



Gold Coast Sand Bypass Pipeline Upgrade

Project Description:

Australia's Gold Coast tourism, recreational and marine industries depend on an engineering jetty structure that stretches an impressive 494 metres out to sea for the long-term sustainability of the Gold Coast's northern beaches. The Sand Bypass System jetty is a working structure that intercepts the natural northward drift of sand from the south, to assist with maintaining navigable access for the Gold Coast Seaway. To achieve this aim, the Sand Bypass System integrates with the City of Gold Coast Sand Backpass System to pump sand along a pipeline, delivering up to 500,000 cubic metres of sand annually to maintain and enhance beaches in Surfers Paradise, Main Beach, and The Spit.

A Gold Coast Sand Bypass Pipeline Upgrade project included a 6.4-kilometre underground pipeline, DN450 polyethylene piping, and a slurry pump system for efficient sand redistribution. Booster pumps along the pipeline transported sand via temporary beach outlets, reducing reliance on trucking and dredging while minimising environmental impact while preserving the iconic coastline.

The system is operated primarily during winter months from April to ensure minimal disruption to beach goers while maintaining essential coastal protection. The pipeline plays a crucial role in reinforcing long-term coastal resilience, protecting infrastructure, and preserving the iconic Gold Coast shoreline for residents, businesses, and the millions of visitors the region attracts each year.

Our Role:

Construction Sciences carried out a geotechnical investigation and reporting to support the design of the slurry pump building. The work included drilling two boreholes to assess subsurface materials and excavation conditions. The report provided key data on earthworks, shoring, and geotechnical parameters to ensure a stable foundation.

*Images courtesy of Gold Coast Waterways Authority.

Client/s: City of Gold Coast

Location: Surfers Paradise, Queensland, Australia

Services: Geotechnical Investigation, Construction Materials Testing

Construction Sciences Units:
Gold Coast Laboratory, Geotechnical Engineering