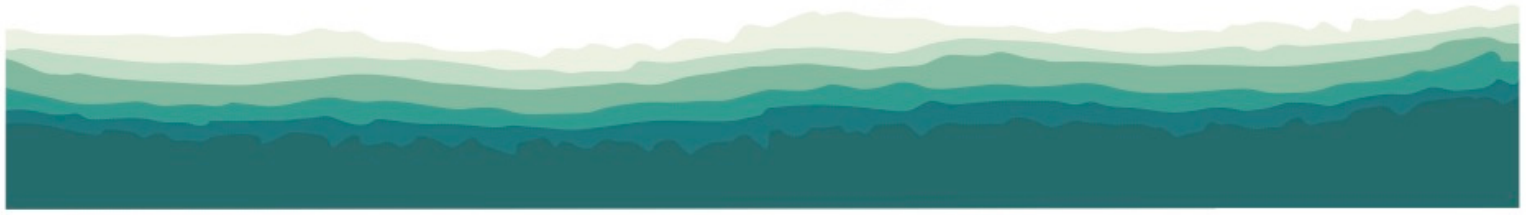


Seashore Engineering



WHEATSTONE COASTAL PROCESSES

Scope: Seashore Engineering has played a pivotal role in management of coastal process impacts at the new Port of Ashburton since 2008. This has included:

- Detailed assessment of coastal geomorphology adjacent to the proposed site, including coastal lagoon stability.
- Development of a Coastal Processes Monitoring and Management Plan (CPMMP), establishing procedures to monitor coastal dynamics, distinguish project-attributable impacts and manage coastal processes. This included definition of trigger levels and management actions.
- Co-ordination and evaluation of two baseline and fifteen coastal process monitoring surveys (to date), supporting management decision making. Datasets collected and evaluated have included drone and ground photographs; beach, channel and hydrographic surveys; sediment samples and seawall structural assessment.
- Design of excavation and placement; and technical advice relating to the key environmental risks for the first sandbypassing campaign in 2019.

Outcomes:

Detailed understanding of a complex coast has been developed, leading to successful implementation of a practical coastal management framework. Potential impacts from the interruption of this transport by the Port of Ashburton and for sand bypassing have been identified and addressed under the CPMMP. The key impact has been substantial accretion to the west, with limited downdrift erosion to the east due to sediment supply from offshore. The first bypassing campaign was successfully completed in December 2019.

Challenges: The Port of Ashburton is located within a complex coastal setting, influenced by a river delta with highly episodic outflow, and adjacent to an extensive tidal creek and lagoon network. The site is subject to high but variable rates of eastward littoral sediment transport associated with migrating spits fed from the Ashburton River, and highly influenced by tropical cyclones.

Collection of survey information has presented many challenges, including access and interference issues associated with working adjacent to a major LNG facility and lagoons; exposure to hot conditions; and requirement to work with tides to achieve optimal survey coverage. Efficient and effective methods for evaluating a range of datasets have been developed and refined to obtain the most value out of collected datasets.

Coastal management for the Port needs to ensure that project-attributable impacts avoid impact to environmental values. These limits have been used to define management scope, with due consideration of high natural variability, including potential impacts of tropical cyclones and floods. Design of the 2019 bypassing campaign allowed sediments to gradually move into the littoral system, reducing the risk of tidal channel constriction or closure.

CASE STUDY

Disciplines:

Geomorphology and

Coastal Engineering

CLIENTS Chevron Pty Ltd & BMT Pty Ltd

Unit 8/16 Station Rd, Margaret River, WA, 6285 - Phone 08 9757 992

5/19 Wotan St, Innaloo, WA, 6019 - Phone 08 9445 1986

admin@seaeng.com.au • www.seaeng.com.au