

WILLAWONG WASTE DISPOSAL



DESIGN AND CONSTRUCTION OF CUT OFF BARRIER AND LEACHATE COLLECTION SYSTEM



Client: Brisbane City Council

Contractor: Menard Bachy Pty Ltd

THE PROJECT

In 2001 Menard Bachy were awarded a contract for the design and construction of a Cut-Off Barrier and Leachate Collection System at the site of the Council's Willawong Waste Disposal Area in South East Queensland. Over the years development in the surrounding area had resulted in housing and a school encroaching on the surrounding area and measures were urgently required to control the flow of contaminated water through the ground. The technical brief on which the design was to be based called only for the provision of a low-permeability barrier wall and leachate collection system across the South West Corner of the Site. It was up to the contractor to design and build a system under the Council's value for money tender system.

MENARD BACHY'S ROLE

Menard Bachy commissioned Coffey and Partners as their consultants for the project and utilising both their experience and that of Austress Freyssinet developed six solutions to solve the problem with different cost structures and varying degrees of environmental impact during the construction phase but all with the same guaranteed performance. All six solutions were individually costed and a rigorous risk assessment undertaken detailing the benefits of each system for consideration by the council.

Menard Bachy were awarded the contract based on the installation of a HDPE liner installed in a trench with a pipe discharging into a sump from which the contaminated water can be pumped. The system was designed to have an effective permeability an order of magnitude greater than the sands and clayey sand of the aquifer.

A detailed environmental plan was prepared for the project covering all aspects of the operations to be undertaken and plans put into place to minimise the impact on the local community with regards smell and the risk of contamination of the local creek. The cut-off trench was designed to be 1m wide and varying to 6m in depth utilising a "Heavy Duty Drag Box". A 3mm HDPE welded membrane was installed down one side of the trench a bentonite cement toe placed in the base with a 100mm UPVC slotted pipe and then backfilled with gravel and capped with a 500mm thick Clay seal to prevent the ingress of surface runoff into the system. The 250m long section of wall was completed within the prescribed contract of 12 weeks inclusive of the procurement of all materials and the preparation and implementation of the strict environmental controls for the project.