the revetment are shown in Figure 1. The revetment will start at the northern boundary of RPMS and extend approximately 440 m north to the base of the Balcombe Road carpark ramp (Figure 2). The revetment will protect the most vulnerable sections of Black Rock seawall that have been regularly damaged by storms over the last decade. The northern extent of the revetment is still being determined, however, Black Rock's main beach near the Surf Lifesaving Club will not be impacted.

DELWP has undertaken studies to determine the best options for protecting the many kilometres of historic bluestone seawalls around Port Phillip Bay. Digital and physical modelling of various revetment designs were undertaken by the University of New South Wales in 2012. Sloping rock revetments were found to be the most effective protective

structures and have been installed in many coastal locations around Port Phillip Bay and beyond.

While a narrow beach appears seasonally to the south of the Balcombe Road carpark access ramp over spring and summer, it is not adequate to protect the seawall and promenade. It erodes over summer, often fully exposing the wall down to seabed in time for winter storms.

### Options considered

A beach renourishment in this location would need to be very large to provide the seawall with protection comparable to a revetment, and would consequently have a significant environmental impact on the seabed and RPMS as sand would be transported via natural coastal processes into RPMS, likely smothering existing marine life. An offshore reef would have a very large footprint, high visual impact and create a marine transport hazard. Once these various protection options were considered for Black Rock, a sloping rock revetment was found to be the most feasible option, with the least environmental impact, to protect the existing seawall.

### Community engagement

In April 2017 DELWP began engaging with the Black Rock community about the proposal to construct the protective rock revetment between Quiet Corner and the Balcombe Road access ramp.

Two community information 'drop in' sessions were held in April and June 2017 where information about the project was displayed and expert consultants and DELWP staff were on hand to discuss the proposal. A community survey was undertaken by RMIT University students to understand the typical use of the promenade and beach, and gauge community interest in the proposal. The survey was promoted on signs at Black Rock, by flyers dropped in local letter boxes and cafes, via social media and by email to stakeholders including representatives of local stakeholder groups.

### Further studies

To address feedback from stakeholder engagement, DELWP commissioned research into the local marine ecology, additional coastal processes and undertook detailed modelling of the proposed revetment design. A historic heritage study was also completed. The marine ecology study showed that the revetment would have negligible impact on the local marine environment, with little or no effect on seagrasses or benthic (sea floor) marine life. The detailed coastal modelling showed that there will be little or no change

to the existing coastal processes, meaning that sand will continue to move seasonally north and south along the seawall, and will continue to accumulate in locations as it presently does. With the height of the revetment finishing just below the concrete wave deflector, sand is likely to continue to build up between the Second and Third Street access ramps, and seasonally will likely cover part if not all of the revetment, forming a beach as it does at present.

The project studies and survey results are available at: [www.coastsandmarine.vic.gov.au/coastal-programs/port-philip](http://www.coastsandmarine.vic.gov.au/coastal-programs/port-philip)

### What next?

Detailed designs are being completed for the entire rock revetment and will be uploaded to the project website. Once the designs are completed, a community information session will be arranged early in 2019.

To provide feedback, or to receive project updates, please call DELWP on (03) 9210 9401 or email [cass.philippou@delwp.vic.gov.au](mailto:cass.philippou@delwp.vic.gov.au).

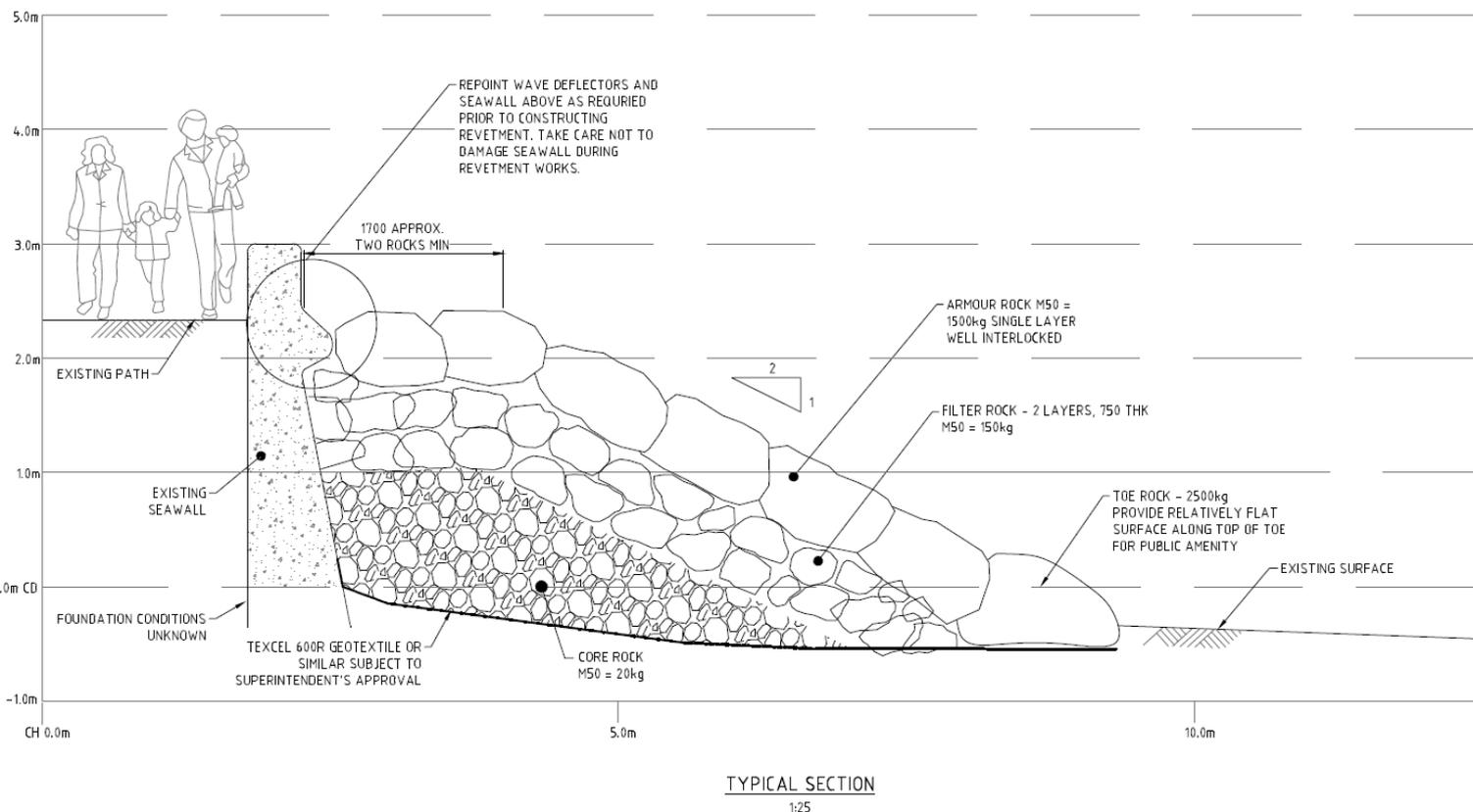


Figure 1: Section view of proposed revetment (AW Maritime 2017)



Figure 2: Approximate revetment location shown as the yellow box, Black Rock (Water Technology 2018)