

Seashore Engineering



THE ESPLANADE FORESHORE STABILISATION (SWAN RIVER)

Scope

Design of foreshore stabilisation works to address progressive erosion along the Esplanade Foreshore in Peppermint Grove, near Leake Street. The design included a limestone biscuit rock headland, re-direction of a drain, revegetation, provision of beach access and sand renourishment. Technical specifications, assistance with approvals, tender evaluation, site superintendent services and a monitoring and maintenance plan were subsequently provided, with works successfully completed in December 2019.

Outcomes:

A focal area of the Esplanade foreshore near Leake Street eroded from 1995, forming erosion scarps approximately 1m high. The scarps required stabilisation works, with loss of grass are unacceptable to the public and a source of complaints to the Shire. Erosion was considered due to the coincidence of multiple factors, including local structural modifications, increased drainage flows, focused trampling, reduced available sediment supply and a period of unusually high estuary water levels.

The design provided for a wider beach by establishing a structural control (i.e. headland) to hold the beach further riverward and to disperse some of the local erosion stresses. Measures have also been included to improve amenity and access, increase vegetation coverage and reduce disturbance to the riverbed.

Challenges: The foreshore is highly used by the public and improved amenity and access was a key focus in the design. This included optimising the scale of the headland, balancing visual impacts with performance; grouted stairs access at two sites; and inclusion of vegetated and re-turfed areas.

Installation of a gross pollutant trap (GPT) was requested by Department of Biodiversity and Attractions prior to the works. This required modification to the drainage design which was achieved in collaboration with the Contractor, which include local modification of ground levels and headland tie-in. Increased risk to a key tree to landward due to additional excavation required for the GPT was identified and an arborist was engaged. An initial inspection deemed the tree to be unsafe and it was subsequently removed and replaced with three new trees as part of the works.



CASE STUDY

Disciplines: Estuarine
Engineering & Construction
Management

CLIENT

Shire of Peppermint Grove