

SA Power Networks

Athol Park Zone Substation



The Client

SA Power Networks was formerly ETSA Utilities, a state owned corporation of the government of South Australia. It currently operates an electricity distribution network through out South Australia. Its primary service is delivering electricity from the high voltage network through poles and wires for domestic and commercial consumption. This involves the operation and maintenance of hundreds of zone substations.

Project Background

SA Power Network’s 2015-2020 Regulatory Proposal states “The program to address safety priorities arising from a range of network and aged assets condition matters includes initiatives that...continue a long term program to remediate unsafe elements of aged substations that do not comply with the Electricity Act and Regulations. Items include removal of asbestos, upgrade of substation security and fencing to prevent unauthorised entry.” SAPN has allocated some \$11.7m for security fencing and security. The Australian Energy Regulator (AER) is currently reviewing this proposal.

This current proposal follows a similar one submitted by ETSA Utilities in July 2009. This proposal stated: “To support the revised expenditure, ETSA Utilities has provided a letter from their legal advisors, Johnson Winter & Slattery (JWS) discussing the duty of care owed by ETSA Utilities to trespassers at their substation sites. In its revised proposal ETSA Utilities highlights JWS’s agreement with PB’s conclusion that priority should be given to the highest risk sites however JWS also noted that:

- the present assessment of the site as low risk does not negate the fact that a person may be injured there in the future;
- the upgrading of fences at high risk sites may result in thieves and vandals to select ‘easier’ targets in the form of low and medium risk sites;
- the upgrading of sites at high risk sites makes harder for ETSA Utilities to justify the reasonableness of retaining less secure fencing at other sites. As a result of these findings JWS considered that it is reasonable and prudent for ETSA Utilities to ensure that its substation fencing complies with the ENA Guidelines.”

Against this background, ETSA Utilities and more recently SA Power Networks has implemented a program of progressive upgrades of the perimeter security fencing around its zone substations. It has also developed a written specification for a number of fencing types and accompanying drawings.

Bluedog has previously supplied and installed high security in accord with this specification at four sites: Ingle Farm, Clarence Gardens, Blackwood and most recently Athol Park.



Front gate (before)



Front gate alignment (after)



Construction phase

Project Statistics

Location:	Athol Park,
Product:	GuardForce® 354 welded mesh high security fencing,
Style:	3000mm high with serrated rail topping. Steelwork hot dip galvanised after fabrication and then powder coated (Charcoal Gloss)
Length:	104 metres of fencing, a 6 metre sliding gate and 2 pedestrian access gates.
Duration:	5 week material manufacture 6 weeks on site
Completion Date:	July 2015
Final Contract Sum:	~\$150k



Western alignment (before)

Project Description

The scope involved the erection of 3000mm high temporary fencing around the site to maintain security during the works, removal of the existing dilapidated Chainwire fencing, excavation of a trench to suit the concrete plinth under the fence, excavation of 1.5 metre deep footings for the posts, place concrete beam at the vehicle access, erection of the fence and gates, and connection of the fence to the earth grading ring.



Western alignment (after)

Project Specific Challenges

- Working inside a “live” high voltage substation including working in with an L3 site supervisor at all times.
- Locating underground services into the site.
- Stockpiling of surplus excavated spoil for testing and removal from site.
- Working alongside other trades.
- Working on the corner of a busy residential street.
- Accommodating late changes in the heights of the fence by way of having to amend the height of gates to be manufactured.

Innovations & Added Value

- Incorporation of a anti-climb and vandal resistant hand hole arrangement of accessing the internal locking hardware. The design was a significant improvement on previous solutions (see images right and lower right).

Variations

- Bluedog worked closely with the client to improve the design of the main vehicle access to the site, which involved splaying the adjacent mesh panels to better accommodate the Personal Access and 6m Sliding Gates, while keeping the construction works within the site boundary.
- A bridging footing design to span existing in-ground services, maintaining the regularity of the 2.4 metre post centres to reduce the visual impact and need for additional posts.



Slide plate anti-climb and vandal resistant hand-hole arrangement for sliding gate