

Woodman Point Environmental Enhancement Project

PROJECT DETAILS:

Location:	Woodman Point
Western Australia	
Contract Value:	Confidential (1999)
Contract period:	42 months
Safety Statistics:	Manhours: 1,294,556 LTIFR: 0.8



CLIENT: Water Corporation of WA

Scope of Work:

The Woodman Point wastewater treatment plant is the largest of three major wastewater treatment plants serving the Perth metropolitan area. Situated 27km south west of central Perth, the plant services all sewered properties south of the Swan River, the Perth hills and Armadale.

Existing facilities included a 125 megalitres per day primary treatment plant and a 2,800 litres per sec pump station, which is located approximately 2.7km from the plant. Both of these facilities were nearing their operational capacity and required major upgrading.

Clough and Kinhill Brown & Root were chosen by the Water Corporation, after a rigorous selection process, to join the Woodman Alliance (WA21)

The Woodman Alliance was a major advance in the way projects of this nature are undertaken. The Alliance linked the participants as an integrated team covering the whole scope of works. All aspects of the project focused on maximising value in capital, and minimising operating and maintenance costs over the 50-year life of the facilities. This was critical because of the important environmental and public health role of the wastewater treatment system in the community.

Woodman Point Wastewater Treatment Plant

The Wastewater Treatment Plant (WWTP) upgrade and expansion involved the selection of an advanced secondary treatment process, and a range of detailed design and construction activities:

- Duplication of the existing inlet works, including screening and grit removal facilities.
- A 160 megalitre per day advanced secondary treatment facility.
- Additional sludge thickening and handling facilities.
- A 45 megalitre reservoir for secondary treated wastewater storage.
- Odour control facilities.
- Associated works.

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Munster Pump Station No. 3 and Bibra Lake Main Sewer Extension

Munster Pumping Station No. 3 (PS No. 3) is located on Water Corporation land west of Lake Coogee, north of the Woodman Point Wastewater Treatment Plant.

The scope of work included the design and construction of:

- a new 4,600 litre per sec pump station.
- approximately 1.2km of 1,400mm diameter pressure main.
- approximately 1.8km of 2,250mm diameter gravity sewer.

The project team completed the Public Environmental Review.

A “Business As Usual” estimate (based on the Project Definition Study and a conventional design and construct contract) gave the client and the project team a baseline for identifying design and cost improvements.

The “Proposed Target Cost” estimate followed incorporating a full review of the Project Definition Study, and research into various wastewater treatment plant engineering options, resulting in improvements in design and construction methods and associated cost reductions.

Two design teams (one for Woodman Point Wastewater Treatment Plant, and the other for Munster PS No. 3 and the Bibra Lake Main Sewer Extension) enjoyed close co-operation and encouraged efficiencies between their activities. Construction and operations personnel were consulted during design which minimised risk at the later stages of the project. A 12 month maintenance contract was undertaken after construction and commissioning was completed.