UDCS Consulting Project Summary

The Company

UDCS Consulting provides

- survey and
- engineering consultancy

services to the

- electricity
- infrastructure
- mining
- commercial sectors

The primary works being undertaken are in reticulation, distribution and transmission of power, water and gas.

Our Clients

Domestic and foreign Utilities

Major construction companies

Government & Private asset owners.

Services Offered

Engineering Survey

Electrical Distribution Design

Sub-transmission OH Design

Sub-transmission UG Design

Substation Design

Preparation of environmental reviews

Developer initiated Design

Solar Power and Lighting Design

Road Lighting Design

HV Auditing (QLD ESO)

Contact Details

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33kV Underground Feeder Replacement

Hendra to Hamilton

Project Scope

Energex commenced issuing 33kV underground transmission feeder replacement projects as D&C in late 2007. UDCS Consulting was engaged as part of the initial trial project as design consultant.

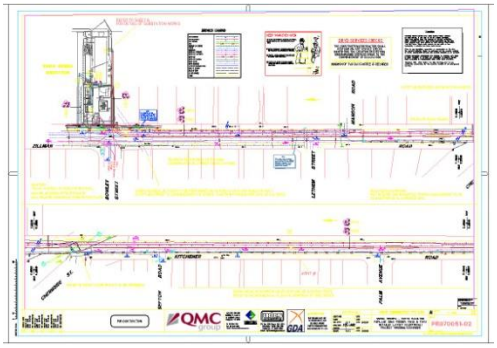
The Hendra to Hamilton project required the installation of a double circuit feeder capable of delivering 40 MV.A per circuit. The network required upgrading within a short lead time to ensure that peak summer loads could be sustained the following season.

The client specifically required delivery of the following:

- Alignment selection
- Detailed survey
- Geotechnical investigation
- Geothermal investigation
- Cable rating
- EMF study
- EPR study
- Design of special earthing details

Key Staff

Surveyor:	Tim Smyth
Design Engineer:	Kerry Prickett



Rating Study Method

Traditionally cablese are rated based on static operational design limits. Limits are normally calculated for a maximum operating temperature for the cable type under consideration which can be converted to continuous and emergency limits in load current or power. In this case the current static limits were specified as:

- 90°C system normal
- 105°C for short term emergency

Ratings are controlled by a combination of factors:

- Heat generated from power transfer, sheath current transfer and external sources.
- Geothermal properties of in-situ soil and imported backfill.
- Cable construction and installation
- Earthing arrangement properties

The rating studies in this case were conducted in line with the recommendations of ISO 80287 utilising CymCap™ software.