

CAPE BRIDGEWATER WIND FARM

TURBINE FOUNDATION IMPROVEMENT USING DYNAMIC COMPACTION



Sustainable Technology



Client: Pacific Hydro
Consultant: URS

Contractor: G.R. Carr
Specialist Contractor: Austress Menard Pty Ltd

THE PROJECT

The Cape Bridgewater Wind Farm comprises the installation of wind turbines at 29 locations on the Cape Bridgewater headland in Western Victoria. The wind turbines towers are 67m in height with blades of 33m. Each tower is founded on a large pad footing 14m in diameter and approximately 3m below the ground level. The geology at the site comprised dune sands derived from limestone deposits in the area. During the investigation works for the development, ten of the twenty-nine tower sites were identified by URS as requiring ground improvement for the proposed foundation system. Dynamic Compaction was identified as the most practical solution for the site.

AUSTRESS MENARD'S ROLE

Austress Menard was engaged by the local foundation works contractor (GR Carr) to design and undertake a Dynamic Compaction (DC) program at ten of the twenty-nine tower sites. The depth of ground improvement required varied from 3m to 10m below the proposed foundation level. The existing soil had a CPT cone resistance between 5 and 10MPa and a DC program was developed to increase the cone resistance beneath the foundation to 15MPa over an 18m diameter area beneath each footing.

Austress Menard utilised their Leibherr 855 crawler crane fitted with a computerised dynamic compaction controller and a 17 tonne pounder to undertake the work. Due to the varied depths of improvement required at the site, a number of different DC the required specifications.

The works program required that each pad was treated, validated and handed over to the foundation preparation crew at an average rate of one per day. Thanks to Austress Menard's extensive experience in DC around the world and our experienced site crew, the works were completed within the required time and allowed construction of the tower foundations to continue uninterrupted.

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