

## Surrey Hills Substation FRP Fencing

Public Transport Victoria were in the process of building new substations to increase the power capacity on the network so that more trains could run with more reliability. These network upgrades are needed to allow High Capacity Metro Trains to run across Melbourne's busy train network.

Treadwell was approached to provide a durable, non-corrosive fence solution that was electrically non-conductive as well as non-disruptive to the radio frequencies around the network.

In response, Treadwell provided SecurEX<sup>®</sup>, our line of FRP fencing from our structural profile range.

### Project Challenges

- Major concern on electrical conductivity of the fence due to the proximity to the electrified railway line.
- Required material that was transparent to radio frequency.
- Corrosion issues due to the exposed nature of the site.
- Reduce the need for maintenance.

### PROJECT INFORMATION

|                     |   |
|---------------------|---|
| Project Category:   | ArchitEX <sup>®</sup> FRP Structural Products |
| Scope of Work:      | Fence system at substation                    |
| Treadwell Products: | SecurEX <sup>®</sup> FRP Fence System         |
| Value:              | \$ 85,000                                     |

### Treadwell Solution:



1

SecurEX<sup>®</sup> FRP fence systems are categorically chosen to suit the environments in which they will be installed in to counter corrosion.

2

Due to the nature of FRP, SecurEX<sup>®</sup> FRP fence systems are electrically non-conductive which suits this application extremely well.

3

SecurEX<sup>®</sup> FRP fence systems are radio frequency transparent, allowing smoother communications.

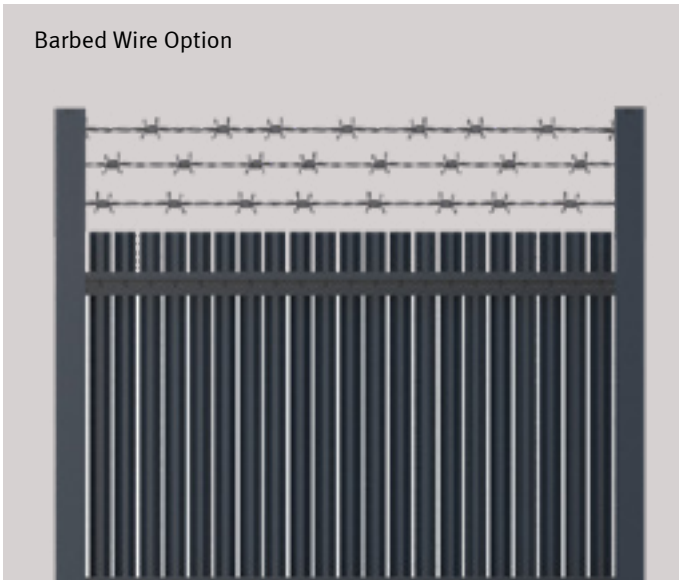
4

Being lightweight and easy to install, FRP is very manageable during construction.

5

Given the nature of FRP, any system utilising it is virtually maintenance free.

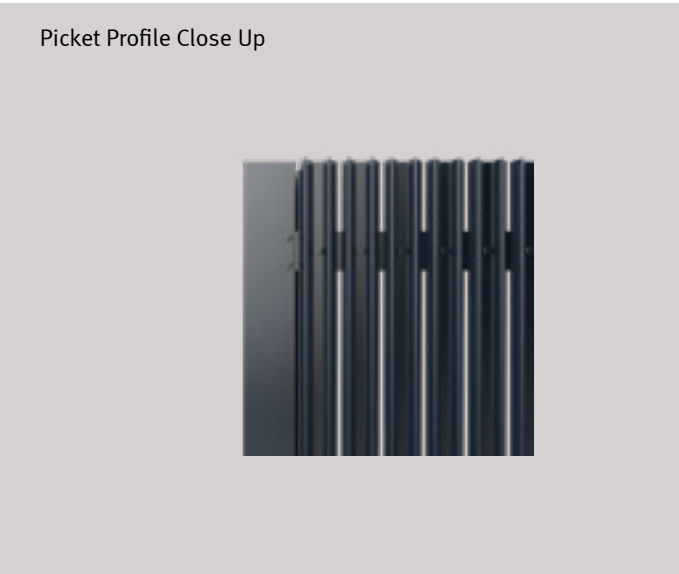
Barbed Wire Option



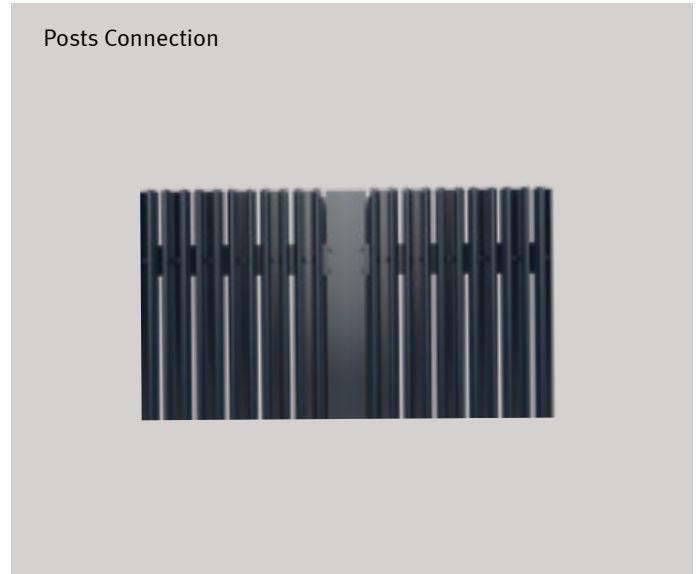
Barbed Wire & Razor Hoops Option



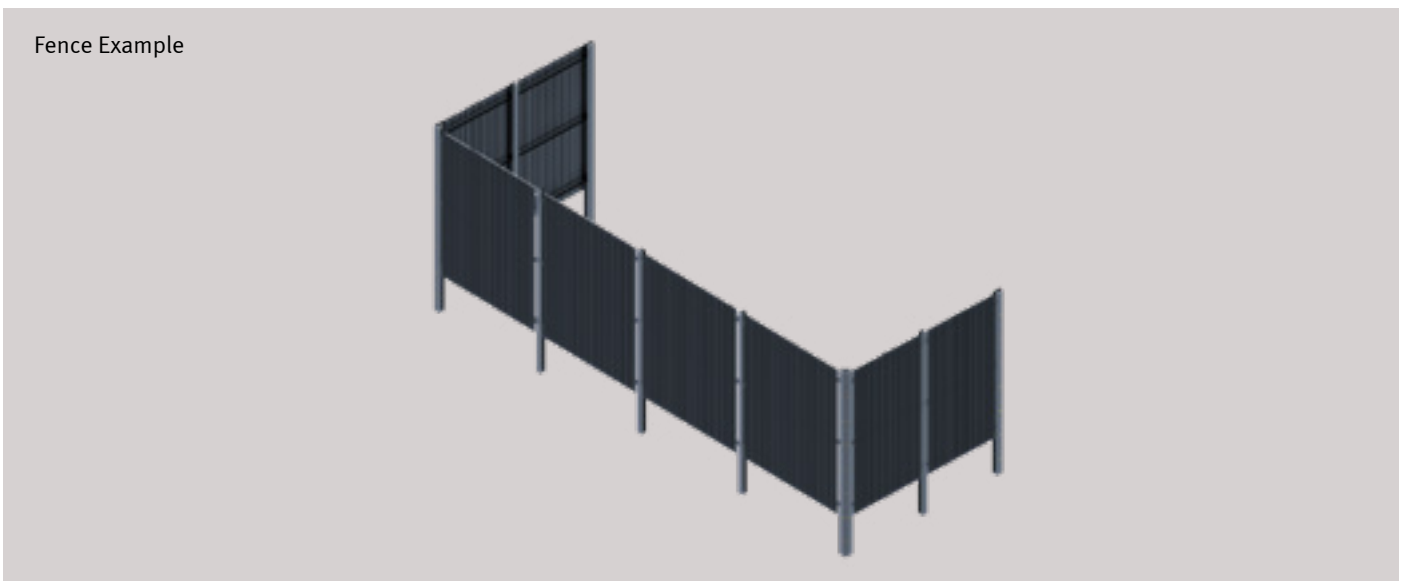
Picket Profile Close Up



Posts Connection



Fence Example



SecurEX® is an excellent investment suited to a large range of sectors, spanning from commercial to residential projects, the light weight, ease of installation and lack of maintenance characteristics are highly viewed.

The communications, energy and transport sectors make particular use of it due to its requirement for materials with substantial electrical insulation properties. The non-conductive nature of FRP makes it ideal for applications where power, magnetic fields and RF transmission are also sensitive considerations.

Further, applications for SecurEX® FRP Fencing Systems, like all our gratings, can be applied in areas where corrosion exists (e.g. the naval and offshore sectors) or to reduce fire risks (low smoke emissions).

| ELECTRICAL PROPERTIES   | ASTM    | UNITS        | VALUE | UNITS               | VALUE       |
|-------------------------|---------|--------------|-------|---------------------|-------------|
| Arc Resistance, LW      | D - 495 | seconds      | 120   | <i>seconds</i>      | <i>120</i>  |
| Dielectric Strength, LW | D - 149 | kv. / in.    | 35    | <i>kv. / in.</i>    | <i>1.37</i> |
| Dielectric Strength, PF | D - 149 | volts / mil. | 200   | <i>volts / mil.</i> | <i>200</i>  |
| Dielectric Constant, PF | D - 150 | @60hz        | 5     | <i>@60hz</i>        | <i>5</i>    |

