

Cape Town Convention Centre (CTICC) Underpass

Western Cape, South Africa

The CTICC is the leading international convention centre on the African continent.



The project

The existing Cape Town International Convention Centre (CTICC) had reached its capacity limit, so the City of Cape Town decided to extend the facility.

We were contracted to implement a range of geotechnical work during the construction phase.

Parts of the extension were the installation of two access tunnels leading to the basement of the new constructed convention centre. The construction of these access underpasses required piled lateral support with arched gunite and anchors.

The challenge

The conventional lateral support could not be installed everywhere due to highly sensitive service lines and large diameter storm water culverts crossing the tunnel lines. These service lines feeding the city centre and storm water culverts channelling rain water from table mountain to the ocean were so closely laid, that piling between them was not a possibility.

The solution

In order to create the necessary lateral support, jet grouting walls were considered the safest solution with the lowest risk of damaging these vital services.

Jet grouting allows the installation of large diameter soil cement columns through small diameter boreholes of less than 200mm, which makes the technology exceptional in working around utilities without disrupting their operations.

All cable service lines had to be identified and exposed completely beforehand. To protect them from possible damages during installation of the columns, they were wrapped and encased with wooden boxes. We initiated that temporary ducts be installed between the service lines and through the culverts to allow the installation of the grout columns below the services.

In some areas reinforcing of the jet grout columns by means of an H-section was required. The H-sections had to be installed through the sleeves immediately after the jetting process.

The installation of the jet grouting elements had to be carried out in different phases under extremely congested site conditions. The column diameter varied between 1m and 2.8m depending on the layout of the servitudes and culverts. The total quantity of jet grouting installed added up to a volume 560m³.

Project facts

Owner(s)

Cape Town City Council

Keller business unit(s)

Keller South Africa

Main contractor(s)

Aveng Grinaker Ltd Coastal

Engineer(s)

Sutherland

Solutions

Excavation support

Markets

Institutional / public

Techniques

Jet grouting

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