

Pakuranga - Penrose A Dismantle

Project: Pakuranga - Penrose A Dismantle

Client: Transpower NZ Ltd

Location: Auckland

Contract value: \$3,000,000

DESCRIPTION

As part of the North Auckland and Northland Grid Upgrade (NAa N) project Electrix was awarded the Pakuranga – Penrose A line dismantle tender. The work consisted of removing the double circuit copper and ACSR conductors, (6 spans), along the entire line length and the removal of the thirty five towers on the line. To accommodate the new 220kV substation at Penrose the project also called for the deviation of the OTA-PEN A & B 110kV lines at the Penrose substation. The removal of the PAK-PEN A line was undertaken to free up the existing line corridor for the installation of the new high voltage underground cable from Albany to Pakuranga.

SCOPE

The project had many unique features as the line corridor ran through a built up area of Mt Wellington and Pakuranga with an extensive roading network, including the four lane junction of the Pakuranga Motorway and Ti Rakau Road. At this intersection the conductors were removed in during the night to minimize the inconvenience to commuters. The North Island Main Trunk Railway, schools, playcentres, commercial premises and public reserves were also crossed.

Conductor removal was a challenge, with half the spans lowered to the ground to be retrieved using either hand winding or reelwinder methods. The remaining spans were recovered using tension stringing techniques. Hurdles and other protection ensured the infrastructure, including overhead power lines, were not damaged during de-conductoring. The other major consideration was the security of the old copper conductor, security guards were deployed after work hours to ensure theft of the material did not occur.

The deviation at Penrose included the installation of tower foundations and tower erection along with foundations and erection of steel mono-poles. The strong grey basalt at Penrose made for very slow progress with the foundations but all came in on budget and on time. The main arterial road at the substation made for an interesting work environment at the site particularly during the wiring work.

The old towers were removed using cranes and the tower steel was sold directly from site to the scrap metal merchant who used guillotine jaws to break down the steel sections into manageable sections for transport. All of the tower foundations were removed to Transpower specification. Particularly challenging was the removal of the foundations in the Panmure basin. Extensive traffic management was deployed to safeguard roadside worksites and a full time engineer was engaged to ensure all construction techniques did not overload the tower structures during the works.

VALUE TO CLIENT

The pre-site planning and coordination of sub-contractors and Electrix own personnel along with the extensive range of stakeholders gave the Electrix management team a very challenging but satisfying project. Despite the very built up nature of the line route the obsolete line was removed to the client satisfaction.

