

GNANGARA WWPS & WATER DISTRIBUTION MAIN

Stockland WA / Water Corporation

Location

Landsdale, WA

Commencement

June 2010

Completion

March 2011

Contract Value

\$3.8 million

Client

Stockland WA



Zero Harm

The project is 100% complete and there have been no lost time injuries.

LTIs: 0

MTIs: 0

Overview

The Gnangara wastewater pump station is located at Landsdale, a northern suburb of Perth. The project, which consisted of the pump station, overflow storage, pressure main, gravity sewers and DN500 MSCL water distribution mains enables new subdivision development to proceed to cater for Perth's growing population.

Contract Supervision

The contract was managed by a Design Consultant with Cobey as Main Contractor.

Scope

Cobey was awarded the contract for the type 90 wastewater pump station and DN500 water distribution main.

The works required were:

- 8mtr deep Excavation & Backfill
- Precast Type 90 wet well & insitu concrete valve pit
- Dewatering & Acid Sulfate Soils Management
- DN1800 overflow storage tanks
- 4km of DN250PVC and DN315PE sewer pressure main
- 0.3km of DN375PVC gravity sewer mains inc. DN375 microtunnelling.
- 2.2km of DN500 to DN400 below ground MSCL water distribution main inc. pipe fittings/valves.
- Traffic Management & Full site reinstatement

Project challenges

The pump station excavation required strict acid sulphate soils and dewatering management.

Local Council traffic requirements meant that all road crossings were to be bored and that traffic flows be maintained during construction of the pipelines. Microtunnelling of PVC sewer mains and directional drilling of PE pressure main under roads with many services required precision boring and additional care

Existing services were discovered on varying alignments and depths which eventuated in numerous design clashes with the pressure main and water main.

Construction of the pumping station and the pipeline sections within the subdivision had to be carried out in close proximity to the major earthworks contractor on site.

Managing the challenge

Well-point dewatering was used for the pump station excavation. The installation of a lime dosing unit, and construction of a settlement pond and infiltration pond was required for conformance to the acid sulphate management plan. Continuous PH monitoring and blending of soils with lime was also carried out.

Traffic flows were managed by the closure of one lane and the use of a shuttle lane system. This required most fill to be relocated from the immediate area and restricted access.

Although local residents were affected by the construction of the pipelines, minimal complaints were received and were ultimately pleased with the level of reinstatements.

As with all boring, existing service location was placed at the highest priority and carried out before boring commenced.

Adding Value

Having both a WWPS with pressure main and a water distribution main awarded to Cobey, allowed for re-sequencing of works when required. Resources were simply, and almost seamlessly, re-sequenced to other areas of the project. Cobey also worked closely with the Design Consultant & Client on changes to alignments of the pipelines. This resulted in fast tracked solutions to clashes saving time and money.

A saving of approximately \$70k was made by the Client by changing plastic lined manholes to maintenance shafts and awarding Cobey both the WWPS & water main contracts.

