



# BRIDGES

## PRINCES HIGHWAY UPGRADE

### Bridge piles, Foxground and Berry bypass

## AUSTRALIA



Broughton Pier piles

#### Owner

(RMS) Roads and Maritime Services

#### Engineer

SMEC and Parsons Brinckerhoff

#### General contractor

Fulton Hogan Pty Ltd

#### Period of works

March 2015-February 2016

#### Main figures

##### Rotary piles

172# 750,900,1050,1200,1350mm dia for 1240 lm of drilling and 1300m<sup>3</sup> of concrete



Tindalls Lane bridge site

### Project description

The Foxground and Berry bypass will provide a four-lane divided highway (two lanes in each direction) with median separation for 12.5 kilometres of the Princes Highway between Toolijooa Road and just south of Andersons Lane. The project will improve road safety on the Princes Highway and local road network by reducing total crashes in the project area by an estimated 64 per cent and through less interaction between traffic and pedestrians in the town of Berry.

### Ground conditions

The bridge piles for the highway upgrade consisted of deep footings founded in rock. The site conditions were overlain with a mixture of gravelly sands, clays and cobbles with the pile toes being founded in high to very high strength sand and siltstones as well as some lattite. Rock strengths were measured up to 150 MPa.

### Solution

The bridges were sequenced to fit in with the main contractors program using two BAUER BG rotary drilling rigs to install BAUER segmental liners or single length liners depending on the pile diameter.

Regular heavy duty drilling tools were used to drill through the material aside from rock material, including cobbles and boulders. Once into the rock socket, core barrels, progressive augers and centreless augers were used to drill the very high strength siltstones and lattite rock.

Different methods including pilot holes and different sequences with the specialist tools were experimented with during production to find the optimal tooth configurations and technique taking into account the time it took to drill in each configuration, how hard the rig was working to achieve the observed drill rate and the wear and tear on the equipment.



Environmental control at bridge site



### Sustainable development

Local creeks were used for water supply, with AFS ensuring environmental controls were used for keeping silt and concrete out of the creeks. Rock sockets were used with each pile to reduce steel quantity. Nearby contractors were employed to transfer, maintain and repair equipment.

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