

REVERSING RECLAMATION TO ENHANCE TE AWARUA-O-PORIRUA AND RESTORE RESILIENCE TO ITS COMMUNITIES

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ABSTRACT

Low-lying central Porirua has experienced devastating flooding events in recent years. Exacerbated by urbanisation, these floods have forced major disruption to the local communities whilst costing ratepayers millions in damage repairs. Each event washes harmful contaminants from the industrial developments adjacent to Te Awarua-o-Porirua Harbour, plaguing the heart of Porirua City.

Following severe flooding in 2015, Wellington Water (Client) on behalf of Porirua City Council (Owner) engaged a team of stormwater experts through their consultancy panel to determine the optimal solution for the vulnerable area.

The land once hosted natural wetlands, providing sustenance and protection to the Ngāti Toa community of Takapūwahia. Decades of development saw the connection between the fresh and marine waters severed, and conversion of the natural, resilient coastline into flood-prone commercial land. This paper describes how the history of the region inspired the solution to the city's modern woes.

This paper outlines the design objectives, construction, and anticipated future outcomes for stormwater infrastructure constructed in central Porirua.

The new assets address four key areas of concern. Te Kukuwai o Toa - a newly constructed wetland in the Porirua CBD attenuates heavy rain fall events and naturally treats contaminated stormwater, increasing the area's resilience and enhancing the natural environment. A 1200 mm stormwater pipeline constructed around the wetland perimeter, provides additional capacity and redundancy to the previously overwhelmed system. This pipe extends from new mega sumps out to a duckbill check valve at the harbour outfall. Additional stormwater bunds protect two adjacent low-lying areas, including Porirua School, that historically floods multiple times per year.

This paper recounts how effective collaboration overcame challenges during various construction, including working through the early stages of the COVID-19 pandemic (Alert Level 3). The paper highlights the integral relationships with Council and iwi partners in the implementation of a thoughtfully designed asset. The success of the partnership with Ngāti Toa was reflected in the name for the wetlands, which was gifted by Ngāti Toa Rangatira and formally unveiled at a dawn opening ceremony and blessing in June 2022.

The paper discusses the dramatic improvements experienced by the local community since the project's completion. The project's success has included local kura and social services being able to operate independently of the weather.

A high degree of collaboration between the stormwater designers and project managers (GHD), wetland designers (Morphum), and Wellington Water, alongside partners Ngāti Toa

and Porirua City Council, enabled the completion of a stormwater solution that will benefit communities far beyond alleviating flooding. This includes the creation of a public green space in a CBD, a wide range of education opportunities, and cultural involvement. This paper describes how these benefits will empower the community to connect with the natural environment, the history of the land and the importance of sustainable stormwater management.

Through reversing reclamation and the implementation of modern stormwater technologies, this project has restored resilience to the community and created benefits that will continue to be recognised for generations to come.

KEYWORDS

Wetlands, flooding, resilient communities