BRISBANE INNER CITY BYPASS

DYNAMIC REPLACEMENT

Client: Brisbane City Council

Contractor: Leightons Contractors Pty Ltd
Specialist Contractor: Menard Bachy Pty Ltd

THE PROJECT

The Brisbane Inner City Bypass a $230 million project addressing transport problems in the inner city area, removing up to 25% of traffic through the inner city area, freeing valuable road space for buses, pedestrians and cyclists while cutting travel times by up to 15 minutes each way for through traffic. The 4.5 kilometer Bypass features 4 tunnels, 14 bridges, 2 major interchanges and 11 on and off ramps in its construction.

MENARD BACHY'S ROLE

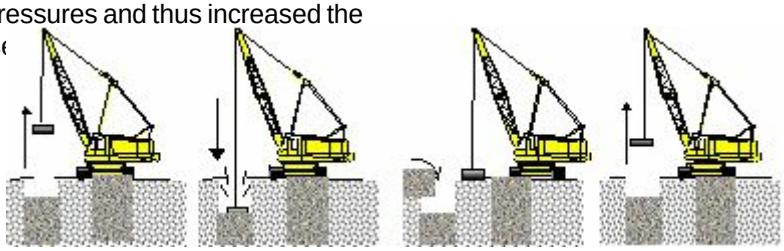
In September 2000, Freyssinet Australia, working with Menard Soltraitement, were engaged as specialist subcontractors to undertake ground consolidation works for one bridge abutment on the Breakfast Creek crossing and the embankment stabilisation at Yowoggera Park. The ground conditions at the site consisted of 1.5m to 2m of stiff clay overlaying 10m to 12m of soft marine clay then bedrock underneath.

The first phase of the project involved the installation of wick drains in a 1.5m grid pattern. These drains allowed the dissipation of pour water pressures and thus increased the rate of consolidation and s

The next phase used the dynamic replacement process to form stone columns at 5m centers. This involved the use of a large crane and a 13T pounder that was lifted to heights of 10-17m and allowed to free-fall to the ground. The hole formed was then filled with material and the process repeated until it was observed that there was a total loss of penetration – such was predetermined in heave tests conducted on site prior to commencement of DR operations. Column depths ranged from 5m to 7m and the total area treated was approximately 4,500m^2

The fill material used was a mixture of demolished concrete and rock fill ranging in sizes from 75mm to 1m - over 7,000m^3 of material was used on this project.

The next phase was the installation of a 1m high blanket over the entire area that was then compacted in the 'ironing' phase using a 10T pounder that was 2m x 2m. Once this phase was completed, settlement plates were installed and surcharge material added to the area for a period of 6 months.



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