



Whitsunday Gardens Precast Concrete Pump Station

Customer: Relag Group Pty Ltd

Location: Proserpine, QLD

Case Study ID: CS-36

Date: August 2015

Overview

Whitsunday Gardens Estate, situated in Proserpine, QLD, is a new land release subdivision located just 25 minutes from the iconic Airlie Beach. Relag Group Pty Ltd is responsible for this new urban housing development and subsequently engaged Dowdens Pumping & Water Treatment Proserpine branch to design, supply and install a Precast Concrete Pump Station for use in Stage 3 of the Whitsunday Gardens Estate subdivision development.

The Problem

Stage 3 of the subdivision development required a standalone sewage pump station to be installed capable of handling the residential wastewater and sewage borne from 20 subdivided lots. The land was used to farm sugarcane before the development began in 2013.

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Our Solution

During the initial project scoping, Relag Group Pty Ltd reviewed three options for their sewage pump station system: prefabricated fibreglass, mould formed precast concrete, and concrete pour in situ. The Dowdens source Concrete Pump Station won the selection process due to the following product benefits:

- The precast concrete chambers are manufactured with Angaston Marble calcareous aggregate. The properties of Angaston Marble are unique in Australia, providing the highest possible resistance to sulphate attack endemic in sewers;
- Lifting points designed into the TOP section of each component of the precast system simplifies crange, installation and safer removal of lifting clutches;
- The chambers utilise four large support columns running down the entire vertical length of the chamber, providing incredible compression strength and additional protection in harsh environments or complex installations;
- The chambers arrive at the site ready to be installed.

The timeframe of delivery and installation was tight due to the region's high water table (water present only 1.5m beneath the surface). The precast concrete system enabled Dowdens to place all components 5.5m below the surface quickly, build and then backfill the trench within one day.

The Project engineering consultant utilised the dedicated Selection Software to match the correct system layout to the site specifications. The Selection software allows registered members to generate an integrated design solution to select an appropriate chamber, pumps and mechanical components for specific applications.

The integrated design solution includes:

- GA Drawings of the chamber along with a "CAD Kit" providing all CAD elements to enable the rapid transformation of the GA drawing into a complete production drawing;
- Complete component listings, including mechanical specification for your customised fit-out;

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- System curve, total system duty, pump recommendations and a budgetary quote is available on request.

The Project Engineer designed the system and submitted that to the Whitsunday Regional Council for approval. The Precast Concrete Pump Station was installed, commissioned and the whole project managed by Dowdens Pumping & Water Treatment's Proserpine branch.

Key Components

- Two Grundfos Submersible Pumps were installed with the system in a duty/standby arrangement;
- Dowdens manufactured a custom-built stainless steel 6m vent pipe that incorporated a carbon filter and rotary ventilator for onsite odour control;
- The system included an in-line flow meter installed in a separate Concrete chamber to monitor flow and an overflow pit to prevent spilling in the event of loss of power at the pump station;
- In an emergency shut-down, the overflow pit screens any sewage before the wastewater is discharged into local waterways;
- The custom-designed control panel (built to Whitsunday Regional Council's Water & Sewage Executive Managers specifications) monitors the whole system flow, pump performance, pump operating hours and is linked to Whitsunday Regional Council's water infrastructure monitoring systems for data transfer and in case any alerts need to be sent;
- Whitsunday Drainage contractors assisted Dowdens with onsite installation.

Project Design Philosophy

Dowdens Pumping & Water Treatment design philosophy for this project was:

- Cost-Effectiveness
- Innovation and Current Best Practice
- Ease of Installation
- Simple and Effective STP Operations
- System Reliability & Reduced Ongoing Maintenance



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Brands used in this project



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