

6. CONCLUSIONS AND RECOMMENDATIONS

This Environmental Impact Assessment (EIA) process for the proposed third 400 kV Transmission line between Poseidon and Grassridge Substations and extension of the existing Grassridge Substation has been undertaken in accordance with the EIA Regulations published in Government Notice R1182 to R1184 of 5 September 1997, in terms of the Environment Conservation Act (No 73 of 1989), as well as the National Environmental Management Act (NEMA; No 107 of 1998).

The essence of any EIA process is aimed at ensuring informed decision-making and environmental accountability, and to assist in achieving environmentally sound and sustainable development. In terms of NEMA (No 107 of 1998), the commitment to sustainable development is evident in the provision that *“development must be socially, environmentally and economically sustainable...and requires the consideration of all relevant factors....”*. In addition, the preventative principle is required to be applied, i.e. that the disturbance of ecosystems and loss of biological diversity are to be *“... avoided, or ... minimised and remedied”* and *“disturbance of the landscape and the nation’s cultural heritage is avoided and where it cannot be altogether avoided is minimised and remedied”*.

Therefore, negative impacts on the environment and on people’s environmental rights (in terms of the Constitution (Act 108 of 1996) should be anticipated and prevented, and where they cannot be altogether prevented, they must be minimised and remedied in terms of “reasonable measures”. “Reasonable measures” implies that *“every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment”*.

In assessing the environmental feasibility of the proposed 400 kV Transmission line and extension of the existing Grassridge Substation, as well as determining reasonable mitigation measures which are required to be implemented in order to minimise potential impacts associated with the project, the requirements of all relevant environmental legislation has been considered, including, *inter alia*, those of:

- the Environment Conservation Act (No 73 of 1989);
- the National Water Act (No 36 of 1998);

- the Conservation of Agricultural Resources Act (No 43 of 1983); and
- the National Heritage Resources Act (No 25 of 1999).

6.1. Environmental Impacts Associated with the Proposed Development

The proposed project involves the following project activities:

- the decommissioning and dismantling of the existing 220 kV Transmission line;
- the construction of the new 400 kV Transmission line; and
- the extension of the existing Grassridge Substation.

It is acknowledged that any development will impact on the environment. The construction of the proposed Transmission line and extension of the Grassridge Substation will have impacts on the biophysical and the social environment. This EIA investigated and assessed these impacts as a result of project actions.

The majority of the potential impacts associated with the proposed project are anticipated to be restricted to the construction phase, and are thus of a short-term nature. These construction impacts can largely be minimised through the compilation and implementation of a site-specific EMP, which should form part of the construction contractors contract. Therefore, no significant impacts are anticipated as a result of the construction of the proposed Poseidon-Grassridge No 3 400 kV Transmission line and the extension to Grassridge Substation.

No significant impacts are anticipated as a result of the operation and maintenance of the proposed Transmission line and substation extension, provided that appropriate mitigation measures are implemented through a site-specific EMP. This is due to the fact that the existing 220 kV Transmission line and the existing Grassridge Substation have an existing impact on the surrounding area, and the new line and substation extension are not anticipated to add significantly to this impact.

The existing 220 kV Transmission line has an existing visual impact on the surrounding area. With the replacement of the existing 220 kV Transmission line self-supporting towers with cross-rope suspension towers, it is anticipated that existing visual impacts will be lowered, as these towers are smaller and less steel intensive than the existing towers. Therefore, it is anticipated that the proposed project will have a positive impact of moderate to high significance on the aesthetics of the area.

The significance of the impact is predominately determined by the final alignment, the final design, the final construction activities, and how achievable the mitigation measures to minimise such impacts are. Therefore, once the final tower positions have been determined within the existing 220 kV Transmission line servitude, a detailed survey of this route will be required to be undertaken in terms of botanical, avifaunal and heritage aspects in order to determine site-specific impacts and mitigation measures. These site-specific mitigation measures, together with the mitigation measures recommended within this EIA should be included within an Environmental Management Plan (EMP) for construction, operation and maintenance.

Table 6.1 provides a summary of the findings and recommendations made within the specialist studies regarding the proposed Transmission line between the Poseidon and Grassridge Substations and the extension to the existing Grassridge Substation.

6.2. Overall Conclusion and Recommendations

The detailed investigations which have been undertaken as part of this EIA have not identified any issues of high significance which could not be mitigated, such that the proposed project can not be accepted from an environmental perspective. All the potentially negative impacts identified for the proposed Transmission line corridor and substation site can potentially be mitigated through controls in the construction and rehabilitation phases in order to reduce their severity and significance to acceptable levels. In addition, a number of potentially positive impacts have been highlighted which will result in benefits to the region.

The conclusions of this EIA are the result of specialist assessments, based on issues identified within the Scoping Phase, as well as the parallel process of public participation. The public consultation process has been extensive and every effort has been made to involve as many affected property owners as possible.

The finalisation of these conclusions and detailed input into the EMP will be informed by final comment from key stakeholders, the public and the relevant environmental authorities on this draft EIA report.

The issuing of an authorisation for this project EIA by the National Department of Environmental Affairs and Tourism (DEAT) in consultation with the relevant provincial department will permit the negotiation for the expansion of the Transmission line servitude (outside of the GANP area) and the final design of the Transmission line and substation to be

undertaken. At that stage, details in terms of final placement of towers and access roads will be determined and the technical aspects of the powerline and substation site will be finalised.

Table 6.1: Summary of potential impacts associated with the construction of a new 400 kV Transmission line and extension to Grassridge Substation

Issue	Potential Impact and Mitigation Measures
Rare, endangered and threatened plant species	<ul style="list-style-type: none"> • The construction of the proposed Transmission line and associated infrastructure could potentially impact on the endangered, rare and threatened floral species, which have been identified to potentially occur within the study area. This impact will be localised and confined to single individuals, but will be permanent, and therefore significant. With the implementation of appropriate mitigation measures (e.g. relocation of towers, transplanting of plants), the majority of these impacts can be minimised. • The extension of Grassridge Substation could potentially impact on the protected floral species, which have been identified to potentially occur at the proposed substation site. This impact will be localised and confined to single individuals, but will be permanent, and therefore significant. With the implementation of appropriate mitigation measures (e.g. transplanting of plants), the majority of these impacts can be minimised.
Vegetation structure	<ul style="list-style-type: none"> • Construction of a Transmission line, and the associated bush clearance within the study area could potentially have a highly significant negative impact on various vegetation types which have been identified within the study area, due to the slow recovery periods of these vegetation types (e.g. xeric succulent thicket). With the implementation of Eskom’s standard practices (e.g. soil erosion prevention, no clearance in sensitive areas, erection by helicopter where required in sensitive/inaccessible areas), these impacts will be largely ameliorated.
Agricultural potential	<ul style="list-style-type: none"> • Impacts on agricultural potential are localised and are largely limited to tower footprint. • Potential impacts associated with the proposed Transmission line in areas where commercial agriculture has changed to game farming include mainly those associated with aesthetics. • No impacts are anticipated where the new Transmission line crosses grazing land, as grazing remains viable under the lines. • The construction of a new Transmission line across citrus farms could result in the limitation of the height of trees planted for windbreaking purposes, should these be in the path of the proposed line. This will impact significantly on the productivity of the citrus farm and, therefore, its overall viability. The possible avoidance of such farms can actively be addressed during negotiations for final line placement. • No impacts on agricultural potential are anticipated as a result of the proposed extension of Grassridge Substation as the area is not utilised for agricultural purposes.

Table 6.1 cont.: Summary of potential impacts associated with the construction of a new 400 kV Transmission line and extension to Grassridge Substation

Issue	Potential Impact and Mitigation Measures
Terrestrial Fauna	<ul style="list-style-type: none"> • Monkeys have been reported to scale towers, and in the event of them inadvertently touching a conductor, have been electrocuted. The use of climb guards a short distance from the ground have been included within tower design in order to prevent animals and humans from scaling the tower, thus effectively minimising the incidences of electrocution. • The construction of the proposed Transmission line could result in limited opening-up of the vegetal cover during the construction phase. The opening up of existing vegetated areas, thereby creating corridors along which animals can move, may result in increased predation levels on small mammals (and other fauna) along these corridors. The limitation of the disturbance of vegetation cover within sensitive areas will ameliorate this impact. • Excessive habitat destruction during construction could reduce the amount of habitat available. This impact is anticipated to be localised, of a long-term nature and of low significance, provided that appropriate mitigation measures are implemented (e.g. the limitation of vegetation clearance within sensitive areas). • No additional impacts are anticipated on terrestrial fauna as a result of the extension of Grassridge Substation.
Avifauna	<ul style="list-style-type: none"> • The primary impacts associated with the construction and operation of a Transmission line include habitat destruction or alteration, and impacts due to electrocution or collisions. • With the implementation of Eskom’s Standard Practices in terms of vegetation clearance in sensitive areas, impacts in terms of habitat alteration will be small-scale, and will have no significant influence on sensitive bird populations. • Eskom have identified bird collisions as a major impact on both the environment and the operation and reliability of Transmission lines. Therefore, appropriate mitigation measures have been developed in the form of different types of bird diverters. Investigations regarding the effectiveness of these diverters have indicated an 80% reduction in bird collisions with lines fitted with these diverters. • No impacts on bird species are anticipated as a result of the extension of Grassridge Substation due to the disturbed nature of the area.

Table 6.1 cont.: Summary of potential impacts associated with the construction of a new 400 kV Transmission line and extension to Grassridge Substation

Issue	Potential Impact and Mitigation Measures
Visual impacts	<ul style="list-style-type: none"> • A positive impact is anticipated with the replacement of the existing self-supporting 220 kV Transmission line towers with cross rope suspension towers, as these towers are smaller and less steel-intensive, and therefore are less visually-intrusive than the existing towers. • A localised visual impact of high significance is anticipated with the extension of the Grassridge Substation. This impact is anticipated to be mainly restricted to the proposed Coega Industrial Development Zone.
Archaeological sites	<ul style="list-style-type: none"> • A positive impact is that sites previously not known of or identified will be discovered, primarily through excavation activities associated with the construction phase. • As cultural heritage resources are non-renewable, and economic values cannot be placed on these resources, should damage or loss of these resources occur, potential destruction of the sites is considered as a significant negative impact. Care should, therefore, be taken such that minimal damage occurs to these sites during construction activities. No historical artefacts should be removed by unqualified personnel at any time.
Safety and security	<ul style="list-style-type: none"> • Residents in the farming areas of the study area perceive cleared servitude lines as access routes used for theft and other crimes. Other concerns expressed relate to the construction phase of the establishment of the Transmission line and substation extension, and the introduction of an “unknown” labour force into the area. With increasing incidences of farm attacks country-wide, this concern is heightened.
Health and safety	<ul style="list-style-type: none"> • Concerns were raised by I&APs with regards to potential health impacts associated with electric and magnetic fields (EMFs) from Transmission lines. Studies have shown that EMFs reduce in magnitude with increasing distance from the source. EMFs recorded are highest at the centre of the Transmission line servitude and rapidly decrease in intensity from this centre line, such that the impact of EMFs from a Transmission line is negligible beyond the servitude. In order to ensure that health impacts are minimised, structures are not permitted to be constructed underneath the conductors of a Transmission line (i.e. within the servitude). In addition, this fulfils safety requirements, ensuring that no person is able to have physical contact with a line conductor (e.g. by standing on the roof of a building under the conductors).