

Knights propped up with sheet piles



A new grandstand is being constructed at EnergyAustralia Stadium in Newcastle.

THE first stage of the construction of the new Eastern Grandstand at EnergyAustralia Stadium is nearing completion, and features sheet pile being used in permanent works. Around 5000 concourse seats will now be ready for the Newcastle Knights first home game of the 2004 NRL season on the weekend of April 16-18.

The construction of the new Eastern Grandstand is being carried out in two stages. Following the completion of the concourse seating, the superstructure will be built during the remainder of the year and is due for completion by the end of 2004.

Haslin Construction is responsible for the grandstand's civil contract. By the Knight's first home game, Haslin will have completed earthworks for the tiered seating and grandstand concourse as well as the seating structure and installation of seats.

Subsurface conditions within the vicinity of the new grandstand area generally comprised 7 m of fill which included slag boulders forming the existing hill. The fill was underlain by dense sands generally up to 4 m thick, which in turn was underlain by very stiff clay, with bedrock varying in depth from 25 m to 28 m.

The main grandstand structure will be supported primarily on 900 mm diameter contiguous flight concrete piles constructed by Frankipile Australia, with the heavier working loads to 3350 kN maximum socketed nominally within the bedrock.

Piles have been designed for vertical, horizontal and moment loading, together with the requirement that piles be free standing from RL14 (underside of grandstand footings, approximately top of hill) to RL8 (level of playing field) due to the limited lateral soil restraint provided by the hill formation.

Piles were also designed for the possibility of an earthquake event in response to the 1989 Newcastle earthquake and Code requirements. Consequently, pile size (diameter) and reinforcement were dictated by column design (freestanding section of pile) and earthquake loading conditions.

Sheet piles were also installed under Frankipile Aus-

tralia's contract, with the sheets providing support for ramps and proposed excavations associated with the grandstand construction.

Frankipile drove the LX16 sheet pile supplied by Steelcom ex stock, in lengths varying from 8 to 12 m. Interestingly some of the sheet pile will be shotcreted and remain permanently exposed. The undulating profile of the sheet pile will be used to create an attractive feature of the wall.

Once completed, the grandstand upper deck, corporate level and concourse will cater for around 12,500 patrons with more than half seated undercover.

In addition to construction of a new grandstand, permanent bucket seating has been installed on the northern and southern concourses, while remedial work will be undertaken on the Western Grandstand.



Wall of sheet that will be shotcreted and remain permanently exposed.