



OLD MUTUAL BUILDING

Sandton, Gauteng, South Africa



Project Facts

Product

Soldier Piles, Strand Anchors, Soil Nails / Rock Bolts, Gunite

Market

Commercial

Client

Old Mutual Property Development

Consultant

WSP (Engineers)



About the project

Franki Africa undertook one of its most technically demanding geotechnical projects with the construction of the new Old Mutual building. The site was complicated by geological and infrastructural constraints, including the Gautrain tunnel running directly beneath the property and the integration of the adjacent Sandown Mews development.

Challenges

The Gautrain necessitated a challenging approach for the excavation and “expected” rock profile works directly over its tunnel alignment along the entire Rivonia Road face. No blasting was permitted in this region during the installation of the soldier piles. The soldier piles were installed deeper than the final excavation level thereby providing the first signs that rock might not be present over the Gautrain alignment.

The diabase dyke, has been a perennial geotechnical issue in the Sandton area. It has weathered so differently to the rest of the site, which is granite. When the diabase dyke weathers it forms a much more clayey material, the bedrock is generally deeper, it retains more water and has a localised, elevated phreatic surface. Also, its weathering is very hard and spheroidal.

The Solution

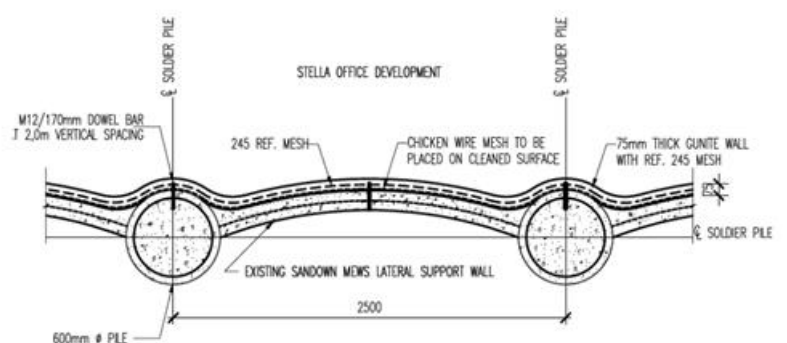
The lateral support design along the Sandown Mews eastern wall comprised of securing the existing Sandown Mews Lateral support basement level 3 (B3) and further extending the Old Mutual lateral support and additional basement level 4 below (B4). The existing soldier piles were utilised to B3



with the permanent Old Mutual gunite façade doveled into both the piles and supporting finger props, extending from the Sandown Mews building. This provided additional shear and axial capacity of the newly placed gunite.

The excavation for the additional B4 basement level consisted of securing, rebuilding to B4 level and securing the existing soldier piles. This methodology was very successfully implemented with minimal effects on the neighbouring structure with continual monitoring along the toe and crest of the face indicating minimal movement along the structure.

The scope of works included 184 No. Soldier Piles of 600mm diameter drilled to refusal; 860 No. Strand Anchors; 920 No. Soil Nails/Rock Bolts; 12 500m² gunite walls.



PLAN ON SOLDIER PILE RETAINING WALL