5 DESCRIPTION OF DEVELOPMENT ACTIVITIES

5.1 Activity to be undertaken

Eskom propose to construct a new 400 kV overhead power line, located half way between Bronkhorstspruit and Witbank just east of the Bravo Power Station. The purpose of this line is to integrate the new Bravo Power Station into the Eskom grid to supply additional electricity to the Diepsloot and the Johannesburg north area. The study area will include three route alternatives each route is approximately 100 kms in length.

5.2 Location

The proposed Bravo-Lulamisa power line will be constructed from Bravo, half way between Bronkhorstspruit and Witbank to Lulamisa next to Diepsloot over a distance of about 70 km.

The proposed routes are located between Bravo and Lulamisa. A list of the farms that the alternative routes intersect is attached to this report as Appendix C. For the location of proposed routes refer to Figure 4.

5.3 Description of the Development Activities

5.3.1 The Pre-Construction Phase

Appointment of Contractor

After a tendering process, Eskom will appoint the construction contractor. The anticipated appointment date is early 2012.

Construction Schedule

The primary milestones for the construction of the Bravo-Lulamisa power line are described in Table 7 below.

TABLE 7: CONSTRUCTION SCHEDULE FOR THE BRAVO-LULAMISA 400 KV OVERHEAD POWER LINE.

MILESTONES	DATE
Appointment of Construction Contractor	February 2012
Pegging of bend tower by a Transmission surveyor	February 2012
Site preparation and clearance for contractor's camp	March 2012
Erection of camp sites for the Contractors' workforce	March 2012
Vegetation clearing to facilitate access, construction and the safe operation of the lines	March 2012
Establishing of access roads on the servitude where required as per design parameters in TRMSCAAC1 rev 3	March 2012
Pegging of tower positions for construction by the contractor	March 2012

MILESTONES	DATE
Transportation of equipment, materials and personnel to site and stores	April 2012
Installation of foundations for the towers	July 2012
Tower assembly and erection	August 2012
Conductor stringing and regulation	November 2012
Environmental Rehabilitation	January 2013
Taking over the line from the contractor for commissioning	January 2013

5.3.2 The Construction Phase

If a positive Environmental Authorisation is obtained, the construction of the power line will be undertaken over a period of 11 - 12 months. The construction phase of the development will involve the following aspects:

- Pegging of bend tower by a Transmission surveyor;
- Site preparation and clearance for contractor's camp;
- Erection of camp sites for the Contractors' workforce;
- Servitude gate installation to facilitate access to the servitude;
- Vegetation clearing to facilitate access, construction and the safe operation of the lines;
- Establishing of access roads on the servitude where required as per design parameters in TRMSCAAC1 rev 3 (See Appendix T);
- Pegging of tower positions for construction by the contractor;
- Transportation of equipment, materials and personnel to site and stores;
- Installation of foundations for the towers;
- Tower assembly and erection;
- Conductor stringing and regulation; and
- Taking over the line from the contractor for commissioning.

Pegging of bend tower by a Transmission surveyor

A transmission surveyor will be required to pin-point all the bend tower positions with the aid of a Geographical Positioning System (GPS). This may take place during site clearance or prior to site clearance.

Site preparation and clearance for contractor's camp

An area will be cleared for the siting of a contractor's camp. This area will be chosen to have the least environmental impacts which are easily mitigated and will be rehabilitated as per the Environmental Management Plan (EMP) requirements post construction.

Erection of camp sites for the Contractors' workforce

The contractor's camp will be fenced and the contractor will maintain in good order all fencing for the duration of the construction activities. Site establishment shall take place in an orderly manner and all amenities shall be installed at Camp sites before the main workforce move onto site.

Servitude gate installation to facilitate access to the servitude

A servitude gate will be installed to ensure secure access to the site. This gate must be maintained throughout the construction phase in a working order in accordance with the EMP by the contractor.

Vegetation clearing to facilitate access, construction and the safe operation of the line

Vegetation must be cleared to facilitate access, construction and safe operation of the line. Where indigenous vegetation has been removed it must be replanted so as to minimise impacts to the environment. Search and rescue activities may be required for any endangered species if found on site during clearing.

Establishing of access roads on the servitude where required as per design parameters in TRMSCAAC1 rev 3 (See Appendix T)

All access roads on the servitude must be in accordance to Transmission Specifications – Transmission Line and Towers and Line Construction (TRMSCAA1). (See Appendix U)

Pegging of tower positions for construction by the contractor

All in-line towers must be pin-pointed with the aid of a Geographical Positioning System (GPS). This may take place during the pegging of the bend tower either by the contractor or the transmission surveyor.

Transportation of equipment, materials and personnel to site and stores

All transportation must be in accordance with the EMP (see Section 11).

Installation of foundations for the towers

Foundations will be approximately 1.5 m x 1.5 m each. The number of foundations will be dependent on the type of tower chosen. The installation of the foundations must take place under supervised conditions.

Tower assembly and erection

All towers will be assembled simultaneously in stages, that is, bottom structures will be assembled for all towers in the first phase (phase1), middle structures for all towers will be assembled simultaneously in the second phase (phase 2) and so on.

Conductor stringing and regulation

Stringing will be undertaken in accordance with Eskom's stringing procedure.

Taking over the line from the contractor for commissioning

Transmission engineers will take over the line from the contractor on the completion of construction.

5.3.3 Rehabilitation Phase

The rehabilitation phase of the development will involve the following aspects:

- Rehabilitation of disturbed areas; and
- Signing off of all Landowners upon completion of the construction and rehabilitation.

Rehabilitation of disturbed areas

Once construction of the power line is completed rehabilitation of affected areas will be undertaken to obtain the following objectives:

1.) A sustainable topographic profile, tied into the adjacent vegetation in such a manner that erosion is controlled.

2.) A sustainable vegetation layer, free of alien invasive species.

3.) A litter free environment where all construction waste has been suitably removed to a licensed facility.

4.) All power lines will be constructed to the highest standards such that residual impacts are controlled to their maximum extent.

Signing off of all Landowners upon completion of the construction and rehabilitation

Once rehabilitation has been completed, sign off will be obtained from all landowners affected.

5.3.4 The Commissioning and Operational Phase

The commissioning and operational phase of the development will involve the following aspects:

- Final inspection of the line, commissioning and hand over to the Grid Line and Servitude Manager for operation.
- Handing over and taking over of the servitude by the Grid Environmental Manager.
- Operation and maintenance of the line by the Grid.

Final inspection of the line, commissioning and hand over to the Grid Line and Servitude Manager for operation.

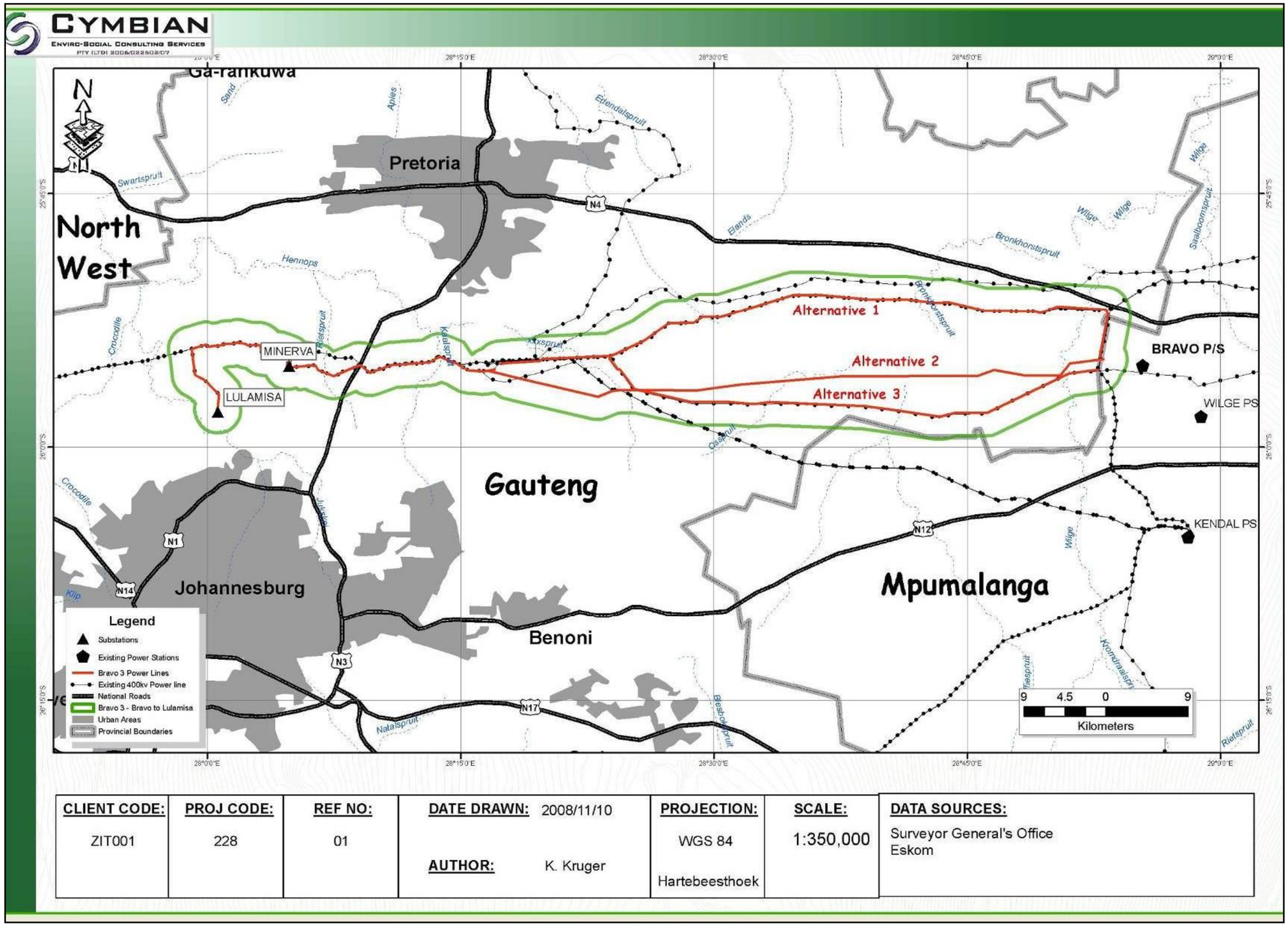
Final inspection of the line will be carried out by the Grid line and servitude manager.

Handing over and taking over of the servitude by the Grid Environmental Manager.

The site file will be handed over by the servitude manager to grid environmental manager.

Operation and maintenance of the line by the Grid.

Bi-annual maintenance checks will be undertaken by Transmission by means of helicopter and on land to ensure that the lines are fully operational. In the event that a problem is identified Transmission will be instructed to undertake maintenance on the power lines, however depending on the severity of the problem Transmission may appoint a contractor.



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ZIT001	228	01	AUTHOR: K. Kruger	WGS 84 Hartebeesthoek	1:350,000	Surveyor General's Office Eskom

FIGURE 4: PROPOSED ALTERNATIVE ROUTES FOR THE BRAVO-LULAMISA POWER LINES.