



Gnangara Collection Sewer – Section 1

Client:
Water Corporation

Location:
Madeley WA

Construction Period:
May 10 – Oct 11

Project overview

This contract involved the construction of a 1.4km collection sewer using trenchless techniques from Whitfords Avenue, Kingsley, to Susan Road, Madeley. This project ultimately allowed our client, Water Corporation, to decommission two existing pumping stations.

The sewer route had two major road crossings at Whitfords Avenue and Wanneroo Road, passed through a proposed bush forever site and through existing built up areas in Kingsley and Madeley. Part of the alignment was also parallel to the Yellagonga Regional Park, which is also a bush forever site.

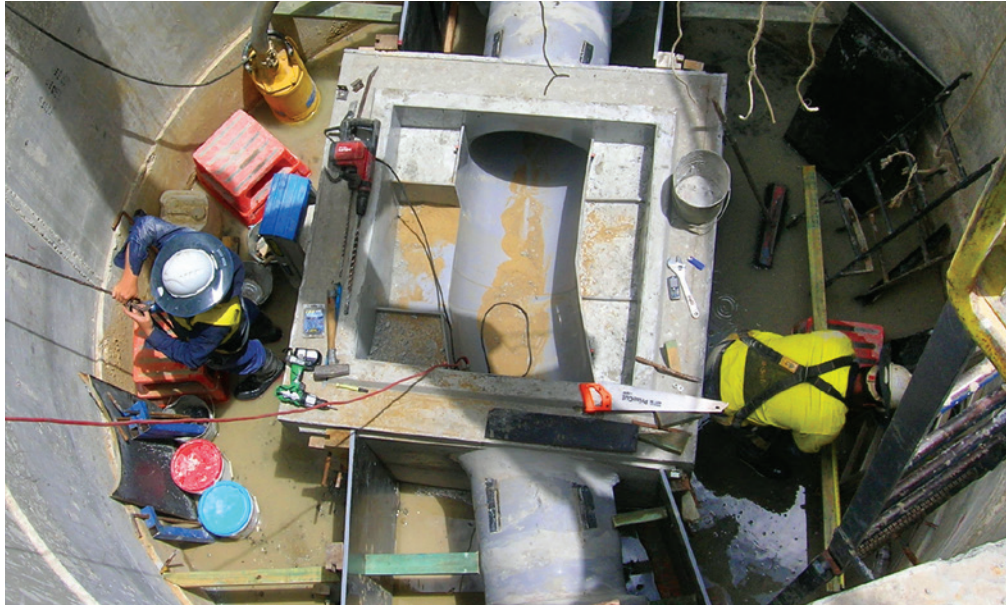
Due to the environmentally sensitive area, Water Corporation approved our decision to use trenchless technology to minimise impacts on the surrounding environment.

With depths ranging from 3m to 6.5m, all thrust and receival pits were constructed using 4.2m diameter reinforced concrete caissons. These were formed, poured and sunk into position on site. The use of these sealed, reinforced concrete pits reduced the amount of dewatering required. This created an environmental benefit to the project, with half of the route in approximately 2m of groundwater.

One benefit of using trenchless techniques on this project was that a 150m length of sewer was installed through a proposed bush forever site with no surface impact. Moreover, we still maintained accuracy of the service with a tolerance of 25mm.

Significant achievements and benefits

This sewer installation needed to be completed across Whitfords Avenue and Wanneroo Road without disruption. Our trenchless experience allowed us to mitigate the risk to the client of construction impact on these two major roads.



There were 2 sections to this project. The first involved the installation of 1,060m of DN600 vitrified clay jacking pipes constructed over 12 drives. The second involved the installation of 362m of DN500 vitrified clay jacking pipes over 5 drives. The entire service was installed successfully with a high degree of accuracy, given the significant number and length of drives necessary.

Seventeen reinforced concrete thrust and receive pits were constructed using 4.2m caissons that were formed, poured and sunk into position on site. This kept exposure to acid sulphate soils (ASS) management to a minimum and reduced the impact on the surrounding neighbourhood.

Nineteen type 6 plastic lined access chambers were manufactured in-house using our approved design. This was a cost effective option for the Water Corporation. It also enabled us to have full control over scheduling of the chamber fabrication to suit project requirements.

A 300m section of work extended from Whitfords Avenue to Hocking Road, through a proposed bush forever site. It was also an ASS risk area. By using trenchless techniques, we kept the construction corridor to within and sometimes well below, the allowance 10m width.

Construction of this 1.4km trunk sewer was through environmentally sensitive and built up areas. Installation was achieved with minimal impact and enabled two existing pump stations to be decommissioned.

Contact DM Civil to discuss your trenchless technology projects.

GUARANTEED PERFORMANCE

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