Te Ara Tupua Alliance

Shifting gear to connect past, present and future

Te Ara Tupua- No ordinary shared path:

An innovative approach to coastal resilience

11 March 2026

Presentation Focus:

Te Ara Tupua Alliance
Shifting gear to connect past, present and future

Project Overview
Constraints
Innovation example

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Project Overview

Background

- Te Ara Tupua path includes the Ngā Ūranga ki Pito-One section
- **Fast-tracked consenting** – main consent approved in Feb 2021.
- **Te Ara Tupua Alliance is** established made up of Waka Kotahi, Downer NZ, HEB Construction, and Tonkin + Taylor to deliver the project.
- Other partners include Hutt City Council, Wellington City Council, Greater Wellington Regional Council and KiwiRail.

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that the cyclists of Wellington City and suburbs could be put into a sound legal position by which they could contribute 5s. a year each to make a cycle-track from Wellington to the Hutt. That was unanimously agreed to by almost all the cyclists of Wellington. I may say that I was really agitating in that matter not so much with a desire of helping cyclists alone, but with the idea of giving some outlet from the City of Wellington to those who might wish to take a day's holiday. I do not know whether the member for Eden, Mr. Bollard, rides a cycle or not, but I should fancy he does

July 1901, 119th volume NZ Parliamentary Debates: Cycle board bill

Ngā Ūranga ki Pito-One
Harbour-side shared path to compete the missing link from Nga Uranga Interchange to Petone Station.

Mana Whenua Partnership

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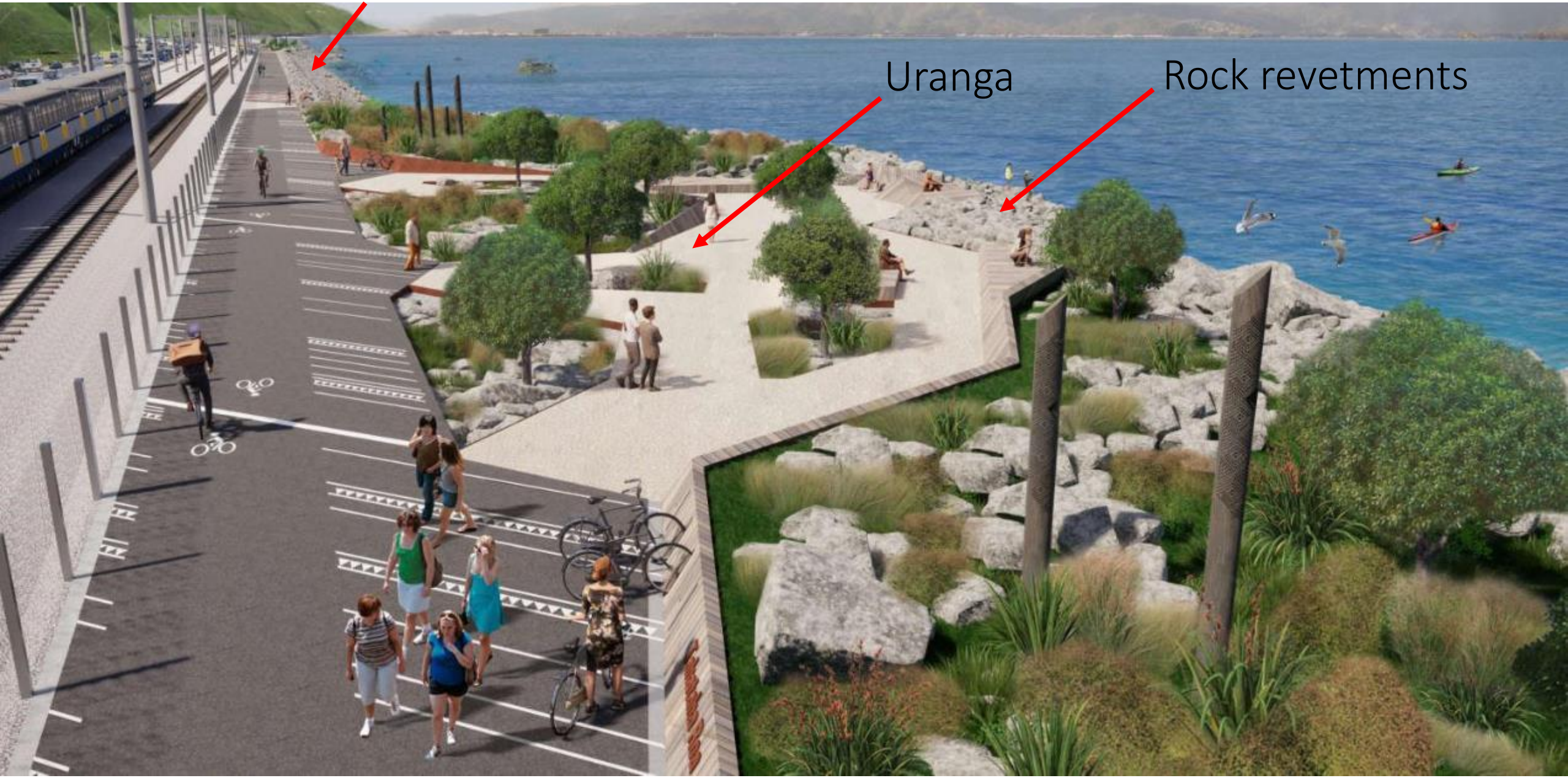
Mana Whenua Steering Group formed for the project (Taranaki Whānui and Ngati Toa alongside Waka Kotahi)

The new path:

- connects our communities to the coastal edge of Te Whanganui a Tara
- shares the stories of the guardians and creators of Te Whanganui and chiefs Honiana Te Puni, and Te Wharepouri.

Concrete revetments & Seawalls



Project Objectives

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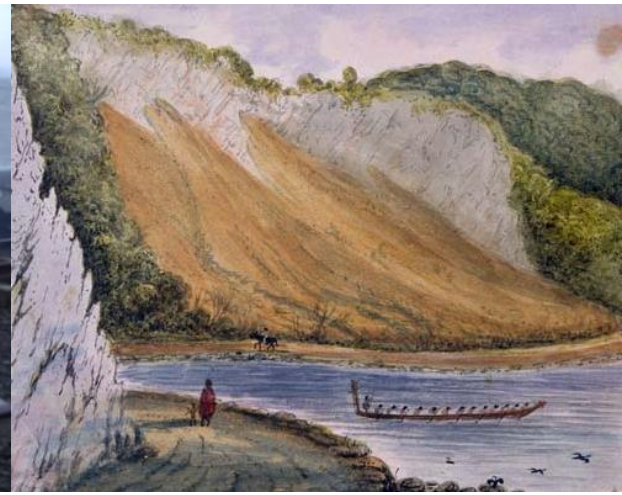
- Resilience improvements to the transport network.



- New safer transport choices

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Key Constraints

Key Constraints

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- Narrow coastal footprint
- Major fault line and high seismic hazard
- Extreme wave climate
- Difficult access adjacent live rail corridor

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Innovation:
Designing with Nature

CONCRETE VS ROCK

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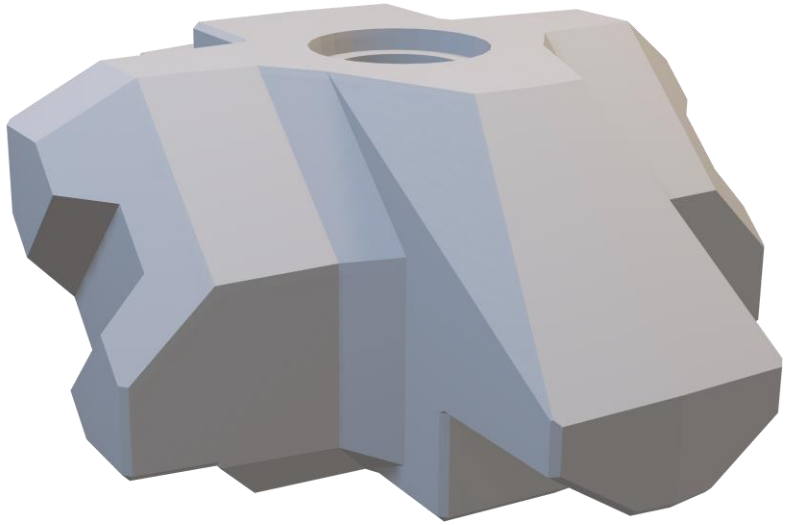

✓a **smaller footprint** than rock – saved ~4,000m^2 and got us within the consent footprint
✓a **smaller volume** than rock – saved ~50,000 m^3 rock
✓**faster supply and placement** – saves programme (6 months programme)
✓CO2 emissions slightly better than for the all rock option (due to reduced programme and rock transport)

REDUCED FOOTPRINT

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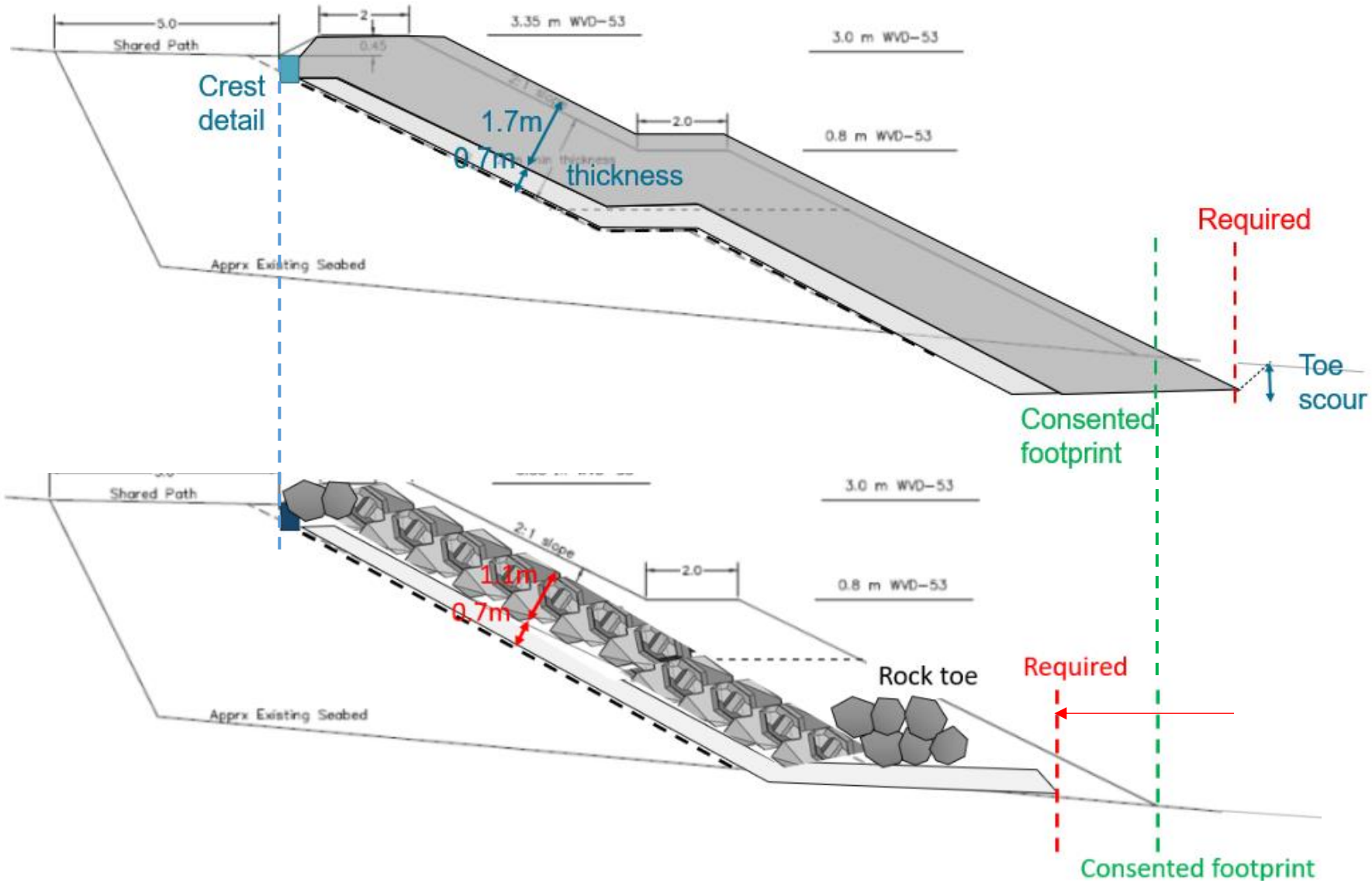

MITIGATING VISUAL IMPACT

VARIATION IN COLOUR AND SHAPE

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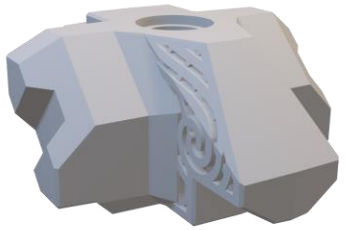
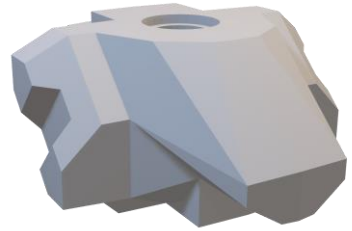
v1—Standard xblocplus (Type 1)


v2—Special xblocplus Type 2


v3—Special xblocplus Type 3

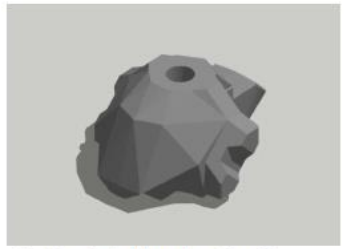

v4—Special xblocplus Type 4



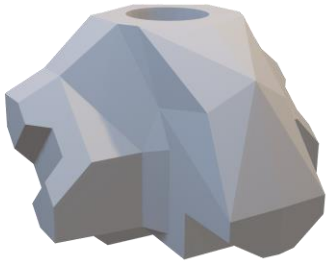


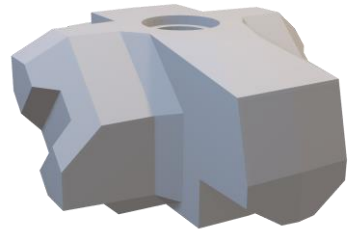

v5—Special xblocplus Type 5

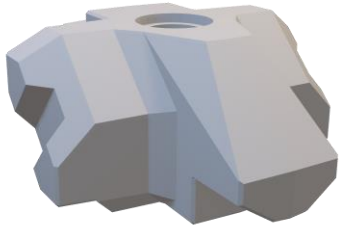

v6—Special xblocplus Type 6

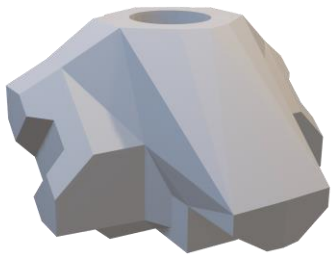

v7—Special xblocplus Type 7

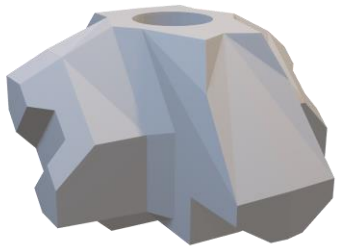

v8—Special xblocplus Type 8

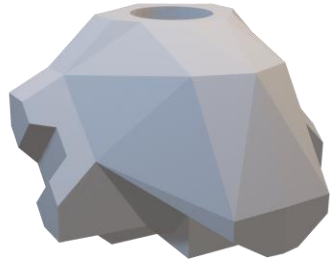


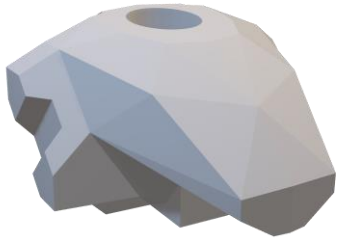












MITIGATING ECOLOGICAL IMPACT

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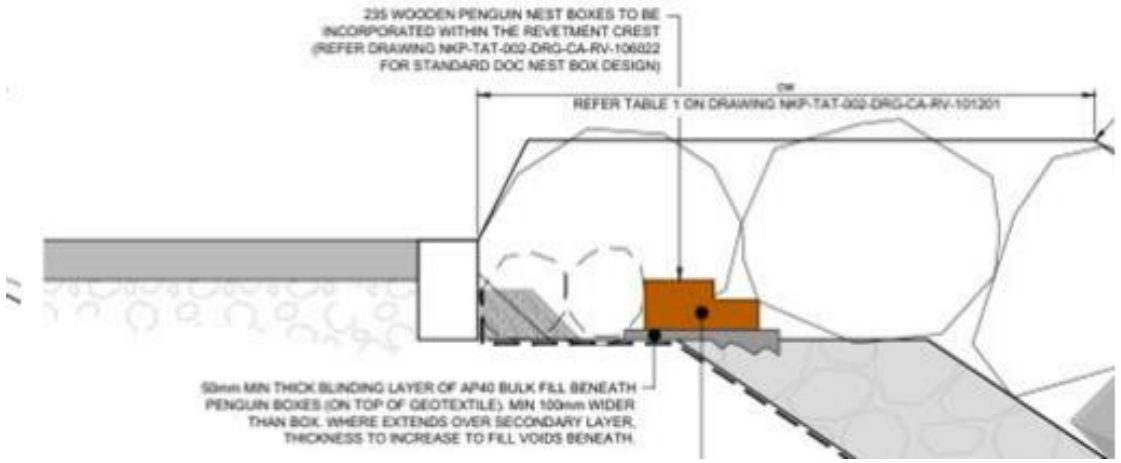

COASTAL RESILIENCE

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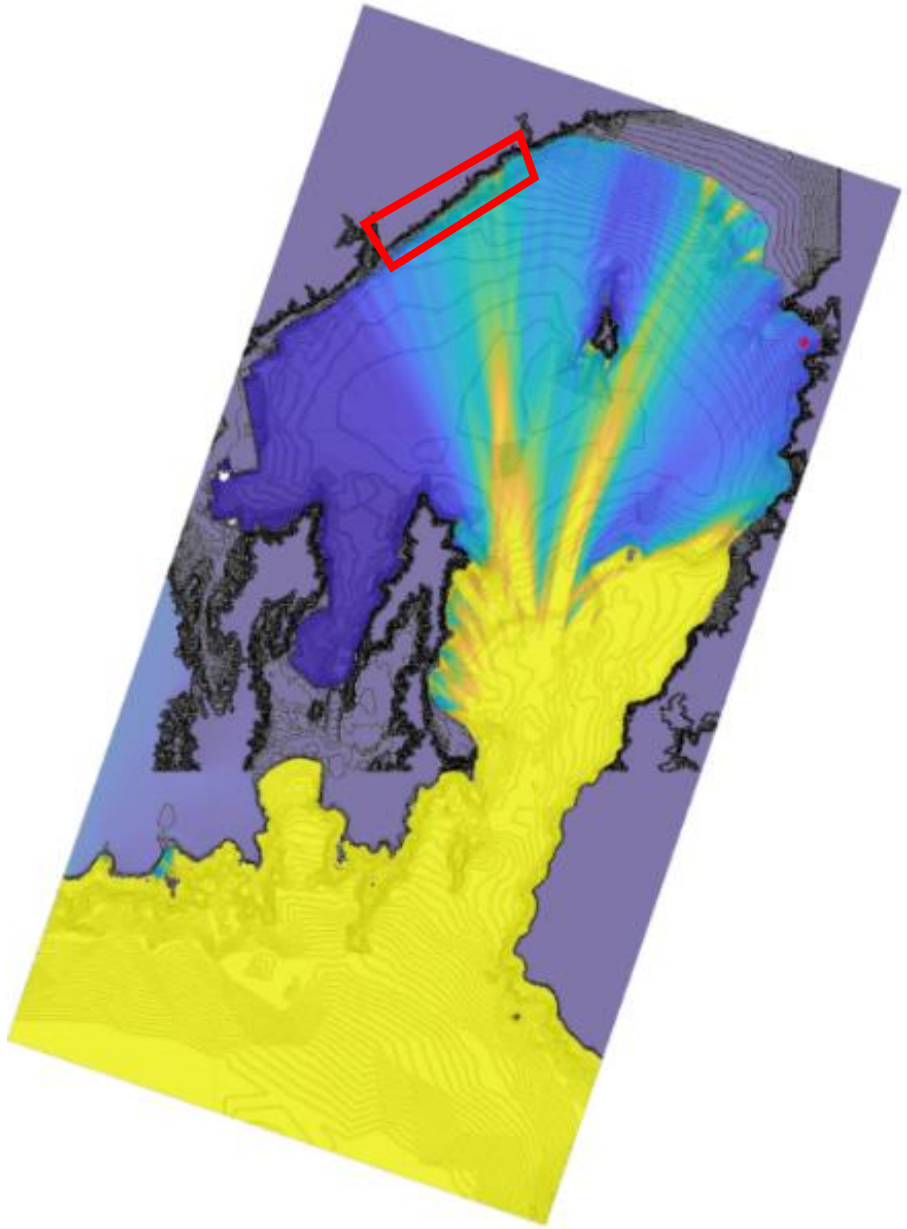

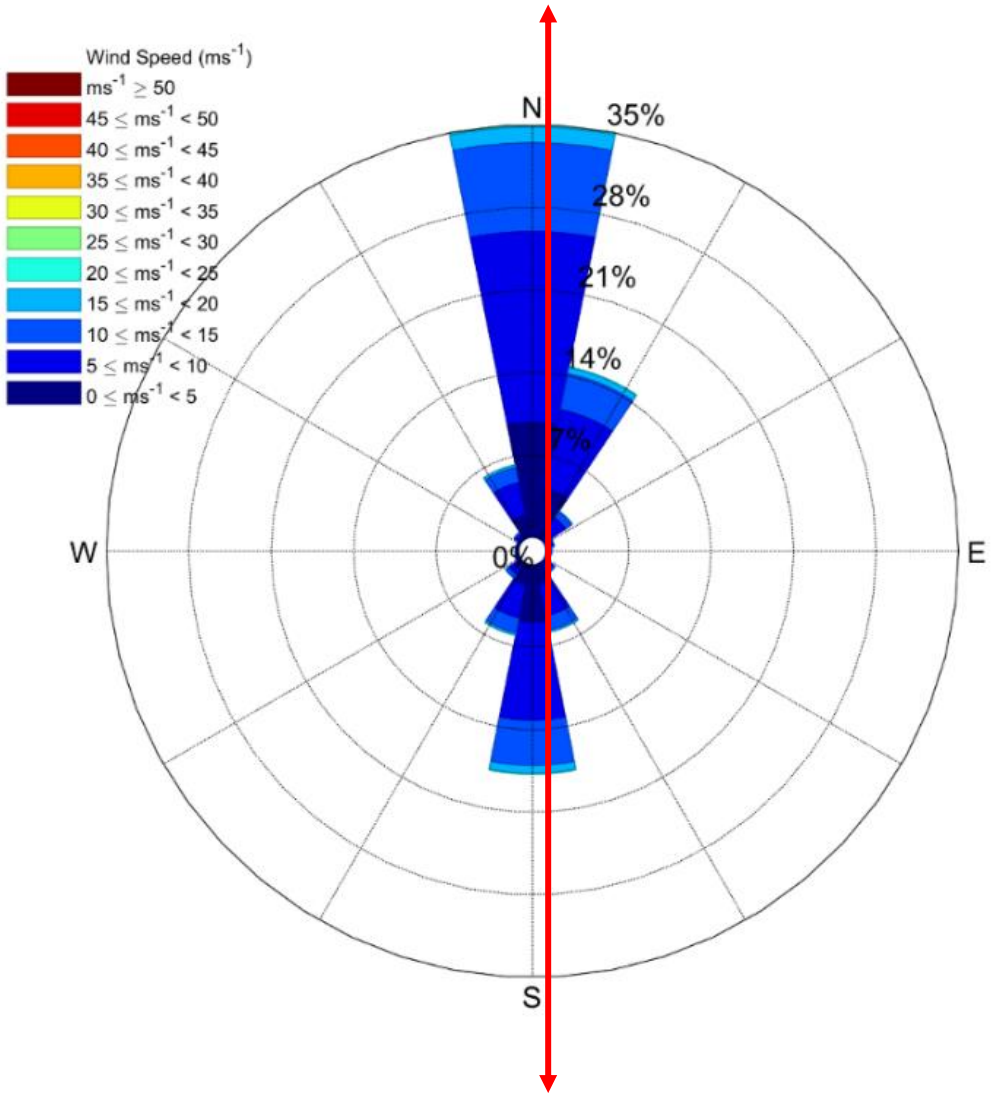

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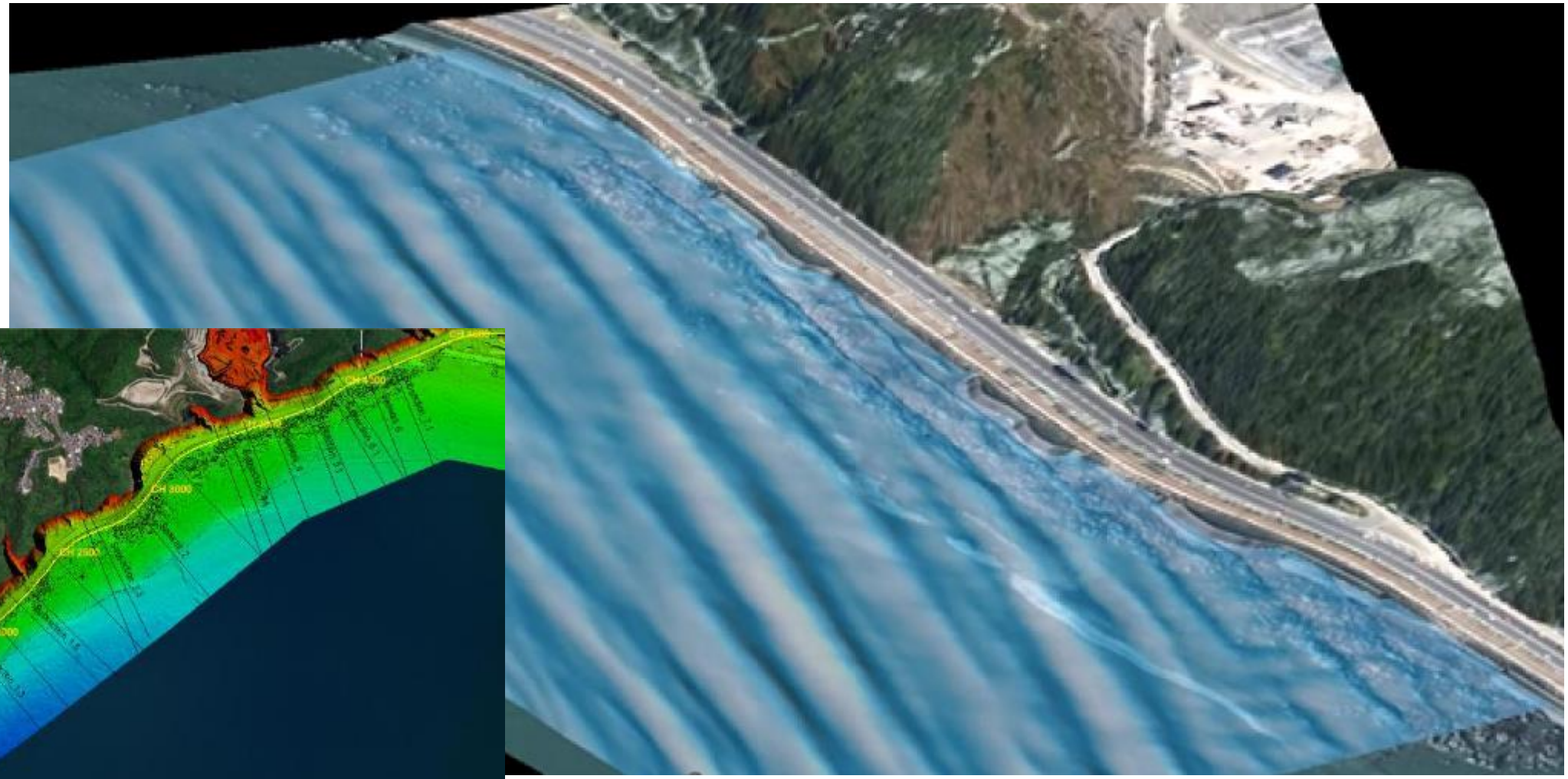

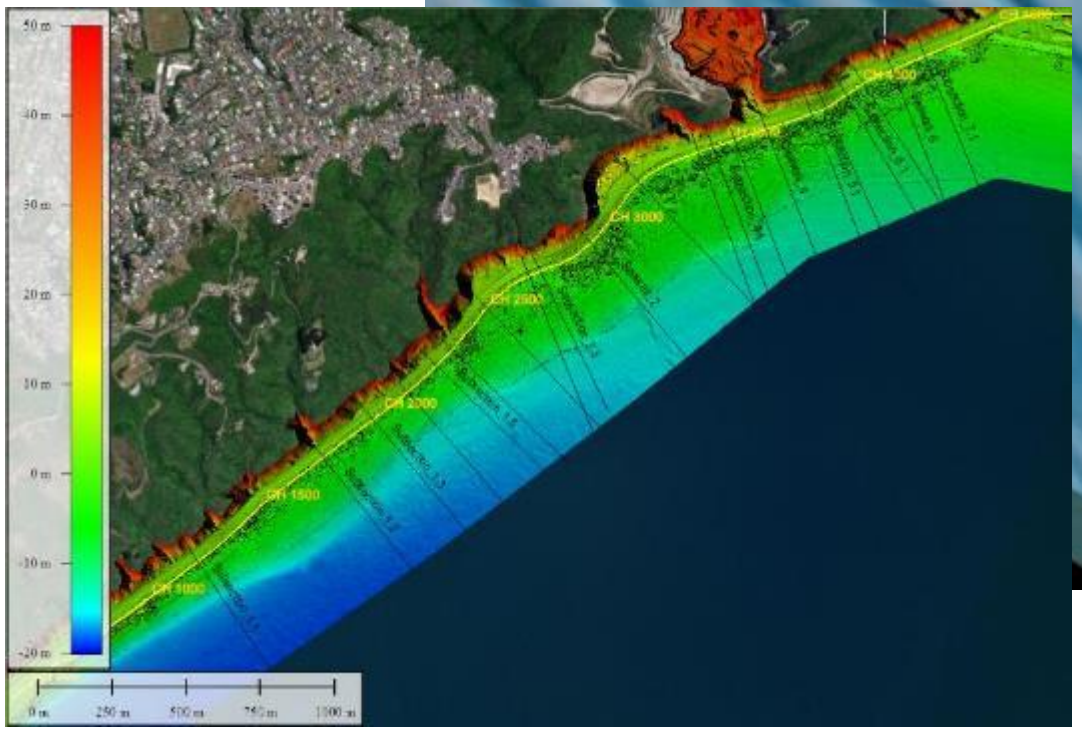

COASTAL RESILIENCE

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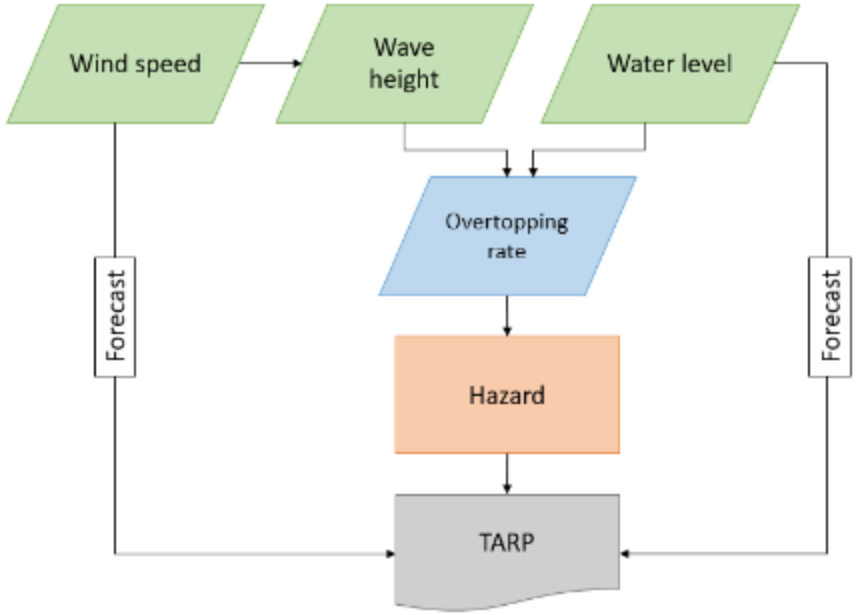
Operational Trigger Action Response Plan (TARP)



Warning level[6]	Warning threshold/trigger[245]	Expected overtopping and wave height	Impact
• **Level 1** ***Adverse weather forecast.*** Occurrence: Average approximately once/2 months	• Forecasted adverse weather conditions (Level 3 or 4 thresholds) likely to affect path usability within 24 hours.	Not applicable.	• **Aims to increase awareness of path users of hazardous weather condition approaching within 24 hours.** • Gives path users adequate warning to make alternative arrangements.
• **Level 2** ***Warning, strong winds and spray.*** Occurrence: Average approximately once per month Strong wind, spray and debris or high wind with lower tide	• Wind speed: 35 to 55 km/hr from the southeast to southwest. • 3 hours either side of high tide	Wave height: 0.6 – 1.1 m Low overtopping q_{mean} = < 0.1 l/s/m	• **Strong winds from the south likely to create uncomfortable path user conditions.** • Spray onto the path on along standard revetment lengths. • Overtopping occurring infrequently (2-5min between events).
• **Level 3** ***Warning, strong winds and overtopping.*** Occurrence: Average approximately once/2 months Strong wind, spray and debris or high wind with lower tide.	• Wind speed: 56 to 75 km/hr from the southeast to southwest. • 3 hours either side of high tide	Wave height: 1.2 to 1.5 m Moderate overtopping q_{mean} = 0.1 to 1 l/s/m	• Whitewater onto path, potentially some green water events but volumes and flow depths. • Overtopping occurring infrequently (2-5min between events). • **Uncomfortable but not dangerous for aware pedestrians/cyclists.**
• **Level 4** ***Path closure.*** Occurrence: Average ~once every 1 - 10 years (63% annual exceedance probability) Overtopping exceeds design criteria.	• Wind speed > 75 km/hr from the southeast to southwest. • All tides	Wave height: > 1.5 m High overtopping q_{mean} = > 1 l/s/m	• Significant white water and green water across path. • Occurs frequently (<2 min between overtopping events). • **Extremely dangerous to pedestrians/cyclists.**

SEISMIC RESILIENCE

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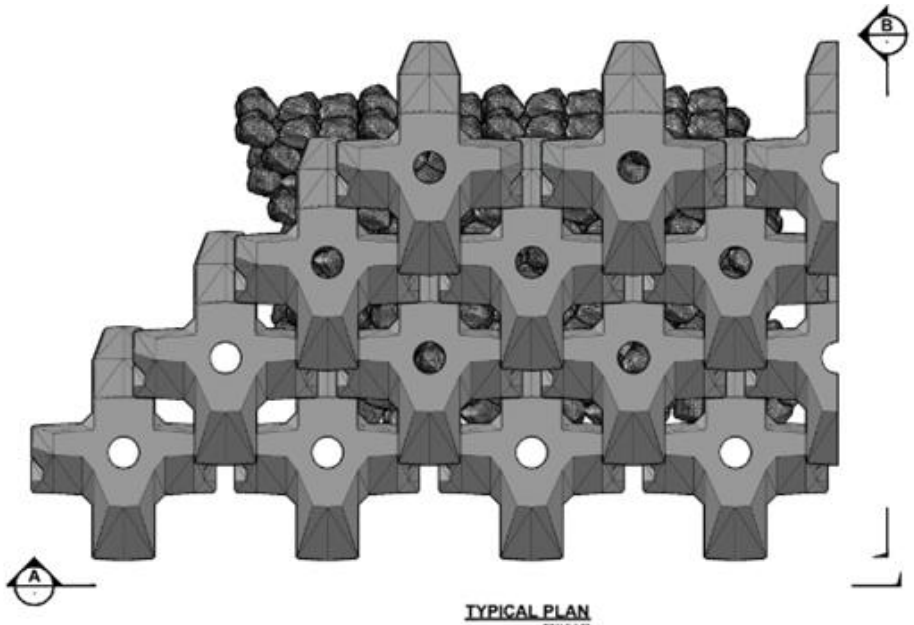
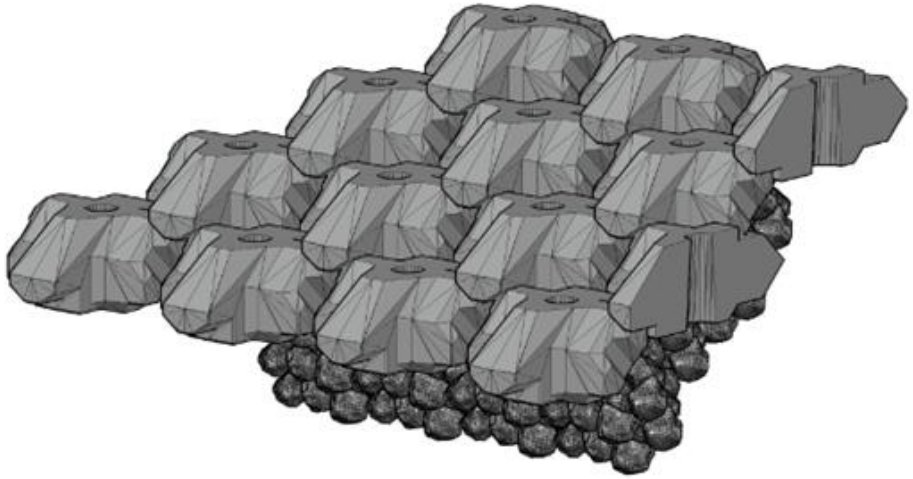
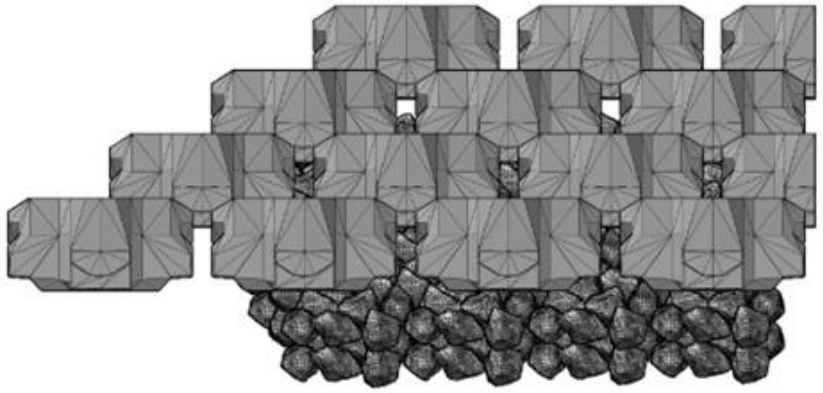


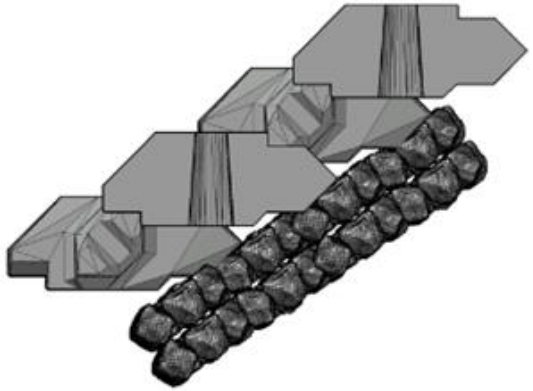
TYPICAL PLAN



PERSPECTIVE



A ELEVATION



B SECTION

SEISMIC RESILIENCE

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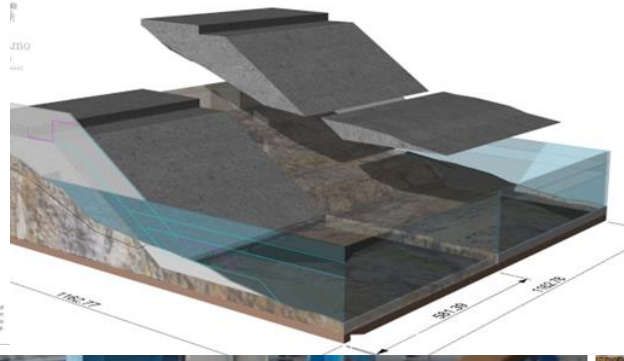

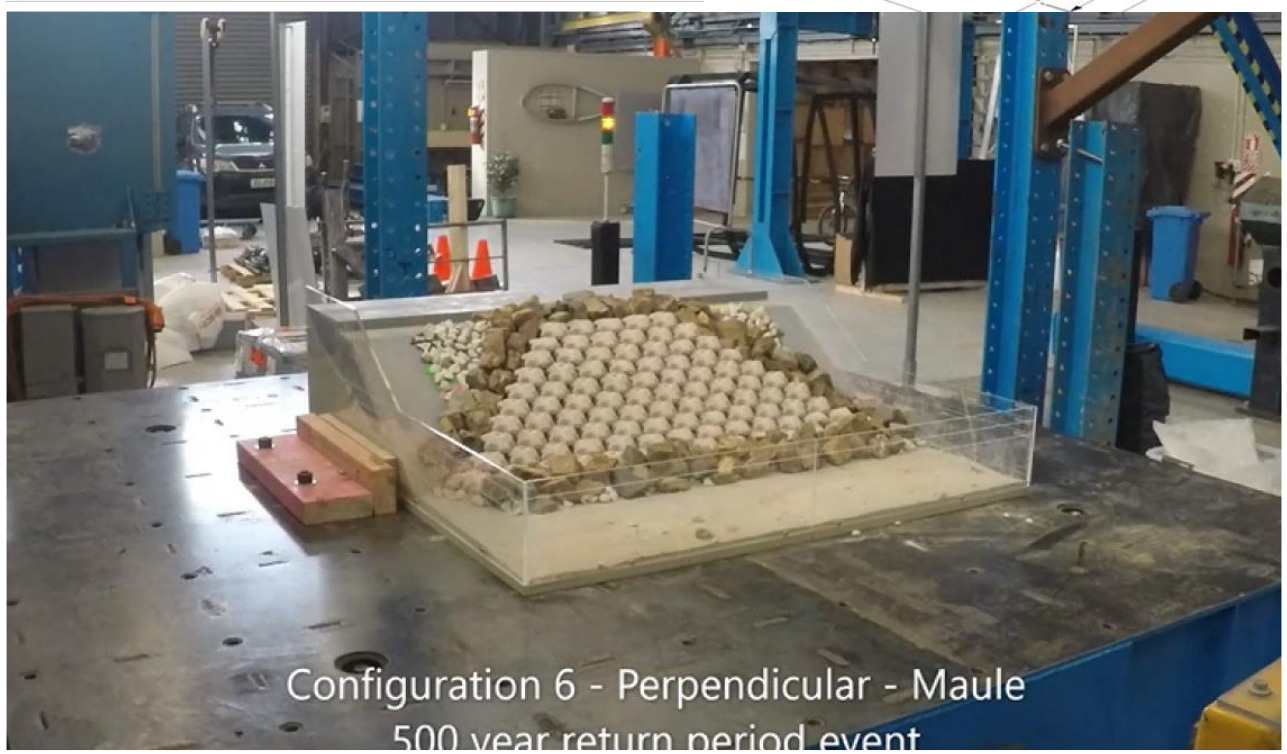

CONCLUSION

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- Sea level rise presents an increased challenge for coastal infrastructure
- Concrete revetment units present footprint, cost and resilience benefits
- Bespoke modifications as illustrated can mitigate the local effects

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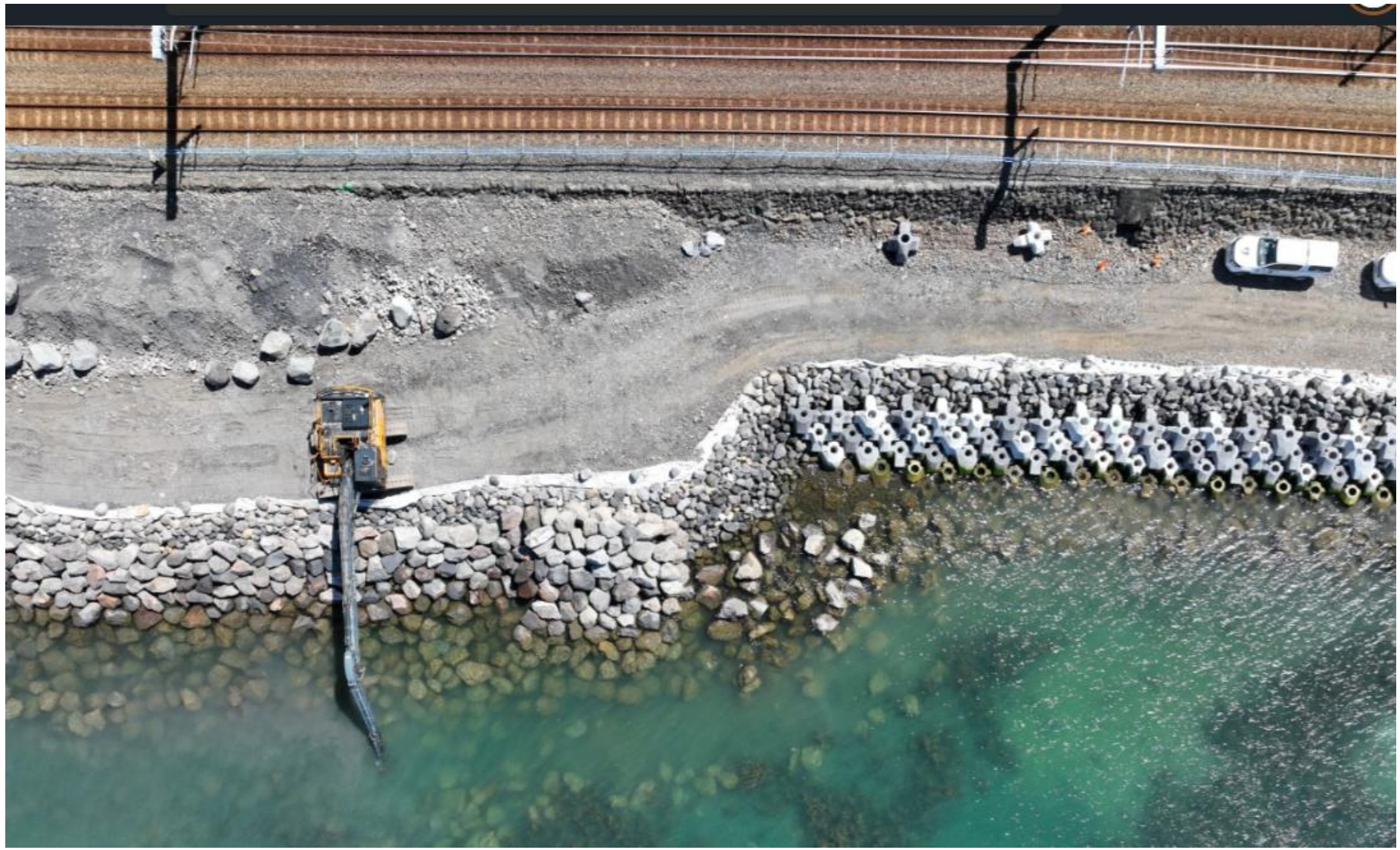

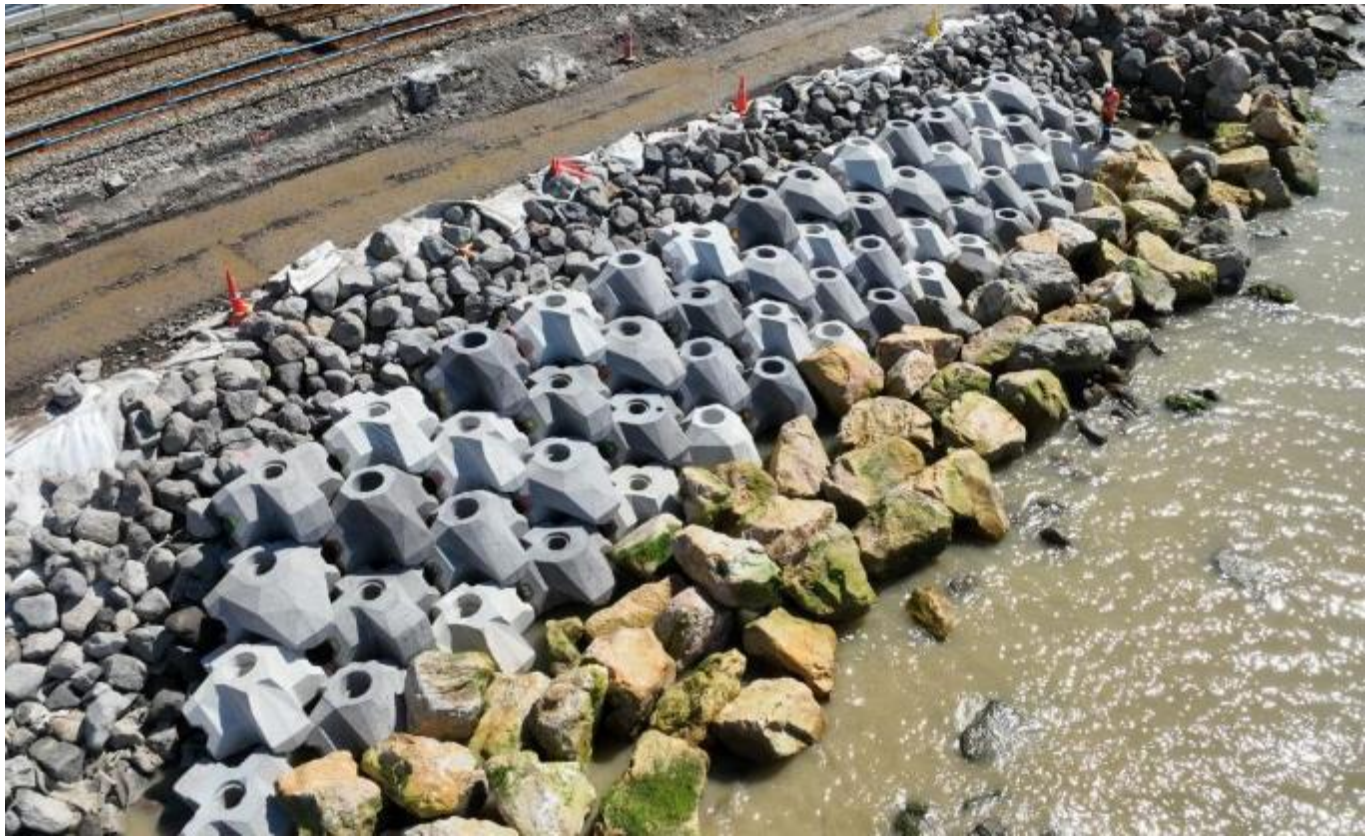


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