



CROYDON CABLE TUNNEL

Customer:	Morgan Est
Site Owner:	National Grid
Approx. Value:	£1.5m

FSD, in a joint venture with Anord Control Systems, were contracted by Morgan Est to work on the new £60m Croydon Cable Tunnel works for National Grid. This 10km long, 3m diameter tunnel for 400kv cables included four shafts and all associated mechanical and electrical works, and connects existing substations at Beddington and Rowdown. It is part of an ongoing programme to move energy supplies underground and is due to be completed in 2011.

The scope of work for the JV Team was mainly associated with the control, monitoring and reporting of the environment within the tunnel to the two control rooms. Anord supplied the MCC's and UPS systems; the FSD scope included:

- Fibre optic and leaky feeder installation along the whole length of the tunnel, together with supplies for the ventilation system and building services.
- Installation of containment, cabling and equipment/instrumentation within the 4 Head Houses and 2 Control rooms.
- Design, supply and installation of the small power and lighting within the head houses and shafts; the depth of shafts ranged between 38 and 8 meters.
- Integration of gas detection, fire detection and heat detection monitoring.
- Installation of security systems.
- Design, supply and installation of air conditioning plant.

Additionally FSD were tasked with the role of co-ordinating the work of the various sub-contractors involved, to ensure that each of the integrating packages met the client's requirements with both intelligent and hard wiring systems.

Each head house contained 2 MCCs and 1 UPS, 1 SCADA panel, 4 Gas detection panels, 2 Fire alarm panels and 1 security panel. Both MCCs have both non- and UPS-backed up sections and design work was challenging with regards routing and calculation for the amount of cross over cabling required. Each of the gas, fire and security systems have independent mains and telemetry cabling that was required to be read and controlled, not only from the MCC HMI screens but also the SCADA HMI screen and both control rooms.

Sump pumps were installed at the bottom of each shaft with lighting in the shaft being designed using retractable lighting that could be raised and lowered for maintenance purposes.

Within the tunnel an unmanned monorail runs throughout the entire length which is controlled from either control room for visual inspection. The 48 core and 24 core fibre optics installed within the 10km tunnel create an information highway ring between all head houses and control rooms. An additional fibre that reads the temperature at any point within the tunnel provides this information at any head house and the control rooms.

With over 30km of fibre optic cabling required to be laid, FSD, together with cable puller FB Taylor, developed an innovative solution, modifying an electric luggage buggy and trolley to pull cable through the tunnel. This reduced a 10-12 man job to just 5 men, giving a substantial cost-saving.

Field Systems Designs Ltd
Spring Court
Station Road
Dorking
Surrey
RH4 1EB

Tel: 01306 880800 Fax: 01306 882922

sales@fsdl.co.uk www.fsdl.co.uk

