



# BASCULE BRIDGE COFFERDAM, AUSTRALIA

## BRIDGE COFFERDAM PROJECT

Project Name	Bascule Bridge Cofferdam
Project Owner	Adelaide Port River Expressway
General Contractor	Abigroup
Project Location	Adelaide, Australia
Product	Sheet Piles
Total Tonnage	240 MT
Year	2010

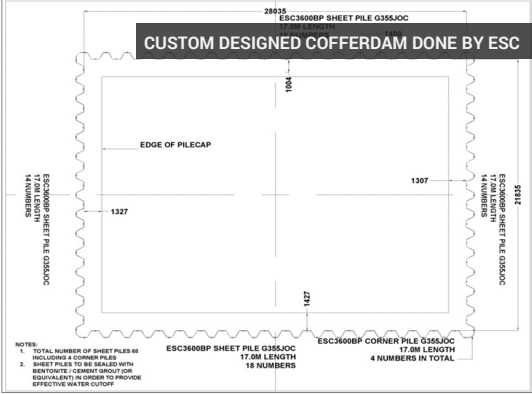
### INTRODUCTION

A four lane, high-level opening Road Bridge across the Port River was to be built. The 300m long bridge would consist of 8 fixed spans as well as a single track, dual gauge, high level opening Rail Bridge approximately 1000m long with 37 fixed spans.

Abigroup who were building the Adelaide Port River Expressway needed a cofferdam that was able to be de-watered in order to allow the construction of the bridge piers. The previous option used by Abigroup was second hand AZ36 sheet piles. This option could not provide an adequate water proof area for the construction to proceed in a timely manner. So forced with substantial delays on the first cofferdam, Abigroup decided to use ESC for the second cofferdam.

ESC was approached to help them find a solution. As a result ESC designed a custom sheet pile and called it the ESC3600-BP. This sheet pile was a variation to the catalogue issued BP sheet piles. The BP sheet pile is designed with an open clutch suitable for post installation grout sealing. The BP pile is for de-watering works, groundwater cut-off walls and pollution control situations. This pile with its light weight, wide profile and minimal clutches also provides an attractive commercial proposition for retaining walls and other applications.

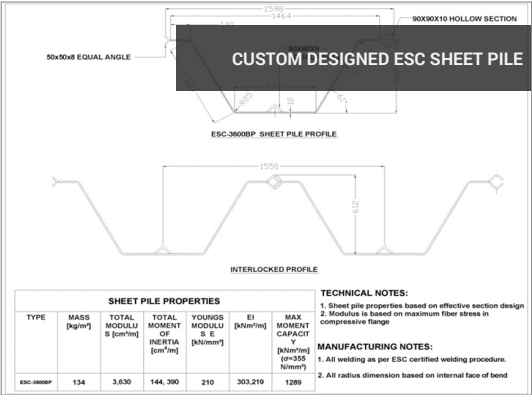
ESC delivered a better alternative to the originally specified AZ36 sheet piles for a cofferdam to allow the construction of the Bascule Bridge for the Adelaide Port River Expressway. Side-by-side, the ESC36BP provided a much drier cofferdam than the adjacent one constructed of AZ36 sheet piles. This was partially due to only containing less than half the number of interlocks and also the interlock design providing a excellent void which



can more easily and effectively be filled with grouting for sealing.

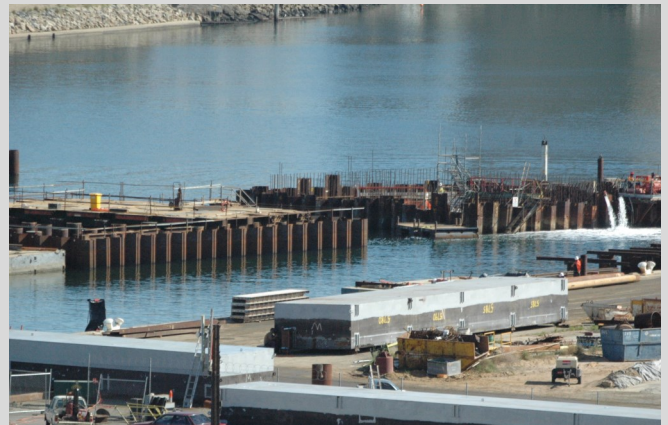
The BP sheet pile in this case had to be 17 metres long and hold out vast amounts of water with a 6 metre head whilst using only one layer of struts to ensure the project site could move ahead with minimal obstructions whilst maintaining the design and construction criteria required by the client.

River depth was 10.0m, with 2-3m of soft silt material overlying a hard clay layer. Sheet piles were installed 2m into the hard layer to provide an effective cutoff for water seepage under the pile wall. The cofferdam was filled with gravel and then dewatered to depth of 6.0m below the mean water level. Post grouting was done with a non toxic cement grout mixture, which was critical as environmental considerations were paramount on the project as the harbour is home to a large dolphin population.





## ON-SITE INSTALLATION



## DRY CONDITIONS INSIDE COFFERDAM





# PROJECT COMPLETED

