

Cleveland Bay Sewerage Treatment Plant

Sintakote Mild Steel Cement Lined Pipe replaces Concrete Outfall Pipeline



Project Need

The Cleveland Bay Wastewater Purification Plant receives and treats a bulk average of 20 million litres of wastewater every day in the Townsville region. The conditions and forecasts of sewerage flow and surface run-offs warranted a sizable upgrade of the plant to ensure the disposal of quality water remained consistent with the industry code of practice. Additionally, the current infrastructure pipeline had exceeded its service life and was beginning to diminish in strength and quality. The upgrade will reinvigorate the treatment plant to extend its service expectancy and reduce the overall nutrients being discharged into the environment.

Cleveland Bay is a natural habitat to many marine species including, but not limited to turtles, dolphins and humpback whales that are protected by enforcement laws. Minimal disturbance to the marine environment and seabed were of critical importance for this specific project.

Solution

Steel Mains was invited to provide high level support to consultants Aecom with their design for the Cleveland Bay Treatment Plant Outfall Pipeline on behalf of Townsville City Council. Steel Mains Sintakote® pipe was chosen as the ideal solution in meeting the project criteria, especially long-term performance in an aggressive environment. Sintakote Mild Steel Cement Lined (MSCL) Pipe was chosen to replace the old failing concrete pipes for 400m of buried pipeline and 400m of exposed sewerage outfall structure suspended above ground on concrete plinths over tidal waters.

Steel Mains operated in a compliance-based culture under the standards of AS1579, AS4321 and AS1281 to supply and deliver 800m x DN1200mm MSCL Sintajoint® RRJ Sintakote pipes. The lining was specified with Calcium Aluminate Cement (CAC) for resilience to potential seawater ingress.

Steel Mains proprietary rubber ring joints were specified for the pipeline connections for two reasons. Firstly, to provide flexibility in terms of thermal expansion and contraction of the coated and lined steel pipe exposed to the elements and temperature changes. Secondly, to speed up construction in the environmentally sensitive location with the above ground outfall pipeline. The rubber ring jointed pipes were prefabricated with outlets and manifolds and were quickly assembled on site by Pacific Marine Group and

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Project: Cleveland Bay Treatment Plant Outfall

Principal: Townsville City Council

Location: Townsville, QLD

Completion: 2018-2019

Supplied: 1km of MSCL SINTAKOTE® SINTAJOINT® DN1200 RRJ pipe

strapped into location on the concrete piers. There were no complications with the installation of the pipe above the sensitive marine waters and the work was completed ahead of schedule. The 400m buried pipeline was installed by Civil Plus from Townsville and was also installed very quickly with the rubber ring jointed pipe.

Achievements

Steel Mains' manufacturing capacity and prior experience working in sensitive conditions greatly assisted the designers and the installation contractors in a nine-week early completion of the project. Furthermore, Steel Mains' sound engineering knowledge and solutions, coupled with a high-level of partnership was a success to the central goal of achieving reliability, maintenance and performance requirements.

The Cleveland Bay Treatment Plant Outfall will release safer and higher quality water into the ecosystem with minimal impact on the local sea life. This project is another case of growing and strengthening communities while creating local jobs that better the nation.