
CONCLUSIONS AND RECOMMENDATIONS

CHAPTER 6

The Environmental Scoping Study for the proposed activities within the Gauteng Province has been undertaken in accordance with the EIA Regulations which was published in Government Notice 28753 of 21 April 2006, in terms of Section 24(5) of the National Environmental Management Act (NEMA; No 107 of 1998). The Tshwane Strengthening Project Phase 1, Apollo - Verwoerdburg entails:

- » 2X 400Kv loop-in power lines between the Apollo and Verwoerdburg Substations, including upgrade of the Verwoerdburg substation

This Environmental Scoping Study aimed at identifying potential issues associated with the proposed project, and defining the extent of studies required within the EIA. This was achieved through an evaluation of the proposed project:

- » involving the project proponent; and
- » Specialists with experience in EIAs for similar projects and within the study area, consultation process with key stakeholders including both relevant Government Authorities and Interested and Affected Parties (I&APs).

In terms of the EIA Regulations, feasible alternatives have been considered within the Scoping Study (and discussed in full detail within Chapters 2, 5, 6 and 7).

The conclusions and recommendations of this Scoping Study are the result of on-site inspections, desktop evaluations of impacts identified by specialists, and the parallel process, Public Participation. Every effort has been made to include representatives of all stakeholders in the study area.

A summary of the conclusions of the evaluation of the proposed transmission line alternatives identified for the Apollo-Verwoerdburg 400kV loop-in transmission lines, as well as recommendations regarding investigations within the EIA are provided below.

6.1. Conclusions and Recommendations drawn from the Evaluation and Comparison of the Transmission Power Line Alternatives

The study area is situated with the Kungwini Local Municipality and the City of Tshwane Metropolitan Municipality in the Gauteng Province.

6.1.1. Apollo-Verwoerdburg

The land use is largely industrial and agricultural small holdings. Other sections of the study area contain existing power line and railway line infrastructure. Some parts of the study area on the western section forms part of the Olifantspruit River.

6.1.2. Selection of a Preferred Alternative Transmission Power Line Corridor for the Proposed Apollo-Verwoerdburg 400kV Transmission Power Lines

The transmission power line alternatives proposed for the Apollo-Verwoerdburg 400kV transmission power lines cross various habitats with sensitivity classes and potentially impact on numerous land uses and communities. From the specialist studies undertaken there are varying conclusions with regards to the preferred alternative alignment this was undertaken for the proposed Apollo-Verwoerdburg 400kV transmission power line.

» *Conclusions in terms of impacts on biodiversity:*

Both alternatives presented for the proposed development are expected to have moderately significant impacts on important natural attributes of the region. Both of the proposed route variants will affect a Class 3 ridge, while existing Apollo-Pluto Alternative Route 1 might have an impact on a perennial river. Impacts of both line variants are of a similar nature, although the Route 1 is regarded as resulting in a slightly lower potential impact.

Mitigation of impacts associated with the crossing of rivers is usually effective, except in cases where tall trees need to be removed for the purpose of servitude clearance. With the application of moderate or low levels of servitude maintenance, the level of impacts associated with the construction and operation of power lines in a grassland environment is not as severe as could be expected. Severity of seasonal maintenance is therefore regarded as significant and important mitigation measures in areas of high environmental sensitivity.

An existing line presently occurs directly north of alternative route 1. It is recommended that this particular servitude be extended and utilised for the construction and operation of the proposed Apollo - Verwoerdburg 400kV loop in lines. The use of an existing servitude will mitigate against impacts associated with a new power line. In addition, by aligning the new line parallel to Christine de Wit Road, impacts associated with power lines in a natural environment will also be eliminated. Although this existing line does traverse ecologically sensitive areas, the impacts have a lower significance on the ecology.

The GDACE Guidelines for Biodiversity Investigations in Gauteng will be implemented during the EIA phase. New environmental regulations pertaining to minimum requirements for biodiversity assessments require the following: "Full surveys on all biodiversity data and mitigation measures to manage the impact on these living systems." In order to compile detailed knowledge of the biodiversity of the study area the following aspects should be included as part of the EIA investigation.

Floristic Investigation

- » Map the location and extent of all plant communities, indicating size and ecological sensitivity, areas of disturbance, surrounding land use, etc; A list of potential

Threatened Plant Species that occur in the area; Conduct Flora surveys during the growing season of all species that may potentially occur (this may require more than one season's survey in order to identify flowering species) with two visits undertaken (November and February). Visits undertaken during other seasons will be determined by the flowering and fruiting times of species that do not occur during the summer; Supply comprehensive plant species lists; Identify plant species that may be of conservation importance down to species level;

- » Provide locality; date surveyed, GPS location, spatial resolution and distribution, including actual numbers, of plant species that may be of conservation importance;
- » Provide a list of alien plant species occurring on the property, considering eradication programmes of alien vegetation; and
- » Provide relocation plants for plants of conservation importance. These species may include:
 - * Species endemic to the province;
 - * Red Data listed plants; and
 - * Protected plants.

Faunal Investigation

- » Map the existence and extent of all faunal species, indicating the type and ecological sensitivity, areas of disturbance, surrounding land use, etc; A list of potential Threatened Fauna and Avifauna Species that occur in the area; Conduct fauna (including avifauna) surveys all species that may potentially occur (some of this may require surveys during both day and night. Identification of fauna species that may be of conservation importance down to species level;
- » Provide locality; date surveyed, GPS location, spatial resolution and distribution, including actual numbers, of fauna species that may be of conservation importance;
- » Provide relocation fauna for fauna of conservation importance. These species may include:
 - * Species endemic to the province;
 - * Red Data listed species.

» *Conclusions in terms of impacts on avifauna:*

The preferred route follows the existing lines and this will partially mitigate the collision impact. The impact of collisions and the exact areas of concern will be highlighted and assessed in greater detail during the EIA phase.

In order to rank these alternatives a table was compiled and the three alternatives given a rating on a scale of 1 to 5, with 1 being the least preferred and 5 being the most highly preferred option. Alternative 3, which was the newly alternative introduced (the existing loop-in power line), is the preferred option. This route follows the existing lines for the entire length and as such the risk of collision will be significantly lower than that associated with the other two alternatives. This route (Alternative 3) does not cross any streams or koppies and thus is the most preferred alternative from an avifaunal perspective. The disturbance and habitat degradation

will also be lower as the new line is adjacent to an existing line with an existing servitude. It must be noted that this option crosses an area which was identified as having a medium to high impact in the SEA (as do the other alternatives), but due to the existing line and servitude this impact should be very low and therefore qualifies as the preferred option. The **option of constructing the 400kV lines parallel to the existing Apollo-Verwoerdburg lines** has the lowest risk from a bird interaction perspective.

No significant impacts or fatal flaws have been identified at this stage. The new route outlined in this report should be further studied during the EIA phase and all the impacts assessed in much more detail.

» *Conclusions in terms of visual impacts:*

It is understood that the type of power line in the various alignments will be of the same type and thus no difference in visual impact is anticipated in this regard. All alignments routes used to generate viewshed analyses are thus at the same height above ground level. Vegetation is difficult and time-consuming to include in a viewshed analysis and is thus not included in the scoping phase. If it was deemed necessary to constitute a significant change in the results of the viewshed analysis, the extension of the sensitivity analysis, the vegetation may either be digitized manually or extracted from satellite imagery to form part of the analysis of the EIA phase.

It is recommended that during the EIA phase more accurate viewshed analysis should be merged with two other datasets, namely a proximity analysis and a land use classification, which will form a sensitivity analysis to incorporate the value of information of all three into a one datasets. A sensitivity analysis will need to be done on all alternatives emerging from the Scoping phase as it's still viable. It is envisaged that area calculations of each sensitivity analysis should provide a quantified estimate of the overall visual impact of each proposed alternative, thus providing a quantifiable means of establishing a preference ranking.

» *Conclusions in terms of impacts on heritage resources:*

As no specific heritage sites have as yet been identified in the study area, no preferred transmission line corridor alternatives exist at this stage from a heritage perspective.

The proposed Tshwane Strengthening Project may impact on South Africa's 'national estate' which comprises a wide range of heritage resources, some of which may occur in Tshwane Strengthening Project Area (see Part 2, 'The National Estate'). Therefore, ultimately, a Phase I Heritage Impact Assessment (HIA) has to be undertaken for the Tshwane Strengthening Project as outlined in Section 38 of the National Heritage Resources Act (No 25 of 1999).

This Heritage Scoping report precedes the Phase I HIA study, as it outlines the possible presence of certain types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (see Part 3) which may occur in the Project Area by means of consulting archaeological data bases, literary sources and earlier HIA studies of the Project Area (see Part 3, 'Methodology').

» *Conclusions in terms of impacts on the social environment:*

This report fulfilled the objectives of the Scoping Phase, which was to complete a broad assessment of the project from a social perspective to enable a more focussed study in the Impact Assessment Phase.

A preferred route alignment could not be determined during the scoping study as both alignments affect the same portion of land. Both alignments are also located away from surrounding residential areas at an average of 500m. In addition, the area is already characterised by infrastructure of a similar nature, i.e. the existing Verwoerdburg substation and a number of high voltage transmission power lines. It is therefore, at this stage, not foreseen that additions to the Verwoerdburg substation or the construction and operation of the two proposed turn-in and -out lines would yield significant negative impacts to the surrounding social environment. Therefore, no issues emerged that can be considered as fatal flaws and at this stage there are also not areas of great concern. It is recommended that a brief SIA be conducted during the next phase to test the assumptions made in this scoping report in respect of issues such as the expected land use change, temporary influx of people to the area and the likelihood of the project impacting on sense of place.

6.2. Recommendations for Further Investigations pertaining to Power Line Alternatives and Substations within the EIA Phase

A number of issues requiring further study have been highlighted through the environmental scoping study. In order to address these issues, the following studies are required to be undertaken as part of the EIA phase of the process:

- » A detailed ecological survey of the transmission power line alternatives in order to establish the likelihood of any flora and/or fauna species of concern occurring in the study area. The detailed survey must concentrate on habitats classified as having High or Very High sensitivity.
- » A detailed survey of the proposed substation establishment and extension in order to assess the potential impacts of the proposed project on fauna and flora species and to recommend appropriate mitigation measures for significant impacts, where required.
- » A detailed agricultural survey of the proposed Apollo-Verwoerdburg 2X400kV turn-in line alignments (once determined) in order to fully understand the area in terms of its agricultural potential.

- » A visual impact assessment in order to determine the specific visual impact within identified exposed areas. The visual impact assessment within the EIA will address other crucial issues related to the visibility of the transmission power lines and the proposed Phoebus substation in order to quantify the actual visual impact and to identify areas of perceived impact.
- » Phase 1 and Phase 2 archaeological surveys in accordance with the requirements of Section 38(3) of the National Heritage resources Act (Act No 25 of 1999).
- » A Socio-Economic Impact Assessment (including land use) in order to address identified information gaps and assess the significance of potential impacts on the social environment as a result of the construction and operation of the proposed transmission power lines.
- » Development of appropriate and practical mitigation and management measures for potentially significant environmental impacts for inclusion in the project EMP.

Studies and/or specialist processes which are required to be undertaken outside of the EIA process include:

- » An assessment of the potential impacts of climate and atmospheric conditions (e.g. potential impacts associated with lightening, precipitation and pollution levels) on the proposed transmission infrastructure, in order to provide an indication of what conditions are required to be accounted for by the design team to extend the life and reliability of the new infrastructure.