

**2017**

**DRAFT ENVIRONMENTAL AUTHORISATION AMENDMENT REPORT FOR THE  
PROPOSED CONSTRUCTION OF APPROXIMATELY 131KM FOSKOR-MERENSKY  
POWERLINE FROM 275KV TO 400KV AND ASSOCIATED SUBSTATION WORKS IN  
LIMPOPO PROVINCE**

**DEA Ref No: 12/12/20/720**

**APRIL 2017**







DOCUMENT CONTROL

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Quality Control

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## **Executive Summary**

Nsovo Environmental Consulting has been appointed by Eskom Holdings SOC Limited as the independent Environmental Assessment Practitioner to facilitate the application for Environmental Authorisation Amendment for the proposed approximately 131km Foskor - Merensky power line from 275kV to 400kV. Studies conducted by the Eskom Grid Planning indicate that the existing Eskom network in the Lowveld area has reached its capacity and will not be able to accommodate the expected load growth in the foreseeable future. This will thus hamper Eskom's mandate and mission of providing sustainable electricity solutions to grow the economy and improve the quality of life of the people of South Africa.

The proposed transmission power line will stretch over  $\pm 131$ km on various farms between Phalaborwa and Steelpoort in the jurisdiction of Ba-Phalaborwa Local Municipality, Maruleng Local Municipality and Greater Tubatse Local Municipality in the Limpopo Province.

The existing Foskor Merensky 275kV line contingency is currently causing under voltages at the Foskor and Acornhoek substations forecasted to worsen in the next year and thus deteriorate to voltage collapse as more load connects to the network. Thus, Eskom was granted permission to begin construction of the Merensky 275kV power line; however research and planned growth in the region and the area called for an amendment of the approved 275kV to 400kV to meet growth demands and expansion. This will not only offer a solution, but speak to the mission of the organisation and government priorities of providing sustainable electricity solutions and have a positive impact in the growth of the economy.

To align with future projects and to phase out the dependency on 275kV network in Limpopo Province, Eskom proposes that the Environmental Authorisation for the second Merensky-Foskor line be amended from 275kV to 400kV. The line will be built at 400kV and operated at 275kV with plans to operate at 400kV in the future.

By strengthening the electrical supply to the regions, the foreseen load growth and the current constraints can be supported in a reliable and economical manner. The benefits for the proposed transmission lines and associated substations works will include the following:

- The power lines will form part of the link to strengthen the supply network between Foskop and Merensky;
- Improvement in the reliability of electricity supply which will benefit users in the region and country at large;
- Avoiding current and future possible voltage collapse; and creation of a more flexible electrical network;
- Improvement in the overall reliability of the electrical systems, which will be of benefit to both Eskom and electricity end-users in the region;
- Sustaining economic growth in the regions.

The Environmental Impact Assessment (EIA) study was commissioned in 2012 for the proposed construction of the Eskom 275kV transmission power line in terms of the National Environment Management Act, 1989 (Act No. 107 of 1998) (NEMA). The study presented various alternatives and included several specialist studies; as a result, an Environmental Authorisation (EA) was issued on 8 June 2013 with reference number 12/12/20/2411. Subsequently the current proposal is for the amendment of the Environmental Authorisation (EA) which approved the Foskop-Merensky power line from 275kV to 400kV power line within the approved corridor.

The proposed activities do not trigger any new listed activities apart from those already approved. It must be noted that the amendment will primarily entail an increase in capacity from 275kV to 400kV, which will imply an increase in the required servitude from 47m to 55m within the approved corridor as well as an increase on structural height.

This report includes a detailed impact assessment of aspects that have been identified as key and includes issues that the EAP deems to be significant in project of this nature based on previous experience. Consultation with the I&APs contributed significantly in the identification of issues related to the proposed project and this includes:

- Visual Impact;
- Impact on Biodiversity;

- Impact on Ecotourism;
- Impact on Heritage Resources;
- Impact on Avifauna;
- Impact on Agriculture and soils;
- Impact on land use;
- Impact on the social environment;
- Impact on air quality;
- Impact on safety and security;
- Impact on Surface and Ground water; and
- Noise impact.

The study concluded that the construction of the proposed  $\pm 131$ km Foskop – Merensky 400kV power line within the approved corridor is preferred and recommended. Impacts on the environment, sensitivity of the area as well as issues raised by the Interested and Affected Parties were considered.

Generally, the nature and scale of the negative impacts are relatively small in comparison to the scale of the entire project and the benefits to be delivered by the project.

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## **GLOSSARY OF TERMS AND ACRONYMS**

DEA	Department of Environmental Affairs and Tourism
DEDET	Department of Economic Development Environment and Tourism
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
EIR	Environmental Impact Report
GPS	Global Positioning System
HIA	Heritage Impact Assessment
I&APs	Interested and Affected Parties
IEM	Integrated Environmental Management Process

IRR	Issues Response Report
K2C	Kruger to Canyon
KV	kilo Volts
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998)
PPP	Public Participation Process
SAHRA	South African Heritage Resources Agency
SIA	Social Impact Assessment
VIA	Visual Impact Assessment

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## **1. INTRODUCTION**

Eskom Holdings SOC Limited (hereafter referred to as Eskom) is applying for an amendment of the Environmental Authorisation (EA) in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and 2014 Environmental Impact Assessment (EIA) Regulations for the approved 275kV Foskor Merensky approximately 131km transmission line to a 400kV transmission line. The proposed line will run from Foskor substation near Phalaborwa to Merensky substation near Steelpoort within the jurisdiction of Ba-Phalaborwa, Maruleng and Greater Tubatse Local Municipalities in the Limpopo Province. The proposed 400kV power line will require an estimated servitude of 55m as opposed to the 47m and is approximately 131km long.

Consequently, Nsovo Environmental Consulting was appointed by Eskom to undertake the requisite application for amendment of the EA for the proposed project in accordance with the EIA Regulations of December 2014.

### **1.1. PROJECT BACKGROUND**

Foskor Main Transmission Substation (MTS) forms part of the Lowveld Customer Load Network (CLN) in the Northern Grid. The Lowveld CLN consists of industrial, residential and mining. Foskor and Acornhoek MTS interconnect directly with the North-East grid via three 275kV lines, i.e. 1 x Merensky-Foskor and 2 x Marathon-Acornhoek. Acornhoek MTS is supplied from the Mpumalanga Generation Pool through 2 x Marathon-Acornhoek 97km 132kV lines. Acornhoek is interconnected to Foskor MTS at 275kV level by a

single 67km line and at 132kV level by 3x 67km lines, two direct and one indirectly through Mirage Distribution substation.

Currently, the Lowveld North CLN connects with the North-East Grid through three 275kV lines, i.e. 1 x 129km Merensky-Foskop and 2x 97km Marathon-Acornhoek. Foskop MTS consists of 2 x 250MVA 275/132kV and a single 20MVA 132/22kV transformers. The Foskop MTS is supplied from Acornhoek and Merensky MTS through two single 275kV lines. On the 132kV level, Foskop is linked directly to Acornhoek MTS through a 2 x Foskop-Acornhoek 132kV "Wolf" lines and via Mirage Distribution substation through a single 132kV line. Foskop 132kV load is predominantly mining and traction. At 132kV level Foskop supplies Foskop Turling Transfer Pumps (TTPS), Gravelotte, Chermie, Foskop Extension 8, Palmin 1 and 2 and PMC. At the 22kV level Foskop supplies Kruger Park 1, Mica and Waterboard. The Acornhoek MTS consists of 2 x 75MVA 275/132kV and 2 x 40MVA 132/22kV transformers. It is supplied by three 275kV lines, one from Foskop and two from Marathon MTS. At the 132kV level it supplies Klasserie, Acornhoek traction, Tintswalo Champagne, Blyderivier, Timbavati, Mariepskop, Nwarele and Boulders.

The Foskop 2 x 250MVA 275/132kV transformation is laden to its firm level of 250MVA and will not be able to accommodate the forecasted load growth. The existing Foskop-Merensky 275kV line contingency causes under voltages at the Foskop and Acornhoek substations, which will worsen in the coming years and deteriorate to voltage collapse as more load connect to the network.

Consequently in 2013 Eskom had planned to strengthen the existing network by constructing a second Foskop-Merensky 275kV approximately 131 kilometre (km) power line and associated substation works. The proposed project would then offer a solution that would add and strengthen the current supply to cater for current and future developments. The project was estimated to commence in 2018/19, however, new developments have emerged since the project was approved.

The load growth towards the northern direction of Foskop MTS includes Tzaneen area which is supplied by Spencer MTS has shown the need of additional transmission strengthening. The planned Nzhelele MTS will slightly de-load Spencer MTS; hence a new solution for Spencer MTS is required. To resolve the network constraints at Spencer MTS and to meet future load growth demand, six (6) options were identified

and evaluated to strengthen Spencer MTS supply zone, and the option of introducing a 400kV Corridor between Spencer, Foskor and Merensky Transmission substations is the preferred solution.

Subsequently, to align with future projects and to phase out the dependency on 275kV network in Limpopo Province, Eskom proposes that the EA for the second Merensky-Foskor line be amended from 275kV to 400kV. The line will be built at 400kV and operated at 275Kv with plans to operate at 400kV in the future.

Accordingly, an Environmental Impact Assessment (EIA) study was commissioned in 2012 for the proposed construction of the Eskom 275kV transmission powerline in terms of the National Environment Management Act, 1989 (Act No. 107 of 1998) (NEMA). The study presented various alternatives and included several specialist studies; as a result, an Environmental Authorisation (EA) was issued on 8 June 2013 with reference number 12/12/20/2411. Subsequently the current proposal is for the amendment of the Environmental Authorisation (EA) which approved the Foskor-Merensky power line from 275kV to 400kV power line within the approved corridor.

The proposed activities do not trigger any new listed activities apart from those already approved. It must be noted that the amendment will primarily entail an increase in capacity from 275kV to 400kV, which will imply an increase in the required servitude from 47m to 55m within the approved corridor as well as an increase on structural height.

## **1.2. DESCRIPTION OF PROJECT LOCALITY**

Like the approved 275kV alignment, the proposed 400kV Foskor-Merensky power line stretches approximately 131km and will traverse predominantly game farms that are privately owned as well as tribal authorities and council-owned land between Phalaborwa and Steelpoort within the jurisdiction of Greater Sekhukhune and Mopani District municipalities in the Limpopo Province of South Africa. The local municipalities affected by the project are as follows:

- Ba-Phalaborwa Local Municipality;

- Maruleng Local Municipality; and
- Greater Tlbatse Local Municipality.

### 1.2.1. Details of Affected Properties

The details of the properties on which the proposed activity is to be undertaken are indicated on Table 1 below while Figures 1 and 2 below indicate the affected properties and the locality map for the proposed site respectively. An A3 locality map is attached as Appendix A.

**Table 1: Details of the affected properties**

SG Codes	Farm Name	Farm Number	Portion Number
T0KT0010	Not Available	Not Available	Not Available
T0KT0010	Not Available	Not Available	Not Available
T0KT00000000029600004	Not Available	00000296	00004
T0KT00000000015800002	Not Available	Not Available	Not Available
T0KT00000000027500007	Not Available	Not Available	Not Available
T0KT00000000029800009	Aapiesdoorndraai	00000298	00009
T0KT00000000029800010	Aapiesdoorndraai	00000298	00010
T0KT00000000029800002	Aapiesdoorndraai	00000298	00002
T0KT00000000029800012	Aapiesdoorndraai	00000298	00012
T0KT00000000029800003	Aapiesdoorndraai	00000298	00003
T0KT00000000029800000	Aapiesdoorndraai	00000298	0000R
T0KT00000000029800015	Aapiesdoorndraai	00000298	00015
T0KT00000000029800001	Aapiesdoorndraai	00000298	00001
T0KT00000000029800012	Aapiesdoorndraai	00000298	00012
T0KT00000000029800011	Aapiesdoorndraai	00000298	00011
T0KT00000000027400000	Alverton	00000274	0000R
T0KT00000000022500000	Anlage	00000225	0000R



SG Codes	Farm Name	Farm Number	Portion Number
T0KT00000000029500000	Apiesboomen	00000295	0000R
T0KT00000000029500001	Apiesboomen	00000295	00001
T0KT00000000015600000	Archie	00000156	0000R
T0KT00000000016900000	Archie	00000169	0000R
T0KT00000000040600000	Ardwick	00000406	0000R
T0KT00000000021900000	Arthursrust	00000219	0000R
T0KT00000000019200000	Bazaine	00000192	0000R
T0KT00000000027600001	Bothashoek	00000276	00001
T0KT00000000027600002	Bothashoek	00000276	00002
T0KT00000000027600000	Bothashoek	00000276	0000R
T0KT00000000027600004	Bothashoek	00000276	00004
T0KT00000000027600003	Bothashoek	00000276	00003
T0KT00000000022600000	Callais	00000226	0000R
T0KT00000000022600001	Callais	00000226	00001
T0KT00000000018400002	Cambridge	00000184	00002
T0KT00000000018400001	Cambridge	00000184	00001
T0KT00000000018400004	Cambridge	00000184	00004
T0KT00000000018400003	Cambridge	00000184	00003
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T0KT00000000018200003	Carthage	00000182	00003
T0KT00000000018200004	Carthage	00000182	00004
T0KT00000000018200013	Carthage	00000182	00013
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T0KT00000000018200014	Carthage	00000182	00014
T0KT00000000040500000	Chorlton	00000405	0000R
T0KT00000000026800000	Clareton	00000268	0000R
T0KT00000000040100000	Didsbury	00000401	0000R

SG Codes	Farm Name	Farm Number	Portion Number
T0KT00000000029400003	Doornbosch	00000294	00003
T0KT00000000029400000	Doornbosch	00000294	0000R
T0KT00000000029400001	Doornbosch	00000294	00001
T0KT00000000029400002	Doornbosch	00000294	00002
T0KT00000000029400004	Doornbosch	00000294	00004
T0KT00000000029400005	Doornbosch	00000294	00005
T0KU00000000000800000	Doreen	00000008	0000R
T0KU00000000000800000	Doreen	00000008	0000R
T0KT00000000021800000	Dublin	00000218	0000R
T0KT00000000021800001	Dublin	00000218	00001
T0KT00000000040400000	Eccles	00000404	0000R
T0KT00000000021700019	Edinburgh	00000217	00019
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T0KT00000000015700001	Excellence	00000157	00001
T0KT00000000015700000	Excellence	00000157	0000R
T0KT00000000015700008	Excellence	00000157	00008
T0KT00000000040300000	Fallowfield	00000403	0000R
T0KT00000000020000000	Finale	00000200	0000R
T0KT00000000031700000	Fraaiuitzicht	00000317	0000R

SG Codes	Farm Name	Farm Number	Portion Number
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T0KT00000000033700001	Goudmyn	00000337	00001
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T0KT00000000033700007	Goudmyn	00000337	00007
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T0KT00000000033700004	Goudmyn	00000337	00004
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T0KT00000000033700010	Goudmyn	00000337	00010
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T0KU00000000000600095	Grietje	00000006	00095
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T0KT00000000014000038	Harmony	00000140	00038
T0KT00000000014000039	Harmony	00000140	00039
T0KT00000000014000078	Harmony	00000140	00078
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T0KT00000000026900002	Hoofpyn	00000269	00002

SG Codes	Farm Name	Farm Number	Portion Number
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T0KT00000000015900005	Inyoku	00000159	00005
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T0KT00000000015900003	Inyoku	00000159	00003
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T0KT00000000029700002	Leeuwvallei	00000297	00002
T0KT00000000029700003	Leeuwvallei	00000297	00003
T0KT00000000029700019	Leeuwvallei	00000297	00019
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SG Codes	Farm Name	Farm Number	Portion Number
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T0KT00000000023300000	Manutsa	00000233	0000R
T0KT00000000021600006	Margate	00000216	00006
T0KU00000000000200000	Maseki Location	00000002	0000R
T0LT00000000080000000	Mashisimali Location	00000800	0000R
T0KU00000000000500001	Morelag	00000005	00001
T0KU00000000000500000	Morelag	00000005	0000R
T0KU00000000000500000	Morelag	00000005	0000R
T0KU00000000000500000	Morelag	00000005	0000R
T0KT00000000026300000	Naboomkoppies	00000263	0000R
T0KT00000000026300004	Naboomkoppies	00000263	00004
T0KT00000000026300001	Naboomkoppies	00000263	00001
T0KT00000000026300003	Naboomkoppies	00000263	00003
T0KT00000000026300002	Naboomkoppies	00000263	00002
T0KT00000000022700000	Nooitgedacht	00000227	0000R
T0KT00000000027200000	Oldham	00000272	0000R
T0KT00000000031900005	Olifantspoortje	00000319	00005
T0KT00000000031900000	Olifantspoortje	00000319	0000R
T0KT00000000031900007	Olifantspoortje	00000319	00007
T0KT00000000031900003	Olifantspoortje	00000319	00003
T0KT00000000031900006	Olifantspoortje	00000319	00006
T0KT00000000018300021	Oxford	00000183	00021
T0KT00000000018300037	Oxford	00000183	00037
T0KT00000000018300028	Oxford	00000183	00028
T0KT00000000018300027	Oxford	00000183	00027
T0KT00000000018300000	Oxford	00000183	0000R
T0KT00000000018300029	Oxford	00000183	00029
T0KT00000000018300002	Oxford	00000183	00002

SG Codes	Farm Name	Farm Number	Portion Number
T0KT00000000018300010	Oxford	00000183	00010
T0KT00000000018300009	Oxford	00000183	00009
T0KT00000000018300030	Oxford	00000183	00030
T0KT00000000018300031	Oxford	00000183	00031
T0KT00000000018300032	Oxford	00000183	00032
T0KT00000000018300018	Oxford	00000183	00018
T0KT00000000018300005	Oxford	00000183	00005
T0KT00000000018300036	Oxford	00000183	00036
T0KT00000000018300020	Oxford	00000183	00020
T0KT00000000018300024	Oxford	00000183	00024
T0KT00000000018300007	Oxford	00000183	00007
T0KT00000000018300023	Oxford	00000183	00023
T0KT00000000018300001	Oxford	00000183	00001
T0KT00000000018300003	Oxford	00000183	00003
T0KT00000000027100000	Pains Hill	00000271	0000R
T0KT00000000022200000	Patricroft	00000222	0000R
T0KU00000000000700000	Paul	00000007	0000R
T0KU00000000000700000	Paul	00000007	0000R
T0KT00000000022300000	Perkeo	00000223	0000R
T0KT00000000027500001	Praktiseer	00000275	00001
T0KT00000000027500002	Praktiseer	00000275	00002
T0KT00000000027500000	Praktiseer	00000275	0000R
T0KT00000000027500000	Praktiseer	00000275	0000R
T0KT00000000026400000	Pretoria	00000264	0000R
T0KT00000000026400002	Pretoria	00000264	00002
T0KT00000000015100000	Punt	00000151	0000R
T0KU00000000000900000	Rhoda	00000009	0000R
T0KU00000000000300035	Schalk	00000003	00035

SG Codes	Farm Name	Farm Number	Portion Number
T0KU00000000000300048	Schalk	00000003	00048
T0KU00000000000300034	Schalk	00000003	00034
T0KU00000000000300043	Schalk	00000003	00043
T0KU00000000000300036	Schalk	00000003	00036
T0KU00000000000300001	Schalk	00000003	00001
T0KU00000000000300042	Schalk	00000003	00042
T0KU00000000000300037	Schalk	00000003	00037
T0KU00000000000300049	Schalk	00000003	00049
T0KU00000000000300038	Schalk	00000003	00038
T0KU00000000000300040	Schalk	00000003	00040
T0KU00000000000300039	Schalk	00000003	00039
T0KU00000000000300041	Schalk	00000003	00041
T0KU00000000000300051	Schalk	00000003	00051
T0KU00000000001000000	Sheila	00000010	0000R
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T0KT00000000023200002	Skilderkrans	00000232	00002
T0KT00000000023200001	Skilderkrans	00000232	00001
T0KT00000000015000000	Square	00000150	0000R
T0KT00000000015000001	Square	00000150	00001
T0KT00000000029600004	Steelpoortsdrift	00000296	00004
T0KT00000000029600002	Steelpoortsdrift	00000296	00002
T0KT00000000029600005	Steelpoortsdrift	00000296	00005
T0KT00000000029600000	Steelpoortsdrift	00000296	0000R
T0KT00000000029600010	Steelpoortsdrift	00000296	00010
T0KT00000000029600001	Steelpoortsdrift	00000296	00001
T0KT00000000029600009	Steelpoortsdrift	00000296	00009
T0KT00000000029600006	Steelpoortsdrift	00000296	00006
T0KT00000000029600007	Steelpoortsdrift	00000296	00007

SG Codes	Farm Name	Farm Number	Portion Number
T0KT00000000029600011	Steelpoortsdrift	00000296	00011
T0KT00000000029600008	Steelpoortsdrift	00000296	00008
T0KT00000000031800003	Sterkfontein	00000318	00003
T0KT00000000031800005	Sterkfontein	00000318	00005
T0KT00000000031800002	Sterkfontein	00000318	00002
T0KT00000000030000000	Suffolk	00000300	0000R
T0KT00000000019900000	The Elms	00000199	0000R
T0KT00000000019900001	The Elms	00000199	00001
T0KT00000000019800000	The Oaks	00000198	0000R
T0KT00000000019700000	The Willows	00000197	0000R
T0KT00000000015300000	Try	00000153	0000R
T0KT00000000015300001	Try	00000153	00001
T0KT00000000026500000	Valencienes	00000265	0000R
T0KT00000000030100000	Viljoenshoop	00000301	0000R
T0KT00000000030100001	Viljoenshoop	00000301	00001
T0LU00000000030000005	Wegsteek	00000030	00005
T0LU00000000030000000	Wegsteek	00000030	0000R
T0LU00000000030000004	Wegsteek	00000030	00004
T0KT00000000029300000	Winterveld	00000293	0000R



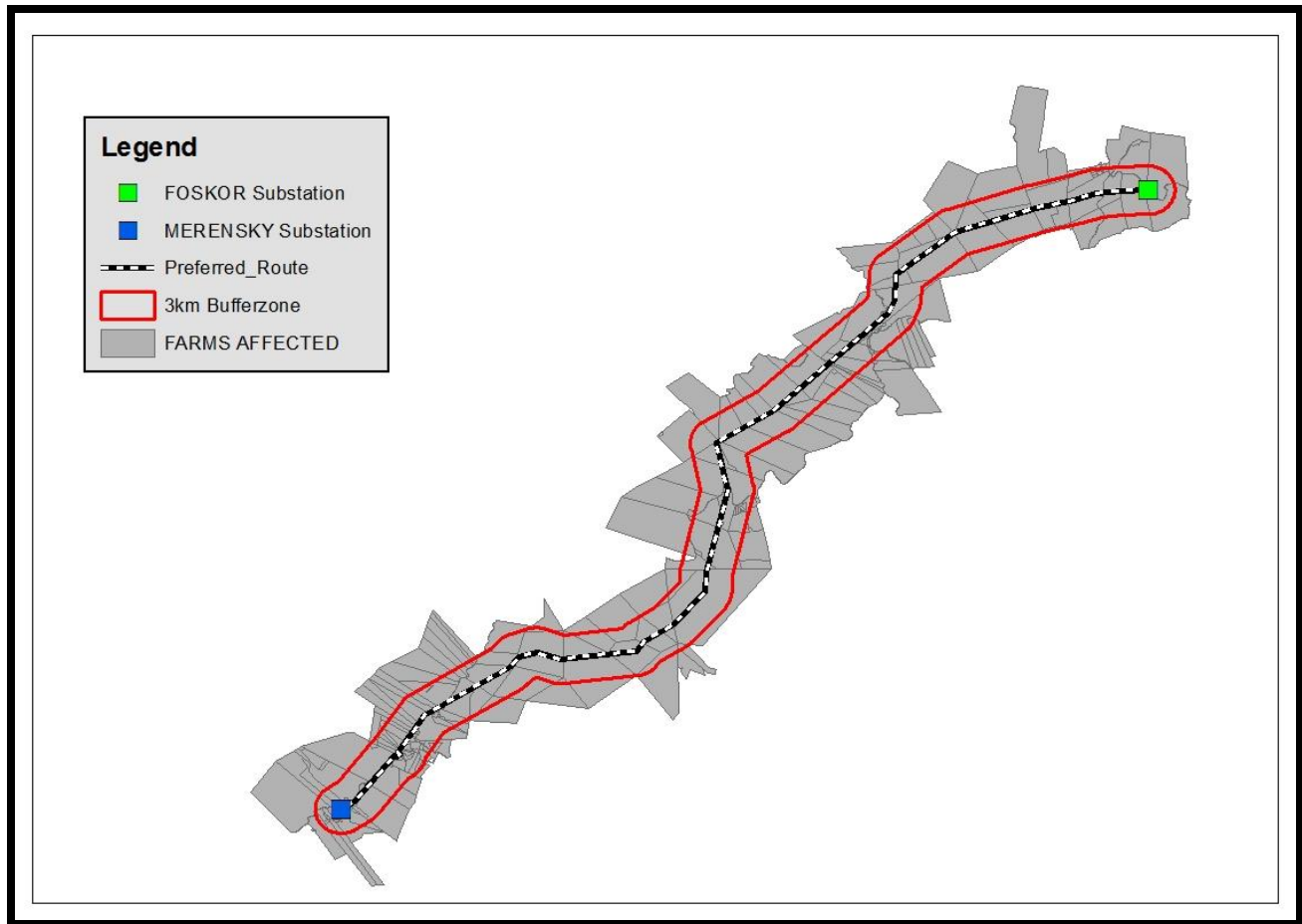


Figure 1: Affected Farm portions

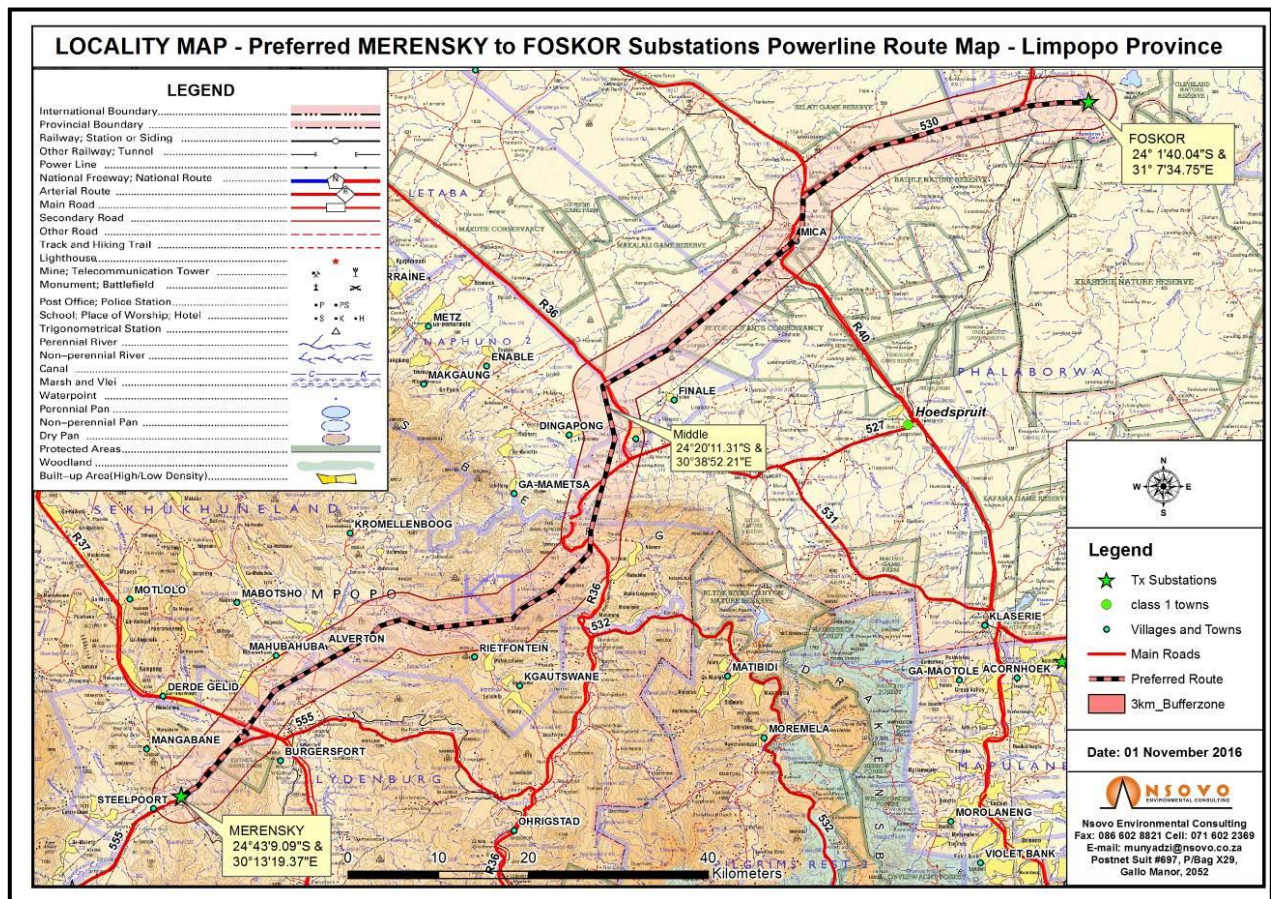


Figure 2: Locality Map

During the public participation process for the proposed Foskor-Merensky 275kV power line project the public, in consultation with the ecotourism specialists, identified a further route alternative. This route alternative is an approximately 3km wide expansion of the buffer zone of Alternative 1 and stretches between Foskor and a point just east of Diphuti just across the Olifants River.

- The corridor leads westwards from Foskor to the R40 that links Phalaborwa to the junction with the R526;
- At this junction it would head south towards Mica;
- Shortly after Mica, the line follows the R526 that connects to the R36 next to a residential and golf resort under construction in this area (Kingfisher Hill) and the corridor should be routed slightly to the north of the R526 as it passes this development so that it cannot be seen from the resort;

- The corridor continues along the Northern side of the R526 and passes through the Blyde Olifants Conservancy until it reaches the R36;
- At this junction it head south along the R36 to The Oaks village;
- It then crosses the Olifants River and follow the proposed 'green' route that climbs over the escarpment east of the Strijdom Tunnel and continues to the village of Ga-Moraba;

The public further recommended that the corridor should then follow the 'pink' route because this ensures that it runs alongside both the R36 and the R555 to Burgersfort.

The recommendation made that follows the pink route was not supported as the pink route has highly sensitive zones, therefore, it was recommended that it follows the green route which was eventually approved and named Alternative 5.

The approved alignment (Alternative 5) will encroach on several farms including game farms, residential settlements, tourism facilities as well as tribal land. Some of the key stakeholders include but not limited to the following:

- Blyde River Conservancy (including Balule and Oxford Farm);
- Khumula Lodge;
- Phuza Moya Game Farm;
- Carthage Farm;
- Olifants Poortjie Farm;
- Sterkfontein Farm;
- George Lodge;
- Sterkfontein Farm;
- Ba-phalaborwa Ba Maseke Tribal Authority;
- Bush River;
- Burgersfort Ext75 township development;
- Limpopo Department of Rural Development; and
- Many other as indicated above.



In 2014, post the EA and appeal phase the landowners from Blyde Olifants Conservancy raised a query highlighting to the fact that page 47 (9.3.5) of the EIAR stated that the proposed Alternative 5 avoids Blyde Olifants Conservancy. However, as depicted in the maps provided below the Blyde river conservancy falls within the approved corridor.

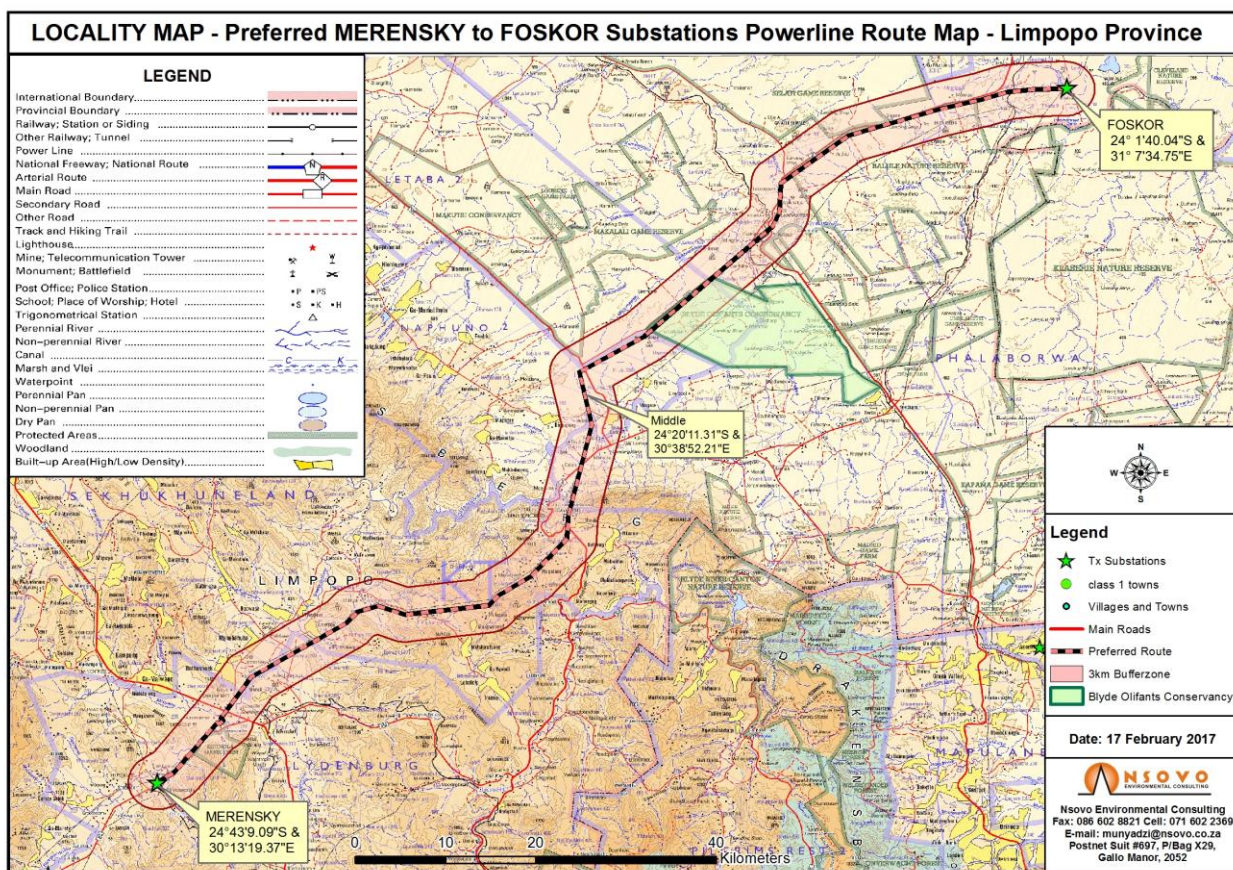


Figure 3: Locality Map that confirms that Blyde River Conservancy Falls within a section of the approved corridor

## 2. DETAILS AND EXPERTISE OF ENVIRONMENTAL ASSESSMENT PRACTITIONERS (EAP)

Nsovo is conversant with the definition and general requirements of an Environmental Assessment Practitioner (EAP) as defined in Section 12 of the National Environmental Management Act, 1998 (No 107 of 1998) (NEMA) and regulation 13 of the EIA Regulations. Nsovo is:

- Independent and Objective;
- Has expertise in conducting EIAs;
- Considers all relevant factors relating to the application; and
- Provides full disclosure to the applicant and the relevant environmental authority.

Table 1 below provide Details of the EAP and relevant experience. A detailed CV and Qualifications of the EAP are attached as Appendix B.

**Table 2: Details of the EAP**

Name of Company	Nsovo Environmental Consulting
Person Responsible	Munyadziwa Rikhotso
Professional Registration	South African Council for Natural Scientific Professions (SACNASP)
Postal Address	Private Bag x29 Postnet Suite 697 Gallo Manor 2052
Telephone Number	011 041 3689
Fax Number	086 602 8821
Email	<a href="mailto:munyadzi@nsovo.co.za">munyadzi@nsovo.co.za</a>
Qualifications & Experience	<ul style="list-style-type: none"> <li>• B.Sc. Honours Environmental Management</li> <li>• 13 years of experience</li> </ul>

Project Related Expertise	<p>In terms of project related expertise, the EAP has completed the following projects:</p> <ul style="list-style-type: none"> <li>• EMPr, WULA and EA amendment for the proposed Juno-Gromis 400kV power line</li> <li>• Basic Assessment for the proposed Decommissioning and Demolition of Verwoedberg Substation and 275kV power.</li> <li>• Basic Assessment for the proposed Abersethin Substation and loop in and out power lines in Bethlehem.</li> <li>• Basic Assessment for Bloemendal Substation and loop in and out lines.</li> <li>• Basic Assessment for the proposed Abersethin Substation and loop in and out power lines in Bethlehem.</li> <li>• EIA, EMPr and WULA for Senakangwedi-Senakangwedi B Integration in Limpopo.</li> <li>• EIA for the proposed Tubatse strengthening phase 1 – Senakangwedi B integration within the jurisdiction of Greater Tubatse Local Municipality in Limpopo Province.</li> </ul>
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### 3. DESCRIPTION AND OF THE SCOPE OF THE PROPOSED PROJECT

#### 3.1. PROPOSED SCOPE OF WORK

The proposed scope of work entails construction of second Foskop-Merensky  $\pm 131$ km power line between the existing Merensky (Steelpoort) and Foskop (Phalaborwa). The proposed power line will be built at 400kV specification and construction will include associated substation works at the two substations to accommodate the new power line and its required infrastructure such as new transformers. The proposed activities are listed below as follows:

- Build and operate Foskop-Merensky 275kV second line at 400kV specification;
- Establish 400kV bus bars at Foskop MTS;
- Install the 1<sup>st</sup> 400MVA, 400/275kV transformer at Foskop MTS;
- Establish 400kV feeder bays at Merensky MTS and Foskop MTS.

### **3.2. ACTIVITIES ASSOCIATED WITH THE PROJECT**

The construction phase of the proposed project will take approximately 18 months and activities will include the following:

#### **3.2.1. Walk down on the approved corridor:**

The corridor walk-down will be undertaken prior to construction to identify the exact coordinates on which the pylons will be situated and to identify any sensitive areas and create the necessary conservation buffer zones. The central line and footprint of the transmission line and towers will be pegged by a team of surveyors and this process requires that access to properties be negotiated with the relevant property owners, resulting in the first basic track being laid along the route. Through this process fatal flaws to the initial route will be identified which may result in route relocation within the 3km buffer.

#### **3.2.2. Construction Camps**

A project of this nature and magnitude requires construction camps, which may entail laydown areas, as well as accommodation for the workforce. Given the nature and sensitivity of the surrounding environment, the proposed project will only entail the establishment of laydown areas and this will be negotiated accordingly with the landowners utilising the existing Eskom negotiation processes. Further, the laydown areas will be established in accordance with Eskom Transmission's standard for construction camps whilst the construction workforce will be housed in local B&Bs, villages and lodging facilities to eliminate social risks and ills associated with projects of this nature.

### **3.2.3. Ground Clearance**

The proposed 400kV power line requires fifty-five (55) meter servitude. During construction, vegetation will be cleared within the footprint of the construction area to allow for construction activities. Ground clearance will however continue as and when necessary as part of Eskom's servitude maintenance which should be done as per Eskom's standard as well as best practices.

### **3.2.4. Pylon footings**

Civil works entails the setting out and construction of the concrete plinth to support the electrical apparatus that will be installed. Foundations will be laid for the footings of the pylons. Excavation for tower and anchor foundations are made by drilling-rig, and foundations are filled with concrete to form a concrete plinth on which to fix the towers. The size of the foundations varies depending on variables such as the type of tower and soil conditions. This work is usually undertaken by teams of between 10 and 15 people operating equipment such as drilling rigs and generators.

### **3.2.5. Steelwork structures**

The assembly of the steel structures commences shortly after the concrete has dried up. Steel will be delivered to the construction site by road and if the area is inaccessible (especially on steep mountain slopes) delivery may be by helicopter and the segments of the pylon will be assembled on site. Access roads will be clearly marked to facilitate access to and between towers. Various tower design alternatives have been proposed for this project and these include the cross-rope suspension type and the self-supporting type. The selection of tower designs will depend on factors such as topographical conditions as well as visual sensitivity. Where the line crosses mountainous terrains and when it changes direction at an angle, the preferred option is self-supporting towers. In areas where space is a limiting factor, narrow base towers may be utilised as depicted below. A detailed schedule of applicable 400kV towers including dimensions is included in Appendix C.



### **3.2.6. Stringing**

Stringing is the final stage of the construction process. The first phase of this process is the delivery of cable and equipment to site by road; following which, cable drums, are placed approximately 5 km apart and a winch will be positioned between the cable drums. The cable is positioned by hoisting the cable onto the pylons through a pulley system. In mountainous areas, as is the case with this project, the pilot cables may be flown in by helicopter or shot across valleys. The line is generally strung in sections usually from bend to bend. In the final steps of the process correct tension is created and conductors are then clamped on the towers and any excess cable is cut off.

### **3.2.7. Other Infrastructure**

Other infrastructure includes feeder bays which will be erected in the existing footprint of the Foskor and Merensky Substations in Phalaborwa and Steelpoort respectively. Underrated switchgear at Merensky Substation will be upgraded. A capacitor bank will be installed at Foskor Substation and Foskor Substation is to be extended. The Acornhoek-Foskor terminal tower will be relocated as well as the existing oil holding dam in both cases to accommodate the new power line.

### **3.2.8. Site Reinstatement**

Following completion of each of the construction stages described above, site reinstatement and rehabilitation will take place as follows:

- Removal of excess building material, and waste;
- Repairing any damaged caused as part of the construction activities;
- Rehabilitating the area affected by temporary access roads;
- Reinstating existing roads and
- Replacing topsoil and re-vegetating as recommended.

### **3.3. OPERATIONAL PHASE**

The transmission lines will be commissioned immediately after completion of the construction activities. Subsequent maintenance and refurbishment would normally occur during the operational lifetime of the power line which would necessitate the utilisation of access roads that will be created along the servitude of the transmission power line. Although the line will be built at 400kV it will be operated at 275kV until such time that the demand requires 400kV operation.

During the operational phase of the project general farming activities such as the grazing of animals and the cultivation of crops, may continue within the servitude. However, the servitude will need to be kept clear of any vegetation, structures or activities that may interfere with the line. Eskom will also require access to the servitude in order to undertake maintenance and perform any necessary repair work.

## **4. ENVIRONMENTAL LEGAL REQUIREMENT**

### **4.1. TRANSITIONAL ARRANGEMENTS IN TERMS OF THE NEMA EIA REGULATIONS (2014)**

On 4 December 2014, the Minister of Environmental Affairs promulgated Regulations in terms of Chapter 5 of NEMA. These are the Environmental Impact Assessment (EIA) Regulations 2014 which include Government Notice (GN) No. R. 982, R. 983, R. 984 and R. 985 in Government Gazette No. 38282 of 4 December 2014. These regulations came into effect on 8 December 2014.

### **4.2. LISTED ACTIVITIES TRIGGERED AND BEING APPLIED FOR TO THE PROJECT**

The Environmental Impact Assessment (EIA) phase was undertaken between 2011 and 2013 and the process followed was in compliance with the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) and the Environmental Impact Assessment Regulations of 2010 (Government Notices No

R543, R544 and R546 of 18 June 2010). The proposed development involved 'listed activities', as defined by the Act, these activities may potentially have detrimental impacts on the environment and therefore required an EA from the relevant authority which was subsequently issued by the DEA on 18 June 2013 with **Reference Number 12/12/20/720**.

Subsequent to the EIA Regulations promulgated in June 2010, the DEA published new EIA Regulations on 8 December 2014 and this amendment process will follow these Regulations in terms of Section 52 (1).

Following review of the proposed amendments as well as the EIA Regulations of December 2014 Listing Notices (GN 983, 984 and 985); it is the view of the Environmental Assessment Practitioner (EAP) that the proposed project will not trigger new listed activities apart from those already approved in the original EA and outlined in Table 2 below.

**Table 3: Listed Activities described in Government Notice Number R983, R984 and R985 applicable to this project (as per numbering in the Government Notice)**

Indicate the number and the date of the relevant notice	Activity No(s) (in terms of the relevant notice)	Describe each listed activity as per project description
GNR 984 December 2014	9	The development of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex.  The purpose of the power line has a voltage of 275kV and it is outside an urban area.
GNR 983 December 2014	47	The expansion of facilities or infrastructure for the transmission and distribution of electricity where the

Indicate the number and the date of the relevant notice	Activity No(s) (in terms of the relevant notice)	Describe each listed activity as per project description
		<p>expanded capacity will exceed 275 kilovolts and the development footprint will increase.</p> <p>The Foskop substation will be expanded to accommodate the new line and the footprint of the current substation will increase.</p>
GNR 985 December 2014	15	<p>The transformation of land bigger than 1000 square metres in size, to residential, retail, commercial, industrial or institutional use, where, such land was zoned open space, conservation or had an equivalent zoning, on or after 02 August 2010</p> <p>Construction camps and site offices will be temporarily established in the study area.</p>
GNR 983 December 2014	30	<p>Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).</p> <p>Bush clearing will be required for the positioning of the towers.</p>
		Access roads are single track roads and are not wider than 4m
GNR 985 December 2014	12	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of

Indicate the number and the date of the relevant notice	Activity No(s) (in terms of the relevant notice)	Describe each listed activity as per project description
		<p>indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan</p> <p>(a) In Limpopo Province</p> <ul style="list-style-type: none"> <li>i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</li> <li>ii. Within critical biodiversity areas identified in bioregional plans.</li> </ul> <p>The construction phase will require construction camps and site offices, thus the need to clear vegetation for establishment of these facilities.</p>
GNR 985 December 2014	18	<p>The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre</p> <p>(a) In Limpopo Province</p> <ul style="list-style-type: none"> <li>ii. Outside urban areas, in:</li> </ul> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in</p>

Indicate the number and the date of the relevant notice	Activity No(s) (in terms of the relevant notice)	Describe each listed activity as per project description
		<p>bioregional plans;</p> <p>(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;</p> <p>iii. Inside urban areas:</p> <p>(aa) Areas zoned for use as public open space; or</p> <p>(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.</p> <p>Where existing roads cannot be used, access roads may be required for construction and maintenance.</p>

The proposed development occurs within Limpopo and thus the provincial authority is Limpopo Economic Development, Environment and Tourism (LEDET), while the DEA is the decision-making authority as the project applicant is a parastatal organization.

#### 4.3. APPLICABLE LEGISLATION

Documented in the subsequent section is a list of the current South African environmental legislation that is relevant to the construction and operation of the proposed power line and associated substation works. A description of legislation relevant to the project is summarized in the Table 4 below.

This list is not intended as an exhaustive analysis of the applicable environmental legislation but provides a guideline to the relevant aspects of each Act.

**Table 4: Legislation pertaining to the proposed project**

Aspect	Relevant Legislation	Brief Description
Environment	<ul style="list-style-type: none"> <li>National Environmental Management: Act 1998, (Act No. 107 of 1998) as amended.</li> <li>Environmental Impact Assessment Regulations, December 2014</li> </ul>	<ul style="list-style-type: none"> <li>The overarching principles of sound environmental responsibility are reflected in the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) apply to all listed projects. Construction and operation of activities should be conducted in line with the generally accepted principles of sustainable development, integrating social, economic and environmental factors.</li> </ul> <p>The amendment process followed is in compliance with the NEMA and the Environmental Impact Assessment Regulations of December 2014 (GN R 982, 983, 984 and 985).</p> <p>The proposed amendment process triggers Part 2 process of the EIA 2014 as defined by NEMA. This is the process followed when there is a change of scope in an authorised project and requires Authorisation. Table 3 above is a comprehensive list of Listed Activities triggered.</p>
Biodiversity	National Environmental Management:	The purpose of the Biodiversity Act is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA and

Aspect	Relevant Legislation	Brief Description
	Biodiversity Act, 2004 (Act No. 10 of 2004)	<p>the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed.</p> <p>The diversity of ecological processes for the application sites was determined through the specialist studies conducted by Eco-agent. The specialist studies have identified sensitive areas within the study area that may need to be avoided and further proposed mitigation measures in which the biodiversity on site is to be managed.</p>
Protected Areas	National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)	The purpose of this Act is to provide for the protection, conservation and management of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes.
Heritage Resources	National Heritage Resources Act, 1999 (Act No. 25 of 1999)	The Act legislates the necessity for cultural and heritage impact assessments in areas earmarked for development, which exceed 0.5 ha. The Act makes provision for the potential destruction to existing sites, pending the archaeologist's recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA). The sensitive nature of the projects warrants that a Heritage Assessment be conducted.



Aspect	Relevant Legislation	Brief Description
		Mr Jaco van der Walt, a specialist from Heritage Contracts was appointed to conduct the Heritage Impact Assessment for the project. His report forms part of the Amendment Report.
Air quality management and control	National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004)	<p>The objective of the Act is to protect the environment by providing reasonable measures for the protection and enhancement of air quality and to prevent air pollution.</p> <p>The Act makes provision for measures to control dust, noise and offensive odours.</p> <p>Section 32 of The National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) deals with dust control measures in respect of dust control. Whilst none are promulgated at present, it provides that the Minister or MEC may prescribe measures for the control of dust in specified places or areas, either in general or by specified machinery or in specified instances, the steps to be taken to prevent nuisance or other measures aimed at the control of dust.</p>
Noise Management and Control	Noise Control Regulations in terms of the Environmental Conservation, 1989 (Act 73 of 1989)	The assessment of impacts relating to noise pollution management and control, where appropriate, must form part of the EMP. Applicable laws regarding noise management and control refer to the National Noise Control Regulations issued in

Aspect	Relevant Legislation	Brief Description
		<p>terms of the Environment Conservation, 1989 (Act 73 of 1989).</p> <p>The inhibition of sites by contractors may generally increase the ambient noise levels in the area and this is expected to vary along the route. Additional noise may be expected from the increased heavy duty traffic as well as construction equipment.</p>
Water	National Water Act, 1998 (Act 36 of 1998)	<p>This Act provides for fundamental reform of laws relating to water resources and use. The preamble to the Act recognizes that the ultimate aim of water resource management is to achieve sustainable use of water for the benefit of all users and that the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources in the interests of all water users.</p> <p>The proposed project will cross rivers and riparian area and could potentially impact on water resources therefore compliance with the requirements of the National Water Act will be significant. Such compliance will entail obtaining the relevant licenses.</p>
Agricultural Resources	Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	<p>The Act aims to provide for control over the utilization of natural agricultural resources in order to promote the conservation of the soil, water resources and vegetation and to combat weeds and</p>

Aspect	Relevant Legislation	Brief Description
		invader plants. Section 6 of the Act makes provision for control measures to be applied to achieve the objectives of the Act. The study area consists of areas of high agricultural potential, of which the economy is highly dependent on. The assessment of the impact on agriculture forms part of the Amendment Process. Agricultural Research Council (ARC) was appointed to provide input and the findings form part of this report.
Human	The Constitution of South Africa, 1996 (Act No. 108 of 1996)	<p>The Constitution of South Africa, 1996 (Act No. 108 of 1996) provides for an environmental right (contained in the Bill of Rights, Chapter 2). The state is obliged “to respect, protect, promote and fulfil the social, economic and environmental rights of everyone...”</p> <p>The environmental right states that:</p> <p>“Everyone has the right -</p> <ul style="list-style-type: none"> <li>a) To an environment that is not harmful to their health or well-being; and</li> <li>b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that - <ul style="list-style-type: none"> <li>-Prevent pollution and ecological degradation;</li> <li>-Promote conservation; and</li> <li>-Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.”</li> </ul> </li> </ul>

In preparation of the EA amendment report these Acts were not read in isolation, they were read with absolute consideration of municipal policies, plans and by-laws as well as consideration of Eskom policies and world best practices.

#### **4.4. ENVIRONMENTAL AUTHORISATION AMENDMENT**

An amendment of the existing EA is required under GN R.982 section 31 (a) and (b) of the EIA Regulations 2014; where a change in scope occurs. The EA amendment report is compiled in terms of GN R.982 section 32. The report includes the following:

- Baseline environment of the approved alignment
- An assessment of all impacts relating to the proposed change;
- Advantages and disadvantages associated with the proposed change;
- Measures to ensure avoidance, management and mitigation of impacts associated with such proposed change; and
- Any changes to the Environmental Management Programme (EMPr).

### **5. DETAILED DESCRIPTION OF THE STUDY AREA AND PROPOSED AMENDMENT**

This section outlines those parts of the socio-economic and biophysical environment that could be affected by the proposed development. Using the project description above, and knowledge of the existing environment, potential interactions between the project and the environment are identified in the next section (i.e. how, where and when could the project's activities affect various components of the environment). The potential effects of the project on the human environment, socio-economic conditions, physical and cultural resources are included.

Below is the description of the receiving environment.

## **5.1. LAND USES**

The locality of the proposed project is vast and dynamic with various land uses which includes:

### **5.1.1. Mining and Industrial**

Substantial mineral reserves include platinum group metals, diamonds, coal; chrome, iron ore and copper are found within the study area. Major international mining operations take place in the region especially around Phalaborwa with smaller mining operations around Mica and Gravelote. Mica is a very small Node within the Maruleng Local Municipality; however, it is the centre of Maruleng's fledgling mining centre.

The region also offers several excellent manufacturing opportunities including

- tanning;
- fruit, vegetable and meat processing;
- brick, jewellery and furniture making, and industrial chemicals; and
- light to medium engineering.

### **5.1.2. Farming**

The proposed project transverses farm of various scales and purposes including game, crops, livestock, and lodging facilities. The region between the Orpen road and the Olifants and Selati Rivers predominantly consists of private nature reserves which have become part of the greater Kruger National Park. The latter includes the Sabi Sand Game Reserve and the so-called Associated Private Nature Reserves (APNR) - Timbavati Private Nature Reserve, Umbabat Private Nature Reserve, Klaserie Private Nature Reserve and the Balule Nature Reserve which was amalgamated into the APNR in 2005.

### **5.1.3. Residential**

The approved corridor stretches across small towns and villages that are used for residential purposes as indicated in the Table below.

Table 5: List of residential areas along the study area

Town	Villages/Suburbs	General description
Phalaborwa	Phalaborwa	The residential settlement is located on the western side of the proposed power line
Maruleng	Finale Diphuti Die Oaks	The two villages are tribal owned and are located on the north-eastern side of the proposed power line.
Greater Tubatse	Ga-Marota Ga Moraba Makgwareng	The three villages are under tribal authorities and are located on the south-western side.
Burgersfort	Lebohang Monareng Ga-Sepaka	There are various villages that the line transverses in the Burgersfort area and are under tribal authorities.

Other land uses associated with residential include schools, hospital facilities, cemeteries and shopping facilities. The proposed land uses include industries and other commercial properties that were also identified.

Stakeholders indicated that there were plans for residential developments in Burgersfort which include the proposed Burgersfort X75 and Khumula Estate; it was noted during engagements in preparation of the amendment that the township developments are already at an advanced stage. The exact locality of the proposed developments has been assessed and determined during the EIA phase. Other proposed land uses within the study area include industrial operations such as the proposed premix plant on Farm Fraaiuitzich 302 K-T Ptn 9.

It is expected that the proposed line will impact on the various levels of significance on the identified land uses, however, where possible effort will be made to avoid such sites and sensitivities by the identification of less sensitive areas within the 3km buffer during the approved corridor walk down.

#### **5.1.4. Agriculture**

The study area is one of South-Africa's richest agricultural areas. Agriculture is one of the prevailing economic activities in terms of employment and land use in the region. Abundant orchards of subtropical fruit and nuts form the basis of a thriving agri-industrial sector. Large-scale commercial agriculture exists mainly in citrus, mangoes and vegetables for the export market. In the rural settlements, agriculture remains largely at subsistence or small-scale food-production level.

#### **5.1.5. Tourism**

The region offers a great variety of scenic contrasts with abundant wildlife, wide open spaces, and a portion of the Kruger National Park has the potential and has proven to be a major tourist destination in the region. The region is home to one of the largest concentration of exclusive private game lodges in the country. This is an area where tourism and agricultural activities overlap, resulting in increased returns on investment.

The stretch between Phalaborwa and Steelpoort (which is part of the proposed route) is scenic and thus considered a tourist destination, consequently various lodges and guesthouses were noted in the area. The scenic areas and natural phenomenon attracting tourism in the area includes among others:

- Game Reserves
- Bourkes Luck Potholes
- Prominent Rock Outcrop
- Blyderiver Canyon
- Majestic Drakensberg Mountains
- Waterfalls.

### 5.1.6. Sensitive Environments

The South-Eastern part of the proposed routes comprises of sensitive sites including Heritage sites and important bird habitat as well as sensitive flora. The proposed alternatives furthermore transverses river sensitive zones. Sensitive fauna in the area include the existence of the Cape Vultures particularly in the South-Eastern part of the proposed alternatives.

Other known sensitive environments as highlighted by the K2C Biosphere and indicated in the Map below includes confirmed red data habitats, slopes steeper than 1:4, land within the flood line, confirmed danger of sinkholes, areas of cultural or archaeological significance as well as dolomite areas. These are areas that should be avoided as far as practically possible.

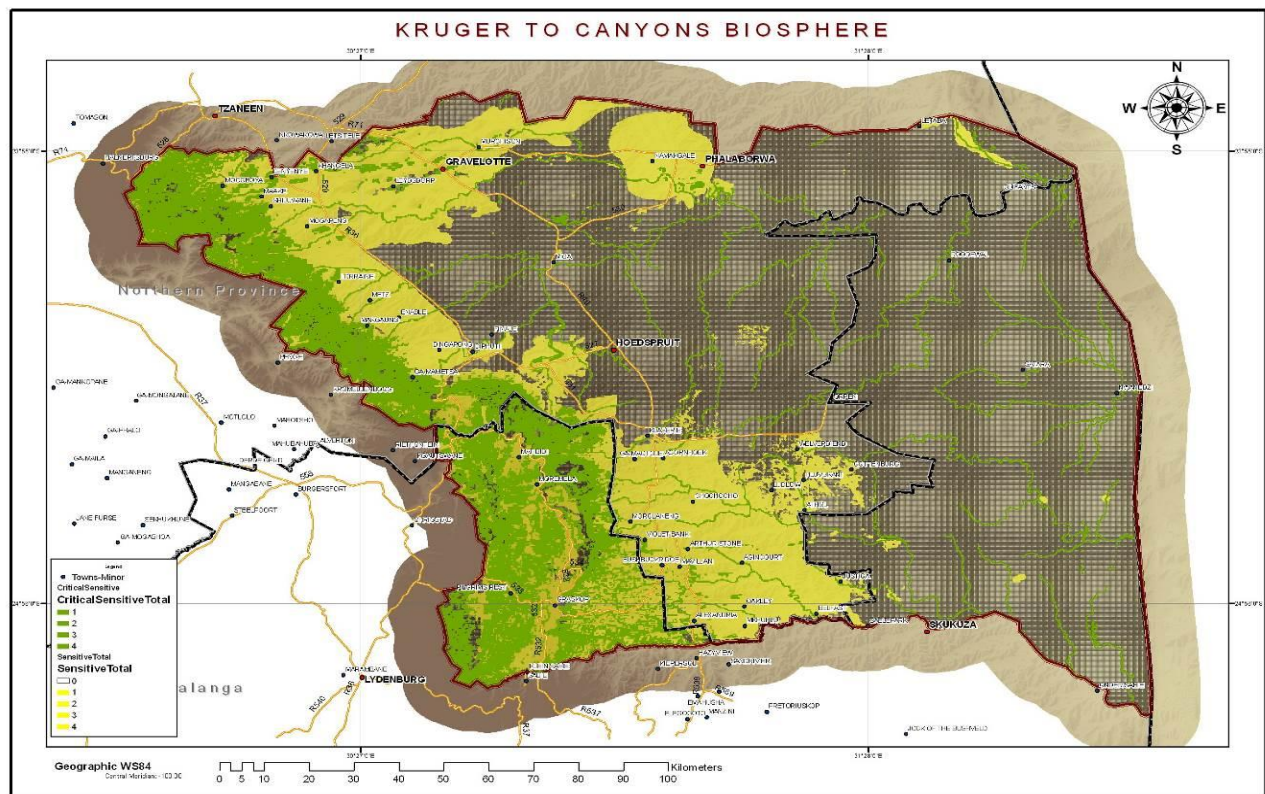


Figure 4: Kruger to Canyon Biosphere



## **5.2. SURFACE INFRASTRUCTURE**

### **5.2.1. Roads**

The primary roads that exist near the proposed routes are the R71 to Phalaborwa, R40 to Hoedspruit and R36 to Orighstad which form the access backbone to the study area. The secondary roads include the R37, R530, R531, and R555 linking class 2 towns; these roads provide access to the rural areas conservation and farms through which the proposed line will pass.

The proposed power line routes are accessible through the secondary and primary roads except for the area between Diphuti and Orighstad which is highly mountainous. It is envisaged that the routes that are currently used for maintenance of the existing line will be used for the construction phase of the proposed line and access may further need to be constructed where there are no existing roads.

Other roads in the area provide linkages between different rural settlements and are generally of a poor standard and are poorly maintained.

### **5.2.2. Power lines**

. The area already has existing Eskom lines such as:

- The existing 275kV overhead power lines over 129km, with a total servitude width of 47m;
- The existing 132kV Eskom overhead power lines; and
- The existing 11/22kV distribution line.

### **5.2.3. Airports**

Several airports and air force base airports and strips are present along the corridor. Although some may be non-operational, the airfields must be avoided or relocated where appropriate to ensure utmost safety for the users. Therefore, the selecting the approved alternative, effort was made to ensure the corridor avoids operational and registered airfields where possible. The airports noted within the study area are as follows:

- Phalaborwa Airport, located in Phalaborwa. The airport is currently operational and has 1 runway, which is 4491 feet (1369 meters) long;

Burgersfort Airport, located in Greater Tubatse; and Private air strips within the farms.

### 5.3. GEOLOGY

The geology of the area forms part of the Achaean granite gneiss, which is responsible for most other features of the landscape such as landform, soil, topography and vegetation.

The gneiss, granite and iron formation occur in the northern part of the complex, which is the flatter side of the study area. The highly mountainous southern part of the study area consists of a geological complex dominated by shale, dolomite, sedimentary, quartzite, andesite and arenite as well as other formations as depicted in the geological map below.

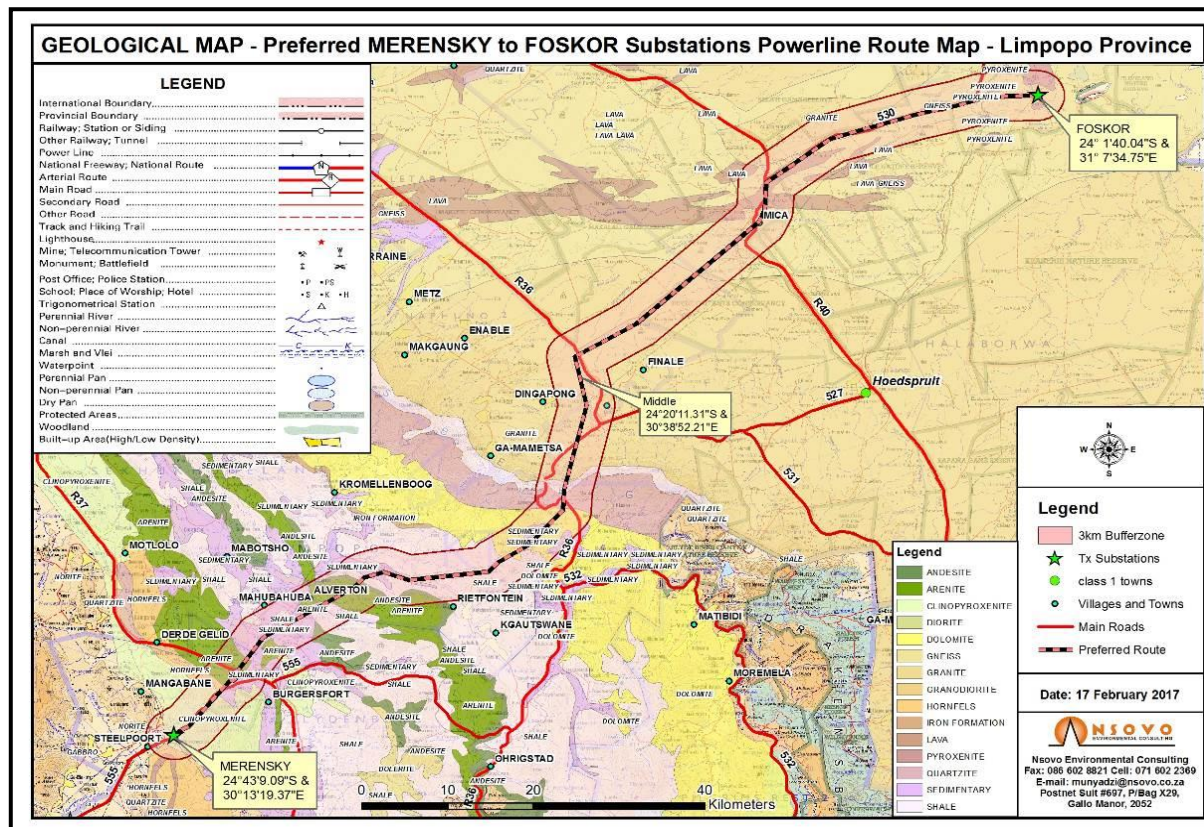


Figure 5: Geological Map of the Study area

The undulating geology of the area provides an environmentally challenging terrain, from a technical perspective especially within the proposed route; however, such challenges will be overcome using suitable towers. The existence of dolomite as well as sinkholes at areas along the route has been confirmed in the Limpopo Provincial Environmental Management Plan (DEDET, 2008) and has been recognised as critically sensitive environments that must be avoided. Such areas exist in the southern part of the proposed route i.e. the higher lying area.

#### **5.4. CLIMATE**

The area falls within the Limpopo Province's Lowveld Climatic Zone which experiences typical subtropical, summer rainfall climatic conditions with hot summers and relatively warm winters. The area can experience periods of high humidity, particularly in the first half of the year. The humidity averages between 80% and 85% from January to June and reduces to between 76% and 80% for the remainder of the year. Maximums of 97% have been recorded. The rainy season is from November to March with maximum rainfall in January. The area is characterised by relatively low rainfall and the mean annual rainfall is 513 mm. Rainfall varies from 250 mm – 700 mm per annum in low-lying areas and rapidly increases up to 2000 mm per annum as the altitude increases in the escarpment region of the Lowveld. The number of rainy days' ranges from 63 days per year over low-lying land to over 120 days per year against the escarpment. Most rain falls in the form of thunderstorms and heavy showers in the mornings or early evenings with infrequent hail incidences.

The proposed routes consist of highly mountainous areas which are prone to lightning. The climatic conditions of the area are expected to have minimal impacts on the proposed project.

#### **5.5. TOPOGRAPHY**

The study area is situated in the Lowveld region of the Limpopo Province between the Drakensberg escarpment and the Lebombo Mountains, on the eastern border of the province. The Lowveld area lies at approximately 360 meters above sea level. The area is characterised by a flat to gentle undulating Bushveld landscape, densely covered with indigenous trees and shrubs. In the vicinity of Phalaborwa, the monotony is broken by the appearance of unevenly spread conical shaped hills, rising 50 to 90 meters



above the Bushveld landscape. These are often referred to as “koppies”. They consist of syenitic rock that represents a separate phase in the geological history of the Phalaborwa Igneous Complex.

Figures 4 and 5 below depict the undulating nature of the study area’s topography. The Northern part which is the Phalaborwa area consist of irregular plains while the mountainous southern part of the Lowveld consists of highly changing topography with escarpments, parallel hills and lowlands as well as low mountains.

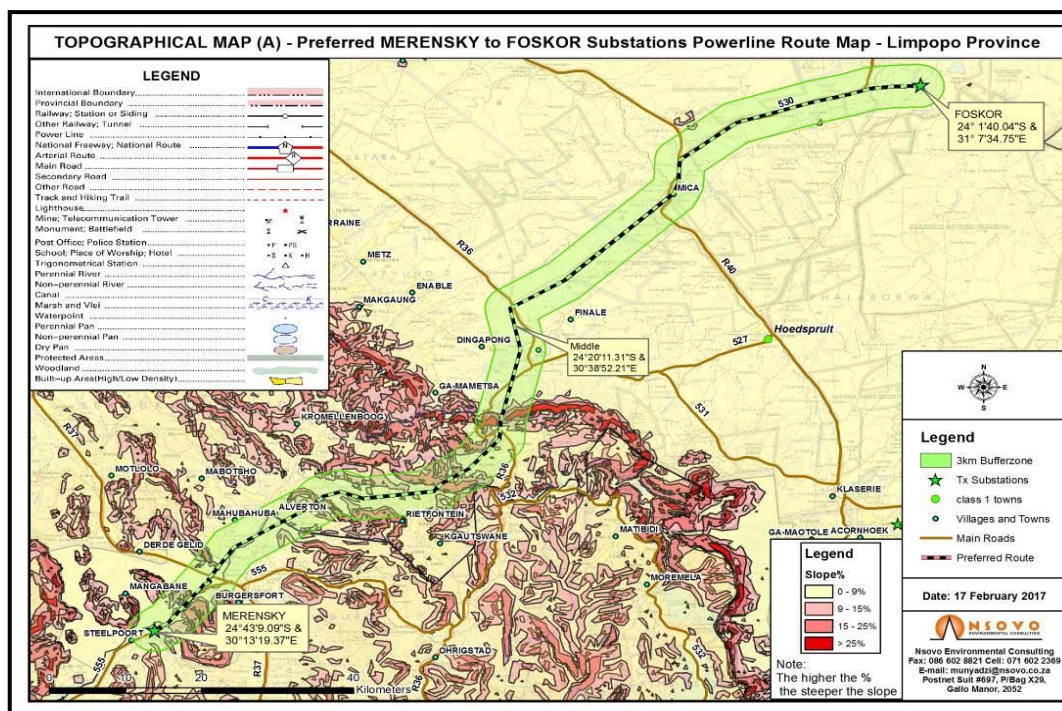


Figure 6: Topographical Map A of the approved route.

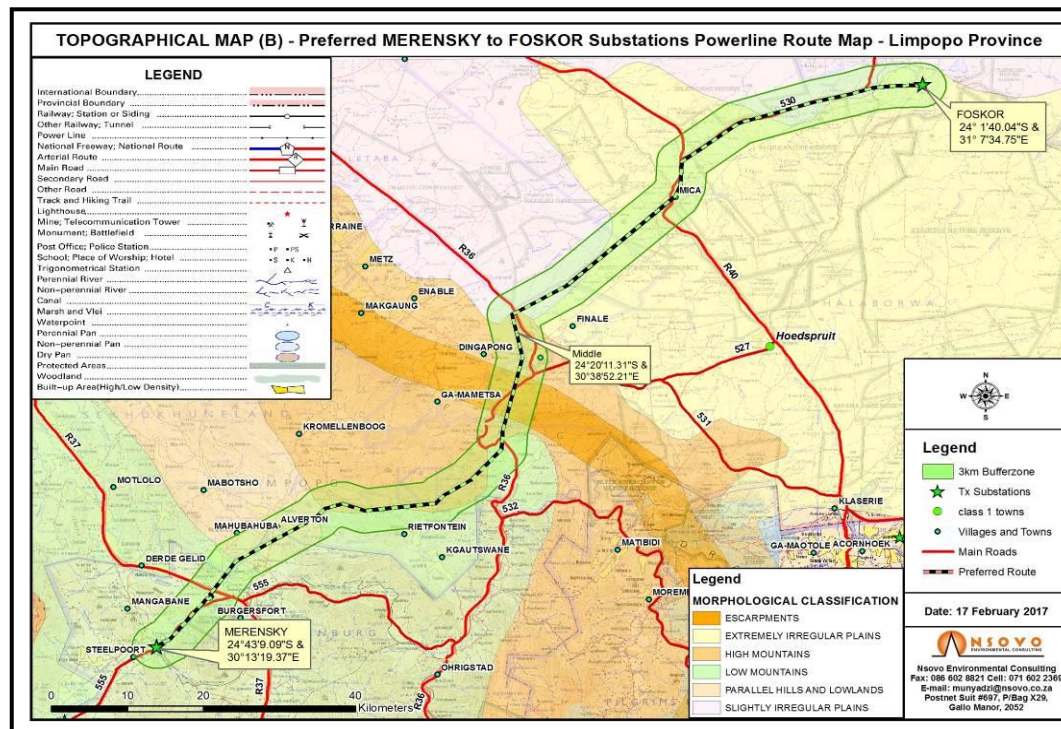


Figure 7: Topographical Map B of Study Area

## 5.6. SOIL

The largest part of the Lowveld environment is covered by a shallow granite layer, referred to as mispah, and deeper weathered material of granite gneiss, dolerite and syenite. Polished granite gneiss outcrops are found next to river courses. Surface coverage of white calcrete on pyroxenite rock over large areas of the igneous complex shows a marked difference to the reddish-brown soil coverage found in the granite gneiss areas. The calcrete and surface lime coverage on the pyroxenite rock areas varies in thickness from zero to five meters below the surface. Erosion depths vary from zero to fifty meters below the surface. The Northern part of the corridor is in Phalaborwa and it is covered by Glenrosa and Mispah soil while the southern part which is highly mountainous consist of rocky areas with miscellaneous soils as depicted in the map below.

According to Paterson (2016), there are a number of separate land types occurring within the study area and these are summarized as follows:



- Ae27, Ae116, Ae117, Ae119, Ae120, Ae129, Ae130, Ae131 (Red, lightly weathered, structureless soils)
- Fa351, Fa352, Fa353, Fa359 (Shallow soils, sometimes rocky, little lime)
- Fb172, Fb177, Fb178, Fb179, Fb180, Fb182, Fb186, Fb187 (Shallow soils, sometimes rocky, occasionally some lime)
- Ib31, Ib155, Ib157, Ib181, Ib186, Ib188, Ib191, Ib192, (Rocky areas [>60% rock], often steep with shallow soils)
- Ic154, Ic157 (Very rocky areas [>80% rock], usually steep with shallow soils)

Refer to Appendix D4 for Agricultural Assessment Report.

Below are maps indicating the land type as well as the agricultural potential of the site.

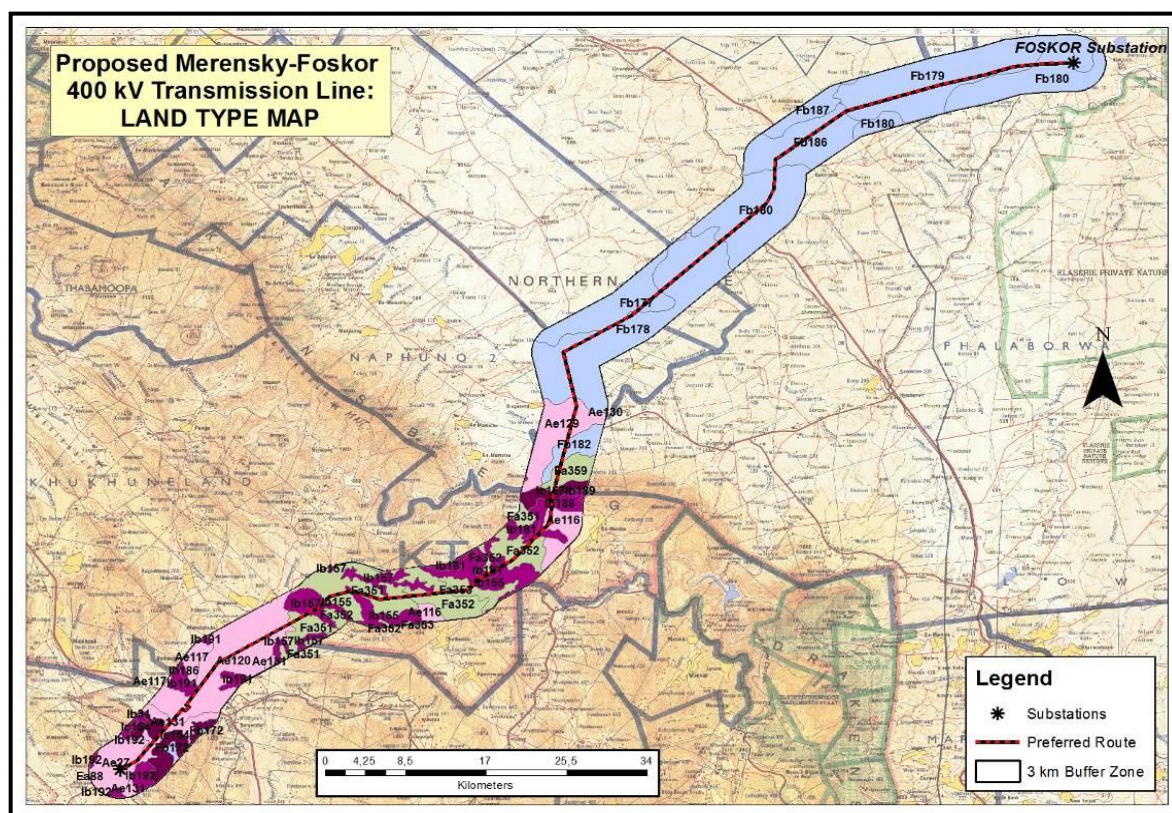


Figure 8: Soil Land Type of the Study Area

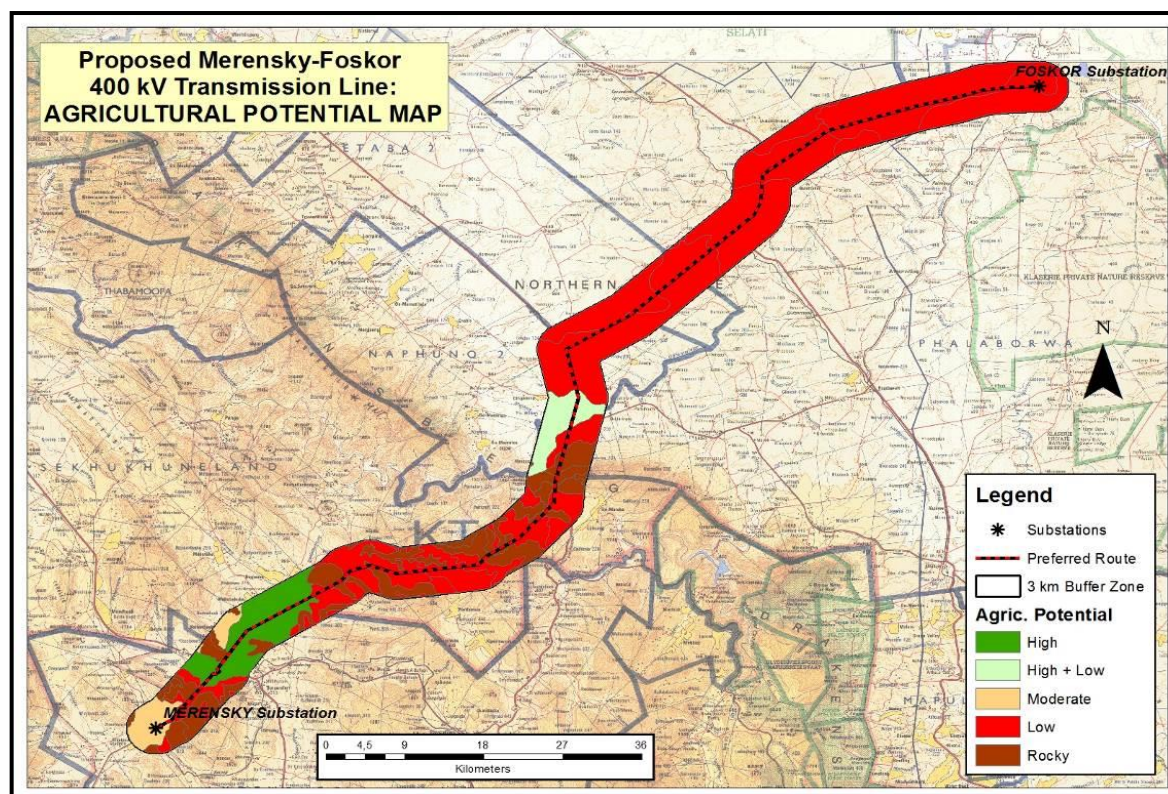


Figure 9: Agricultural Potential of the Study Area

## 5.7. FLORA

The vegetation assessment was undertaken in 2012 for the 275kV and was amended in 2017 to include as assessment on the proposed upgrade to 400kV, refer to Appendix D2 for Ecological Assessment Report. The project site is situated within a region of the Limpopo Province that is classified as falling within the Savannah biome. The vegetation in this biome is tolerant of relatively low rainfall and hot climate. The Savannah biome consists of a grassy ground layer and woody vegetation on the upper layer. If the upper layer is very close to the ground layer it is referred to as shrub-land. Dense vegetation on the upper layer is referred to as woodland, whereas the intermediate stages are referred to as the Bushveld. Savannah vegetation types are commonly used for the grazing of cattle and include the clay thorn Bushveld, Mixed Bushveld and sweet Lowveld bushveld.

The approved route is a combination of EIA Alternatives 1 and 5 and will run along the Steelpoort – Burgersfort road (R555) but before reaching Burgersfort it will turn north-eastwards and cross the rugged



mountainous area towards the Strijdom tunnel on the R36. It will then cross the mountains east of the Strijdom tunnel and run towards Mica and from there towards the Foskop substation south of Phalaborwa.

The following descriptions concentrate on the vegetation along the preferred and authorised route as depicted on the Vegetation Report dated 2012 and amended in 2017.

#### **5.7.1. Sekhukhune Plains Bushveld (Vulnerable)**

The Merensky substation is in the Sekhukhune Plains Bushveld. Although the vegetation of these plains falls within the Sekhukhune Centre of plant endemism (Siebert 2001, Siebert *et al.* 2002a-e) this area is highly transformed by many villages and their agricultural fields. Within the study area this bushveld is restricted to the valley floors of the rivers that dissect the mountains. These areas are heavily grazed and often not in prime condition. This resulted in Mucina & Rutherford (2006) labelling the conservation status of this vegetation as Vulnerable.

Large parts of these plains are dominated by *Dichrostachys cinerea*, *Acacia tortilis*, *Acacia mellifera* and *Acacia nilotica*. Other plant species found here include the trees *Boscia foetida*, *Euclea linearis*, *Searsia batophylla* (along spruits and dongas) with the forbs *Felicia clavipilosa*, *Hermannia odorata*, *Gisekia africana*, *Melhania rehmannii* and the grasses *Aristida congesta*, *Enneapogon cenchroides*, *Urochloa mosambicensis*. Alien plant species are often found close to villages or along roads and tracks.

#### **5.7.2. Species of Conservation Concern**

A list of Species of Conservation Concern for the Grid 2627BB was obtained from the database on the SANBI website. Threatened species are those that are facing high risk of extinction, indicated by the categories Critically Endangered (CE), Endangered (EN) and Vulnerable (VU). Species of Conservation Concern include the Threatened Species, but additionally have the categories Near Threatened (NT), Data Deficient (DD), Critically Rare (CR), Rare (R) and Declining (D). This is in accordance with the new Red List for South African Plants (Raimondo *et al.* 2009).

The following species of conservation concern were previously recorded from the Grid 2430CA (SANBI, POSA website):



**Table 6: Species of conservation concern**

Species	Status
<i>Dicliptera fruticosa</i> K. Balkwill	NT
<i>Elaeodendron transvaalense</i> (Burt Davy) R.H. Archer	NT
<i>Lydenburgia cassinoides</i> N. Robson	NT
<i>Adenia fruticosa</i> Burt Davy subsp. <i>fruticosa</i>	NT
<i>Searsia sekhukuniensis</i> (Moffett) Moffett	Rare
<i>Combretum petrophilum</i> Retief	Rare
<i>Euphorbia sekukuniensis</i> R.A. Dyer	Rare
<i>Searsia batophylla</i> (Codd) Moffett	VU
<i>Zantedeschia jucunda</i> Letty	VU
<i>Gladiolus sekukuniensis</i> P.J.D. Winter	VU
<i>Acacia sekhukuniensis</i> P.J.H. Hurter	CR
<i>Delosperma rileyi</i> L. Bolus	DDD
<i>Asparagus intricatus</i> (Oberm.) Fellingham & N.L. Mey.	DDT
<i>Acalypha caperonioides</i> Baill. var. <i>caperonioides</i>	DDT
<i>Myrothamnus flabellifolius</i> Welw.	DDT
<i>Ilex mitis</i> (L.) Radlk. var. <i>mitis</i>	Declining
<i>Drimia altissima</i> (L.f.) Ker Gawl.	Declining
<i>Hypoxis hemerocallidea</i> Fisch., C.A. Mey. & Avé-Lall.	Declining
<i>Eulophia speciosa</i> (R.Br. ex Lindl.) Bolus	Declining

*Searsia batophylla*, *Hypoxis hemerocallidea* and *Eulophia speciosa* were observed within the transect area. For most of the other species the plains habitat is not suitable, they are present on the mountain areas of Sekhukhuneland.

*Balanites maughamii* and *Sclerocarya birrea* are nationally protected trees observed along the route while the Aloe species are all provincially protected.

The vegetation within the plains are quite disturbed, there are often villages, roads, tracks and current or old agricultural fields present. As the pylons of the power line will have a relatively small footprint, the impact on the vegetation will be small. However, due to the presence of red data and possibly protected plant species, a walkthrough is recommended for this area, to ensure that sensitive areas are excluded for construction of pylons.

## 5.8. FAUNA

Since the site is located in the Savannah Biome, close to the game farms and the Selati River, there is a high diversity of fauna species found in the area.

Mammal species commonly in the area include:

- African Elephant (*Loxodonta Africana*);
- Buffalo (*Syncerus caffer*);
- Hippopotamus (*Hippopotamus amphibious*);
- Lion (*Panthera leo*);
- Giraffe (*Giraffa camelopardalis*);
- Impala (*Aepyceros melampus melampus*);
- Kudu (*Tragelaphus strepsiceros*);
- Waterbuck (*Kobus ellipsiprymnus*);
- Bushbuck (*Tragelaphus scriptus*);
- Grey/Common Duiker (*Sylvicapra Grimmia*);
- Steenbok (*Raphicerus campestris*);
- Chacma Baboon (*Papio cynocephalus ursinus*);
- Vervet Monkey (*Cercopithecus pygerythrus*);
- Warthog (*Phacochoerus africanis*); and
- Bushpig (*Potamochoerus porcus*).

Various reptile species, including the crocodile (*Crocodylus niloticus*) occur within the proposed project area. The rocky outcrops/'koppies' found in the area have a high fauna species diversity as they provide

important habitat for spiders, lizards, snakes, birds and small mammal species. Furthermore, the high plateaus are inhabited by mountain reedbuck, baboon troops and rock hyraxes. Hippo and crocodile are present in the rivers and dams in the area, while Impala, kudu, blue wildebeest, waterbuck and zebra roam the wooded Lowveld area.

## 5.9. AVIFAUNA

The Avifauna study was undertaken in 2012 – 2013 for a 275kV line with several route alternatives. In February 2017, this report was amended to assess a 400kV power line on the approved route only. In preparing the Avifauna report the specialist consulted relevant bird information again to provide an updated assessment.

The Blyde River Canyon is approximately 20km long and up to 700m deep. The approved power line route passes through this Important Bird Areas (IBA). The gorge is flanked by several spectacular peaks and sheer cliff faces. Key features include the Blydepoort Dam, patches of indigenous forest, the cliff faces and patches of montane grassland. This area is the only known breeding area for Taita Falcon *Falco fasciinucha* which is arguably one of South Africa's most rare bird species.

The study area is home to an exceptionally broad diversity of bird species, up to approximately 539 species having been recorded by the first and second Southern African Bird Atlas Projects (Harrison *et al*, 1997; and [www.sabap2.adu.org.za](http://www.sabap2.adu.org.za)). A large number of these (48 species) are Red Listed species (Taylor *et al*, 2015), and many of these will in fact be at risk of interaction with the proposed power line. Two key issues for this project are the presence of the large Cape Vulture *Gyps coprotheres* breeding colony at Manoutsa, and a breeding pair of Taita Falcon *Falco fasciinucha* – both on the escarpment close to where the proposed power lines must descend, refer to Figures 10 and 10 below for avifaunal features along the approved corridor and the position of relevant sensitive bird species relative the approved route. The likelihood and implication of these interactions has been assessed by this study. However, given that a power line of this size has to be built between these two substations (and assumption made that that effective network planning has been conducted), the approved route is as wise as possible with respect to avifauna. The upgrade of the voltage from the previously authorized 275kV line to the current proposed

400kV line does not make a material difference to the impacts on avifauna per the specialist's view. Refer to Appendix D5 for Avifauna Assessment Report.

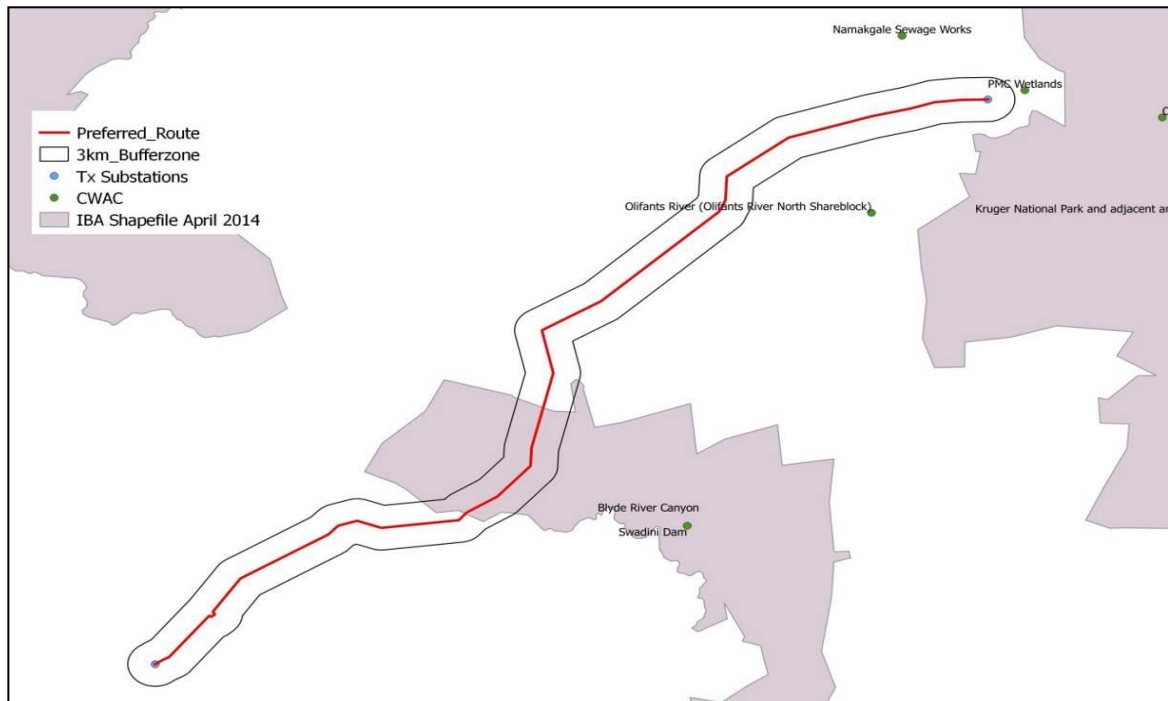


Figure 8: Avifaunal features along the approved corridor indicating. IBA and Co-ordinated Water bird Count (CWAC) locations are shown.

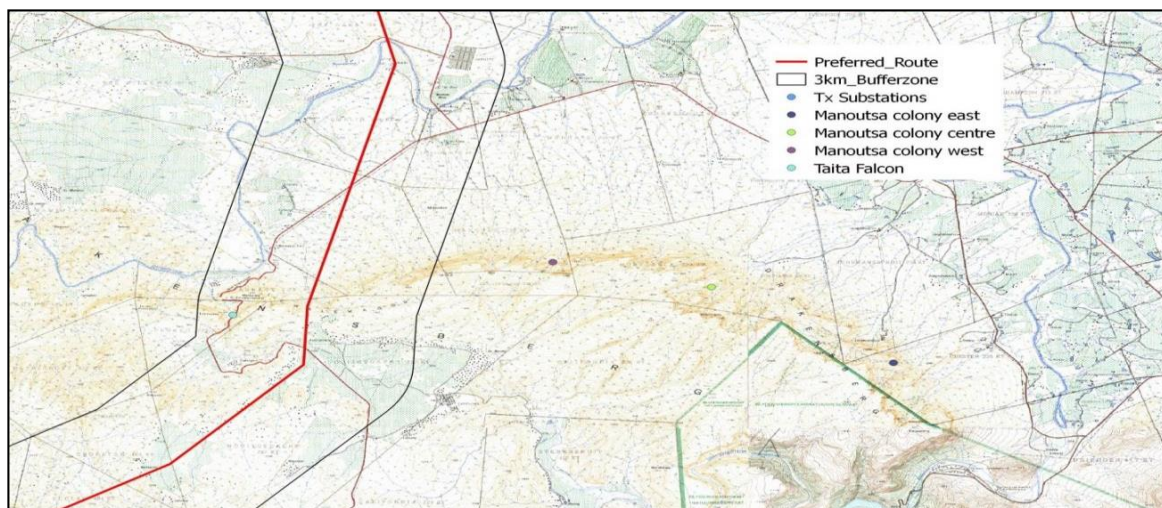


Figure 9: The position of relevant sensitive bird species information relative the approved route.



## 5.10. SURFACE WATER

The Olifants and its tributaries form the primary surface water drainage of the approved corridor and it is the only Class 1 River while class two rivers include the Blyde, Orighstad Speckboom and Makutswi Rivers.

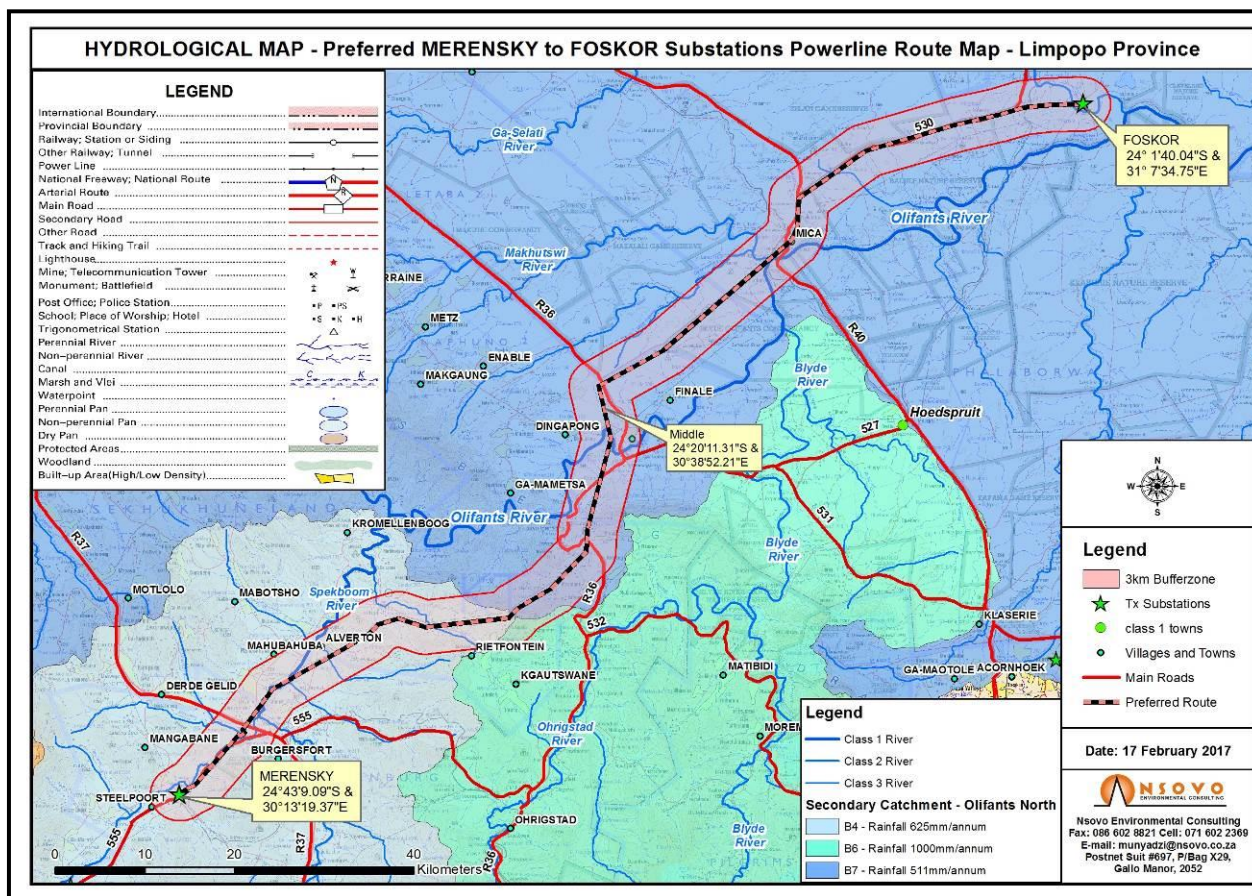


Figure 10: The hydrology along the approved route

## 5.11. SITES OF ARCHAEOLOGICAL AND CULTURAL SIGNIFICANCE

The study area is in the Limpopo province an area known to be rich in culture and heritage. Various monuments, heritage parks, rock art, shelters, caves burial grounds and other historical buildings are in the study area representing various historical moments in South Africa's history.

The Foskop site is in an area that has a rich cultural heritage marked by a number of heritage sites that date from the Iron Age (i.e. from the turn of the 19<sup>th</sup> century and the early 20<sup>th</sup> century). These heritage sites are associated with pre-historical and historical mining and metal works remains and are mainly located on the rocky outcrops ('koppies') in the area. Stone Age and Iron Age sites are also found in this area.

The existence of graves that could be negatively impacted upon was ascertained during the public participation process, while the specialist studies highlighted key sensitive areas that need to be avoided. Sites of heritage and cultural significance are indicated in the provincial control zones as critically sensitive environments and further propose that all efforts be made to avoid them.

## **5.12. VISUAL ASPECTS**

Visual appreciation or dislike is subjective and thus what is aesthetically pleasing to some can be displeasing to others. The visual analysis of a landscape the impact, of new developments and structures tends to be complicated and it is evident from previous experience that when dealing with reaction to landscape changes, a large diversity of opinion exists.

The greater part of the study area is managed for purposes of conservation, agriculture, forestry or is communal land devoid of any imposing infrastructure such as transmission lines. The natural landscapes of the greater part of the study area are sensitive and important to preserve for their aesthetics. It is, thus, necessary to maintain a near natural visual landscape, with limited aesthetic affects, to enable the continuation of nature-based economic activities such as ecotourism.

The area currently has existing transmission lines; however, it is an imperative that Eskom be sensitive from a visual impact perspective, to the requirements of the local people, notably rural communities, farmers, conservationists and operators involved in eco-tourism activities. Many topographical features influence this environment and these features will need to be utilised when selecting an alignment to minimise visual impacts and intrusions.

### 5.13. REGIONAL AND SOCIO ECONOMIC STRUCTURE

The approved power line route transverse two district municipalities which are Mopani and Sekhukhune District Municipalities.

Mopani District is found in the Lowveld and houses several local municipalities of which only two are affected by the approved power line route as follows:

- Ba-Phalaborwa Local Municipality is situated on the North-eastern part of South Africa in the Limpopo Province. It is one of the five local municipalities in the Mopani District. The Municipality serves as a convenient gateway to the Kruger National Park and the Trans frontier Park through the Mozambique Channel. The municipality has a population of 127308 with 33792 households.
- The Maruleng Municipality is situated in the south-eastern quadrant of the Limpopo Province within the Mopani District Municipal Area of Jurisdiction. The municipal area extends over 324 699ha. The Municipality is bordered by the Kruger National Park to the east, the Ba-Phalaborwa and Tzaneen Municipalities to the north, the Lepelle Nkumpi Municipality to the West, and the Tubatse Municipality and Bushbuckridge Municipality to the south. The main access points to the municipal area are Klaserie and the Strijdom Tunnel in the south, Ofcolaco in the west and Mica in the north. The town of Hoedspruit can be considered the administrative and economic centre of the area. It is also the location of the Hoedspruit Air Force Base ([www.maruleng.gov.za](http://www.maruleng.gov.za)). Maruleng has a population of 94 857 people living within 24 470 households giving it a population density of 29.24/km<sup>2</sup> and a household density of 7.54/km<sup>2</sup> (Bews, 2017)

Sekhukhune District Municipality is a cross-border municipality between Limpopo and Mpumalanga Province. It is a rural area with an economic base in the fields of mining and agriculture. With good soil, a sub-tropical climate and the availability of reasonable quantities of water, the area boasts of a strong and prosperous farming industry which consists of citrus, grapes, tomatoes, sweet potatoes, cabbage, peppers, beans and pumpkins, wheat, maize, cotton and tobacco. The region is endowed with mineral resources like chrome, platinum and diamond deposits. The approved powerline route will transverse one of the five local municipalities namely:

- Greater Tubatse Local Municipality is a local municipality comprising of the Burgersfort town which is rapidly growing. The municipality has a population of 343468 with 66611 households.

Social issues that may result from the project have been assessed as part of the specialist studies and this may include:

- Changes to quality of life and sense of place;
- Noise pollution;
- Influx of job seekers;
- Influx of construction workers;
- Crime and security;
- Impact on farm sizes and loss of farm land; and
- Negative financial influence of properties.

These issues are assessed in detail in Section 8 below.

## **6. A SUMMARY OF FINDINGS AND RECOMMENDATION OF ANY SPECIALIST REPORT**

Seven specialist studies were undertaken during the EIA phase and were updated during the EA Amendment phase and these are highlighted in the table below as details of the specialist:

Table 6 below lists the Specialists and their contact details.

**Table 7: Specialists' Details**

<b>Specialist Studies</b>	<b>Organisation</b>	<b>Specialist</b>	<b>Contact Details</b>
Heritage Impact Assessment	Heritage Contracts	Jaco van der Walt	Cell: 082 373 8491 Fax : 086 691 6461 <a href="mailto:jaco.heritage@gmail.com">jaco.heritage@gmail.com</a>



Specialist Studies	Organisation	Specialist	Contact Details
Ecological Specialist	Eco-Agent	Professor George Bredenkamp	Cell: 082 576 6746 Fax: 012 460 2525 <a href="mailto:ecoagent@mweb.co.za">ecoagent@mweb.co.za</a>
Social Impact Assessment	Dr. Neville Bews and Associates	Neville Bews	Cell: 083 451 7006 Fax: 086 565 2853 Email: <a href="mailto:bewsko@netactive.co.za">bewsko@netactive.co.za</a>
Avifauna	Wild Skies	Jon Smallie	Cell: 082 444 8919 Email: <a href="mailto:jonsmallie@gmail.com">jonsmallie@gmail.com</a>
Soil and Agricultural Potential	Agricultural Research Council	Garry Paterson	Tel: 012 310 2500 Fax: 012 323 1157 Email: <a href="mailto:garry@arc.agric.za">garry@arc.agric.za</a>
Eco Tourism	Seaton Thomson and Associates	Brian Gardner	Tel: 012 667 2107 Fax: 012 667 2109 Email: <a href="mailto:info@seaton.co.za">info@seaton.co.za</a>
Visual Impact Assessment	Outline Landscape Architects	Kathrin Hammel-Louw	Cell: 083 271 9631 Fax: 012 323 1157 Email: <a href="mailto:kathrin@outlinela.co.za">kathrin@outlinela.co.za</a>

The scope of the specialist studies required that they focus on the impacts of their specialty on the approved 275kV versus the proposed 400kV and make recommendations accordingly.

## **6.1. ECOLOGICAL SPECIALIST**

The vegetation along these routes was assessed in more detail, including the protected and red data species. From an ecological perspective, Alternative 1 is the preferred route, with the Alternative 5 replacing part of Alternative 1 and this is the route that has been authorized by the DEA. The specialist further recommended that a walk-down be undertaken prior to commencement of the construction phase to ensure that sensitive areas are avoided for construction of pylons where possible.

The vegetation within the plains (approved corridor) is disturbed; there are often villages, roads, tracks and current or old agricultural fields present. As the pylons of the power line will have a relatively small footprint, the impact on the vegetation will be small. However, due to the presence of red data and possibly protected plant species, a walkthrough is recommended for this area, to ensure that sensitive areas are excluded for construction of pylons.

## **6.2. VISUAL IMPACT ASSESSMENT**

The Visual Impact Assessment was undertaken by Kathrin Hamel of Outline Landscape Architects and the Report is attached as Appendix D3. The initial study was done in 2011 and was based on a 275kV transmission line but subsequently updated in 2016 to include assessment of the proposed upgrade to a 400kV. In her 2011 VIA report, the specialist had recommended Alternative route 5 which is the same route that has been approved by the DEA in 2013.

The approved route alignment follows along an existing line and servitude and along a main transportation route. The line is considered to cause the least impact on the landscape character due to the reduced sensitivity of the landscape along the roads and servitudes. The impact of the approved route on visual receptors varies between residents, tourists and motorists and its great advantage lies in the fact that viewers are already exposed to a similar power line, so negative perception of a new power line following along an existing route has a less significant landscape and visual impact on tourists and residents as

compared to the other alternatives, further, the public association with transmission lines and major public roads is a common perception which makes the co-existence of these two features more acceptable.

The applicant has proposed various towers that may be used during construction of the 400kV power line and these are indicated on Table 8 below.

**Table 8: Types and typical characteristics of proposed towers for a 400kV power line**

Type	Transposition Tower self- supporting suspension	Self- supporting strain tower	Cross rope suspension tower	Guyed Vee suspension tower	Angle strain tower
Maximum height	40m	35m	43m	40m	35m
Width at top	17m	20m	35m	23m	23m
Width at bottom	9m	16m	27m	1m	18m

The impact of the height difference of the towers that could have a visual impact has been taken into consideration in undertaking the Visual Impact Assessment. The servitude required for a 275kV line was 47m, and the 400kV line will require 55m servitude and this will only have a minimal visual impact when the viewer is adjacent to the transmission line. If the mitigation measures recommended are implemented, the impact will only be temporary.

### 6.3. AVIFAUNAL

The Avifaunal specialist study was undertaken by Jon Smallie of Wild Skies and the Avifauna Assessment Report is attached as Appendix D5. The study indicated that projects of this nature have the potential to impact on avifauna through habitat destruction and disturbance of birds (both during construction and operation); and collision of birds with the overhead cables during the operational phase. Birds are also able to cause electrical faults on the power line through mechanisms that are detailed in the specialist report.

The specialist indicated that various possible tower structure designs have been proposed. These include a self-supporting tower; cross rope suspension tower; and guyed V tower type. Since a line of this size (voltage) cannot electrocute birds, the only implications that the tower structure has for birds is in determining the risk of electrical faulting caused by birds. If the tower structure provides suitable perching space directly above the live conductors there is a strong likelihood that birds will cause faults on the line. The cross-rope suspension tower design does not provide much perching space for birds above conductors and so is better in this regard.

During the construction phase, a certain amount of habitat destruction and alteration takes place on the site. This happens with the construction of access roads, the clearing of the site itself and any associated infrastructure. The servitude also has to be maintained free of any natural vegetation, amongst other reasons to minimize the risk of fire. It is noted that the new proposed 400kV power line will require servitude of 55m width, versus the previously authorized 47m for the 275kV and it is anticipated that the 400kV line will require slightly more bush clearing than the originally proposed 275kV line. The difference will be a few metres if anything and will not make a material difference to the significance of this impact. Further, the 400kV towers will be slightly higher, and wider than those used for a 275kV line. From the specialist's point of view this will not make any difference to the impacts on birds.

The study assessed the potential impacts and recommended mitigation measures. A summary of such impacts is as follows;

- The impact of collision of certain bird species with the overhead cables (in particular the earth wires) has been judged to be of medium significance. This can be reduced to low significance with mitigation. In order to implement effective mitigation, it will be necessary to conduct an avifaunal walk through as part of the site-specific EMP. This will identify those exact spans of the power line that require mitigation.
- Destruction and alteration of habitat will be of medium significance. Since this is difficult to mitigate for (a certain amount of vegetation has to be removed or altered), it is not possible to reduce this to low significance with mitigation.
- Disturbance of birds is judged to be of low significance. However, if breeding threatened raptors are found close to the alignment this would change.

- The risk of electrical faulting caused by birds is judged to be of medium significance. This is however an impact on the business, not the birds, and is best mitigated reactively if a problem is identified once the line is operational.
- This proposed power line route passes through an area that is rich in avifauna, due to its varied geology and vegetation, and the protected status of much of the land (by virtue of game farming). This means that the potential interactions of birds with the power line are likely to be significant, however, given that a power line of this size has to be built between these two substations (we assume that effective network planning has been conducted), the proposed routes do collectively provide opportunity to route the line as wisely as possible with respect to avifauna.

#### **6.4. HERITAGE**

The Heritage specialist study was undertaken by Jaco Vander Walt of Heritage Contracts. The Initial Heritage Assessment was undertaken in 2012 for construction of a 275kV power line and updated in January 2017 to consider the proposed upgrade to 400kV. The HIA Report is attached as Appendix D1.

The study revealed that a range of heritage sites occur in the larger region and similar sites can be expected within the study area. The upgrade of capacity from 275kV to 400kV will not have a higher impact on heritage resources along the approved corridor. Every site is relevant to the Heritage Landscape, and based on preservation etc. it is anticipated that some sites might have conservation value. This will need to be verified by a heritage walk down of the final alignment.

No previously recorded sites exist in close proximity to the proposed power line with the Archaeological databases at Wits University (referenced 2009); further, no grave sites are indicated within the study area although one grave site is located on the farm Doornbosch 294. This site is located in the greater area and will not be impacted on by the proposed power line, in addition, this cemetery consists of at least three graves.

Various Stone Age sites have previously been identified within the larger geographical setting of the study area. Close to Ohrigstad sites from the Middle and Late Stone Age are known and Middle Stone Age sites are also known from the Polokwane area (Bergh 1999: 4). It includes the well-known site known as Boesmanrotsskuiling (Korsman & Meyer 1999: 94). Rock art is found in abundance in the Steelpoort valley including rock engravings close to the Steelpoort and Olifants River (Bergh 1999: 5).

The following conclusions are applicable to the site below:

#### **6.4.1. Archaeological sites**

All sites could be mitigated either in the form of conservation of the sites within the development or by a Phase 2 study where the sites will be recorded and sampled before the client can apply for a destruction permit for these sites prior to development.

#### **6.4.2. Historical finds and Cultural landscape**

It is not anticipated that the built environment will be severely impacted upon as very little structures occur directly under the powerlines and these sites could be mitigated in the form of conservation of the sites within the development or by a Phase 2 study where the sites will be recorded. However, indirect impacts like the visual impact on the cultural landscape and can only be assessed during the survey of the area and suitable mitigation measures proposed.

#### **6.4.3. Burials and cemeteries**

Formal and informal cemeteries as well as pre-colonial graves occur widely across Southern Africa. It is generally recommended that these sites are preserved within a development. This can easily be accomplished by micro adjustments to the proposed alignment. These sites can however be relocated if conservation is not possible, but this option must be seen as a last resort.

The specialist recommended that a walk down of the power line focusing on pylon positions be undertaken where the sites of archaeological, historical or places of cultural interest must be located, identified, recorded, photographed and described. During this study the levels of significance of recorded heritage

resources must be determined and mitigation proposed should any significant sites be impacted upon, ensuring that all the requirements of SAHRA are met.

## **6.5. AGRICULTURAL SPECIALIST**

The agricultural specialist study was recommended by the DEA and undertaken by D.G. Paterson of ARC Institute for Soil, Climate and Water. The study revealed that the northern eastern part of the route is dominated by low agricultural potential while the area southward is predominantly rocky with a mix of low to high agricultural potential.

About erodibility, the study indicated that the soil in the area is not highly erodible; however, the erodibility varies according to topography. Furthermore, the study indicated that the removal of vegetation for construction particularly on steeper slopes will accelerate erosion.

The report highlighted that the impacts of constructing a transmission line would be negative, as the natural environment will be disturbed. However, the specific significance on the potential loss of agricultural soil, as well as soil disturbance was assessed to be of low significance.

The specialist highlighted that there are no fatal flaws regarding the study area, however, there are several sensitive areas that should be avoided, namely wetlands soil along the river courses.

In his conclusion, he highlighted that whether a proposed transmission line is 250 kV or 400 kV will make little difference to the impact on the soil resource and agricultural potential, whether regarding the different voltage or a slightly widened servitude. The impacts and mitigation measures as outlined above will be equally relevant.

## **6.6. SOCIAL IMPACT ASSESSMENT**

The Social Impact Assessment (SIA) was undertaken by Dr. Neville Bews of Dr. Neville Bews & Associates and the SIA Report is attached as Appendix D4. The initial study was undertaken in 2012 and it involved

the assessment of 275kV powerline and updated in January 2017 to include the assessment of the proposed 400kV within the approved route.

During the initial study, five alternative routes were assessed and the DEA approved one called “Public Alternative”.

The approved alternative traverse various farms, including game farms, nature and game reserves, residential and industrial areas located in Ba-Phalaborwa Local Municipality, Maruleng Local Municipality (LIM335) as well as the Greater Tubatse Local Municipality in the Limpopo Province.

Considering the social effects of this project and the clear need to strengthen the electricity grid in this region a compromise will need to be negotiated between project proponents and affected parties. Further to this, consideration will need to be given to the technical limitation that a project of this nature faces as well as to the broader environmental threats it poses in respect of such matters as fauna and flora and threats to sensitive natural areas. The nature of the transmission line is such that it is possible to retain a route alternative while making more localised adjustments to accommodate local conditions. This is particularly relevant in respect of the extra 8 meters required for the 400kV transmission line, which is 55m wide as opposed to 47 meters associated with the 275kV transmission line.

After carefully considering the proposed site, the specialist concluded that:

- On a social basis, there is no obvious fatal flaw regarding the approved route;
- Apart from the effects of possible higher levels of electromagnetic fields referred to under point 16 above and the increase of servitude width from 47 to 55 meters adding an extra 8 meters to the required servitude, the upgrade of the transmission line from 275 kV to 400 kV is likely to have limited social impact.

The need for and nature of localised adjustments will only become clear during a corridor walk-down, when the central line and footprint of the transmission line and towers will be pegged and any flaws to the initial route will be identified.



## **6.7. Eco-Tourism**

The Eco Tourism specialist study was undertaken by Brian Gardner of Seaton Thorton and the Report is attached as Appendix D7. The study was done in two phases; Phase 1 was a preliminary desktop study that identified Eco tourism facilities within the study area with specific focus on those along the proposed routes. Further the report highlighted the key issues that were raised from an Ecotourism perspective. Consequent to the consultation with the affected landowners the report proposed that the Green route be relocated slightly to the north to reduce the need to construct new tracks. Phase two of the study included field visit and interviews with the affected parties, highlighted the state of the tourism industry, assessment of the alternatives including an impact assessment.

In his amended report the specialist highlighted that the report does not require detailed updates, as the proposed amendments will not affect the outcomes or recommendations of this report. He further emphasised that the original proposed Route 1 (green route) has indeed been re-located slightly to the north so that it runs immediately alongside the R 530 linking Phalaborwa to Mica and then follows the R 40 and the R 526 all the way to The Oaks, as we had suggested in our July 2012 report. Due to the fact that Route 1 has slightly changed to the suggested alignment along the road, the specialist is of the opinion that the amendment should be supported, as ecotourism impacts have been largely mitigated.

## **7. DESCRIPTION OF THE ENVIRONMENTAL ISSUES AND POTENTIAL IMPACTS IDENTIFIED**

This section describes the potential impacts that the proposed project may pose on the receiving environment. Impacts associated with the relevant environmental components within the study area as identified have been assessed based on the EAP's opinion after numerous visits to the area, specialist input, I&AP issues and comments ascertained through the public participation as well as previous experience on similar undertakings.

The negative environmental impacts were assessed during the Environmental Impact Assessment process of the proposed project. The proposed amendment will not have any increased negative environmental impacts except for the ones identified and assessed during the EIA process as highlighted in the Table below. The significance of the identified impacts range between medium to low and these impacts include:

Aspect	Impact Significant		Description
	275kV Impact	400kV Impact	
Air pollution	Low	Low	Potential air pollution because of dust emanating from site preparations and excavations, given the proximity to communities.
Waste	Low	Low	Waste is anticipated in the form of rubble and construction debris as well as general waste from construction personnel.
Noise	Low	Low	An increase in noise is expected due to construction, which may have a negative impact on the surrounding residential settlements and public places such as nearby schools.
Avifauna	Low	Low	Habitat destruction, disturbance and displacement associated with construction activities may impact on bird populations. The impacts are rated medium to low. The specialist highlighted that there is essentially very little difference in the impacts on avifauna of a 400kV line versus a 275kV line. The width of the bush cleared may be slightly greater for the larger voltage line, although this is speculative. If it is this would increase the impact of habitat destruction slightly, although not enough to change the categorical ratings.

Aspect	Impact Significant		Description
Visual	Low	Low	<p>The approved corridor alignment follows along an existing line and servitude and along a main transportation route. It is considered to cause the least impact on the landscape character due to the reduced sensitivity of the landscape along the roads and servitudes.</p> <p>The impact on visual receptors varies between residents, tourists and motorists. The alignment follows partially along the existing route and partially along a portion of a main transportation route. Its great advantage lies in the fact that viewers are already exposed to a similar power line, so negative perception of a new power line whether 275 or 400kV following along an existing route has a less significant landscape and visual impact on tourists and residents and the public association with transmission lines and major public roads is a common perception which makes the co-existence of these two features more acceptable.</p>
Heritage	Medium	Medium	<p>This scoping study revealed that a range of heritage sites occur in the larger region and similar sites can be expected within the study area. The capacity upgrade from 275kV to 400kV will not have a higher impact on heritage resources along the approved corridor. Every site is relevant to the Heritage Landscape, and based on preservation etc. it is</p>

Aspect	Impact Significant		Description
			<p>anticipated that some sites might have conservation value.</p> <p>The proposed power line will have a low to medium local impact due to the general physical nature of power lines. The sense of place of cultural sites and the cultural landscape will be impacted on a local scale and the impact is anticipated as medium.</p> <p>To comply with the National Heritage Resources Act (Act 25 of 1999) a Phase 1 Archaeological Impact Assessment must be undertaken that includes a walkthrough of the power line focussing on pylon positions.</p>
Agriculture	Low	Low	<p>The impacts of the proposed project on agriculture will be negative, as the natural environment will be disturbed. The isolated nature of the transmission towers means that the impact on the soil resource will be small. Most agricultural activities can still be practiced next to or underneath a transmission line.</p> <p>The exception is where irrigation, especially by overhead or other spraying options, is practiced. Therefore, as far as possible, the transmission line should avoid such areas.</p> <p>Mitigation measures will include the rehabilitation of any bare soil areas caused by the construction</p>

Aspect	Impact Significant		Description
			<p>process (including any access roads or tracks) and wherever possible, the positioning of pylons away from any cultivated lands, but rather to use servitudes and boundary lines. Special care should be given to areas with steeper topography.</p> <p>Whether the proposed transmission line is 275 kV or 400 kV will make little difference to the impact on the soil resource and agricultural potential, whether regarding the different voltage or a slightly widened servitude.</p>
Ecotourism	Low	Low	<p>The proposed capacity increase will imply a change of the width of the servitude which will not have any new or different impacts or implications on tourism.</p> <p>The approved corridor already mitigates most of the identified tourism impacts and it is therefore recommended.</p>
Social environment	Medium	Medium	<p>The construction phase may have an impact on the surrounding residents. Impacts such as safety, resettlement and theft may be expected.</p> <p>The approved corridor will warrant resettlement of family dwellings, graves and businesses. The resettlement impact on communities does at times yield positive benefits, however from a social perspective it can be viewed as a high negative</p>

Aspect	Impact Significant		Description
			<p>impact which is long term but with proper mitigation in place the impact can be reduced to medium.</p> <p>The capacity increase will not have a bearing on the significance of the already identified impacts.</p>
Biodiversity	Low	Low	<p>During construction, some plants species will be removed on the proposed site footprint. The study area has 11 vegetation types whose conservation value and sensitivity ranges from medium to high. The footprint of each pylon is relatively small; therefore, it can be concluded that the impact on vegetation will be medium. The fauna identified were birds, rodents, and other small flying and crawling insects. The impact on flora and fauna will be manageable as very little vegetation will be removed to clear the site for construction. The following potential impacts on fauna and flora might occur as a result of the proposed project:</p> <ul style="list-style-type: none"> <li>• Vegetation clearing could result in loss of vegetation from the construction footprint; and</li> <li>• Loss of habitat for animal species from the construction footprint.</li> </ul> <p>It is anticipated that the loss of biodiversity for the proposed site and its surroundings will be of a medium negative significance due to the scale of the proposed development. Implementation of the suggested corrective measures will ensure that this impact has a low level of significance.</p>

Aspect	Impact Significant	Description
		It must be noted that the servitude will increase from 47m to 55m and the pylon footprint may be bigger, however, the proposed upgrade from 275kV to 400kV will not have a significant bearing on the severity of the impact.

## 8. ASSESSMENT OF POTENTIAL IMPACTS AND MITIGATION MEASURES

The assessment of impacts is largely based on the Department of Environmental Affairs and Tourism's (1998) Guideline Document: Environmental Impact Assessment Regulations. The assessment will consider impacts arising from the proposed activities of the project both before and after the implementation of appropriate mitigation measures.

The impacts are assessed per the criteria outlined in this section. Each issue is ranked according to extent, duration, magnitude (intensity) and probability. From these criteria, a significance rating is obtained, the method and formula is described below. Where possible, mitigation recommendations have been made and are presented in tabular form. The criteria given in the tables below will be used to conduct the evaluation. The nature of each impact will be assessed and described in relation to the extent, duration, intensity, significance and probability of occurrence attached to it. These assessment guidelines were used during the EIA phase and are also implemented on this EA Amendment Report.

**Table 9: Impact Prediction Methodology**

### Status of Impact

The impacts are to be assessed as either having a:  
negative effect (i.e. at a 'cost' to the environment),

positive effect (i.e. a 'benefit' to the environment), or  
Neutral effect on the environment.

### **Extent of the Impact**

- (1) Site (site only),
- (2) Local (site boundary and immediate surrounds),
- (3) Regional (within the City of Johannesburg),
- (4) National, or
- (5) International.

### **Duration of the Impact**

The length that the impact will last for is described as either:

- (1) immediate (<1 year)
- (2) short term (1-5 years),
- (3) medium term (5-15 years),
- (4) long term (ceases after the operational life span of the project),
- (5) Permanent.

### **Magnitude of the Impact**

The intensity or severity of the impacts is indicated as either:

- (0) none,
- (2) Minor,
- (4) Low,
- (6) Moderate (environmental functions altered but continue),
- (8) High (environmental functions temporarily cease), or
- (10) Very high / Unsure (environmental functions permanently cease).



### **Probability of Occurrence**

The likelihood of the impact occurring is indicated as either:

- (0) None (the impact will not occur),
- (1) improbable (probability very low due to design or experience)
- (2) low probability (unlikely to occur),
- (3) medium probability (distinct probability that the impact will occur),
- (4) high probability (most likely to occur), or
- (5) Definite.

### **Significance of the Impact**

Based on the information contained in the points above, the potential impacts are assigned a significance rating (S). This rating is formulated by adding the sum of the numbers assigned to extent (E), duration (D) and magnitude (M) and multiplying this sum by the probability (P) of the impact.

$$S=(E+D+M)P$$

### **The significance ratings are given below:**

- (<30) low (i.e. where this impact would not have a direct influence on the decision to develop in the area),
- (30-60) medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated),
- (>60) high (i.e. where the impact must have an influence on the decision process to develop in the area).

## **8.1. ASSESSMENT OF IMPACTS**

This section describes the potential impacts that the proposed amendment may pose on the receiving environment. Impacts associated with the relevant environmental components within the study area as identified, are assessed based on the consultant's opinion after visits to the site and previous experience on similar undertakings as well as consultation with specialist studies.

## 8.2. IMPACTS THAT ARE LIKELY TO RESULT FROM THE PLANNING AND DESIGN

### Direct Impacts:

#### 8.2.1. Employment Creation

The planning and design of the development requires input from various individuals, resulting in employment opportunities for such persons. This employment would include both direct (e.g. Environmental Consultants, Engineers, Project Managers, Planners, etc.) and indirect (e.g. reviewing and commenting authorities such as the local authority planning authorities and the environmental authorities). The extent and magnitude of this impact is relatively low and short term in duration compared to the other economic impacts, and is typically restricted to a limited number of professionals. The significance is rated as medium and no mitigations were identified for this project. All the identified alternatives are likely to result in the same level of significance for this impact. Only the No-go Alternative would differ in that this impact would not occur. **Whether the line is 275kV or 400kV this impact will not change.**

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Positive	3	2	8	4	52 = Medium
	Yes						
Corrective Actions	No mitigation measures have been identified.						

Indirect Impacts: None identified

Cumulative Impacts: None identified

### 8.3. CONSTRUCTION PHASE IMPACTS

#### Direct Impacts:

#### 8.3.1. Change in land use

The proposed study area is currently used for mining, game farming, agriculture, residential, recreational purposes as well as transmission of electricity.

The approved 275kV power line was authorised to be built within 47m servitude; however, the proposed 400kV requires 55m servitude. The proposed activity may have an impact on the land use character of the site although insignificant. However, the size of the land that will be used for the proposed 400kV, although slightly bigger, will be relatively small as compared to the area that can still be used to fulfil other societal and socioeconomic needs.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Change in land use	No	Negative	1	4	4	5	45 = Medium
	Yes	Negative	1	4	2	2	14 = Low
Corrective Actions	<ul style="list-style-type: none"> <li>Care must be taken to ensure that land is not contaminated and destroyed as a result of construction activities.</li> <li>Where damaged, land must be rehabilitated immediately to return it to its previous/original state.</li> <li>Activities must be restricted to the demarcated construction site.</li> </ul>						

#### 8.3.2. Impact on Biodiversity

During construction, some plants species will be removed from the proposed site footprint. The study area has 11 vegetation types whose conservation value and sensitivity ranges from medium to high. The

footprint of each pylon is relatively small; therefore, it can be concluded that the impact on vegetation will be medium. The fauna identified were birds, rodents, and other small flying and crawling insects. The impact on flora and fauna will be manageable as very little vegetation will be removed to clear the site for construction. The following potential impacts on fauna and flora might occur because of the proposed project:

- Vegetation clearing could result in loss of vegetation from the construction footprint.
- Loss of habitat for animal species from the construction footprint.

Every effort should be made to minimize the disturbance to the surrounding vegetation. It is anticipated that the loss of biodiversity for the proposed site and its surroundings will be of a medium negative significance due to the scale of the proposed development. Implementation of the suggested corrective measures will ensure that this impact has a low level of significance.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Loss of biodiversity and habitat	No	Negative	1	5	3	5	45 = Medium
	Yes	Negative	1	5	2	3	24 = Low
Corrective Actions	<ul style="list-style-type: none"> <li>• Vegetation clearing should be limited to areas that will be occupied by the development footprint.</li> <li>• The identified threatened species must be rescued and replanted in a suitable area.</li> <li>• Where possible large trees should be left intact.</li> <li>• Special care will be needed during the crossing of the spruit systems.</li> <li>• Hunting and killing of fauna for any reason should not be allowed.</li> <li>• No indigenous fauna to be hunted or killed on the site.</li> <li>• The Environmental Control Officer contact relevant specialists should endangered species are observed during construction.</li> <li>• Only indigenous plant species should be planted in areas where rehabilitation is required.SASA</li> </ul>						

	<ul style="list-style-type: none"> <li>Prevent the establishment and spread of alien invasive species and weeds during the construction phase.</li> </ul>
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### 8.3.3. Fauna (Avifauna)

The construction phase will warrant the removal of vegetation to clear the way for construction activities. This destruction of habitat will be site specific and given the length of the line is most likely going to be local. Although the construction phase will be short term the impact will be long term as maintenance and bush clearing will continue while operation has ceased. This impact is negative and of minimum significance.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Habitat destruction and alteration during construction	No	Negative	2	4	3	4	36 = Medium
	Yes	Negative	1	4	3	4	32 = Medium
Disturbance of Bird during construction	No	Negative	1	2	4	3	21 = Low
	Yes	Negative	1	2	4	2	14 = Low
Corrective Actions	<ul style="list-style-type: none"> <li>Standard Construction best practice must be followed.</li> <li>Care must be taken if any breeding sensitive species are encountered close to the servitude.</li> <li>Case specific advice should be sought from the avifaunal specialist when and as required.</li> <li>Key sensitive areas must be avoided as far as practically possible.</li> </ul>						

#### 8.3.4. Soils and erosion

The loss of topsoil in South Africa is a national concern and thus erosion control should be taken seriously.

Soil erosion may occur during the construction phase due to:

- Excavations particularly on steep slopes.
- Ineffective storm water management
- Excessive use of gravel roads

Whether a proposed transmission line is 275 kV or 400 kV will make little difference to the impact on the soil resource and agricultural potential (Paterson, 2017). The impact will be limited since the area has already been cleared due to past agricultural and or mining activities; therefore, any additional erosion is expected to be minimal. If adequate soil erosion measures are implemented during the construction phase of the proposed activity, this impact can be deemed to be of low significance. Where soils are highly erodible, adequate measures must be implemented to prevent undue soil erosion.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Soils and erosion	No	Negative	2	2	6	2	20 = Low
	Yes	Negative	1	1	4	1	6 = Low
Corrective Actions	<ul style="list-style-type: none"> <li>• Implementation of anti-erosion measures such as the construction of berms to reduce the water velocity is essential.</li> <li>• Storm water runoff shall be considered and its flow controlled on the construction site.</li> <li>• Foundation excavations for each structure must be inspected by a competent person during construction.</li> <li>• In the event of significant erosion occurring, adequate corrective measures must be implemented to prevent any further soil loss.</li> <li>• Care should be taken to place pylons adequately away from river or spruit banks avoiding any damage to the banks or water courses.</li> </ul>						

### 8.3.5. Impact on Traffic

During construction, increase in traffic is likely to result from delivery of construction materials to and from the construction site. The approved route crosses a number roads therefore there is a likelihood that during stringing some traffic disruption would occur. However, construction techniques are available that will keep these disruptions to a minimal level. The impact of increased traffic can be considered negative short term and medium in significance. With the implementation of proper mitigation measures, it can be reduced to low significance.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Traffic	No	Negative	2	3	6	4	44 = Medium
	Yes	Negative	2	2	4	3	24 = Low
Corrective Actions	<ul style="list-style-type: none"> <li>The delivery of construction material and equipment should be limited to hours outside peak traffic times (including weekends) prevailing on the surrounding roads.</li> <li>Delivery vehicles must comply with all traffic laws and by laws.</li> </ul>						

### 8.3.6. Air pollution

Construction activities on the site will lead to land clearing and disturbance to the soil resulting in dust creation. The one direct potential air pollutant during construction may be dust emanating from site preparation and excavations during construction. Furthermore, movement of construction vehicles also represents temporary, but important sources of particulates and dust deposition that can be respired. Given the nature and magnitude of the proposed project it is anticipated that minor dust will be generated from the construction activities. The potential impact on air quality will be short term and can be controlled. Proper implementation of recommended corrective measures will reduce the impact to become insignificant and of very low probability. It is therefore anticipated that this impact will be limited and of low negative significance.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Air pollution	No	Negative	2	1	4	4	28 = Low
	Yes	Negative	2	1	3	3	21 = Low
Corrective Actions	<ul style="list-style-type: none"> <li>• Unnecessary clearing of vegetation must be avoided.</li> <li>• All exposed surfaces subjected to dust generation must be managed with appropriate dust suppression methods including amongst others, the use of water tankers etc.</li> <li>• Vehicles speed limit should be imposed to reduce potential dust</li> <li>• Unnecessarily exposed surfaces should be rehabilitated after the construction period.</li> <li>• The amount of exposed soil at a time must be limited.</li> <li>• Vehicles transporting load beds must be covered to prevent them from being blown by wind when transported.</li> </ul>						

### 8.3.7. Surface and groundwater pollution

Given the existence of river and spruit crossings along the transect routes there is a risk that construction material may pollute the surface and/or ground water on site. Substances such as cement residue, bio fuels, and paints must be adequately controlled. In addition, exposed surfaces during construction would provide a source of sediments to be taken up by storm water and resulting in down-stream sedimentation of water resources. Care must be taken during construction to prevent leaks and spillage of materials that may detrimentally affect water quality (especially fuels and chemicals). Adequate measures must be put in place to prevent runoff of construction debris to nearby streams or water bodies. If construction takes place during the rainy season, storm water should be managed appropriately to reduce the opportunities of construction debris being washed off. This impact is of medium negative significance and can be reduced to a low significance.



Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Surface and ground water pollution	No	Negative	3	3	6	3	36 = Medium
	Yes	Negative	2	2	4	2	16 = Low
Corrective Actions	<ul style="list-style-type: none"> <li>Adequate measures must be taken during construction to manage storm water runoff.</li> <li>Storage of fuel on site must be in bunded areas.</li> <li>Care must take not to spill fuels or oil during service or re-fuelling of construction equipment.</li> <li>In the event of a spillage of hazardous substances the requirements of the EMPr must be implemented.</li> <li>Attempt should be made to schedule construction during the winter months (dry season).</li> <li>Possible leaks and spills of hazardous substances into the ground should be avoided at all times.</li> <li>In the event of a spillage of a hazardous substance the requirements of the EMPr must be implemented.</li> <li>Obtain Water Use License as appropriate and ensure compliance with the conditions.</li> </ul>						

### 8.3.8. Waste Management

During the construction phase, there will be a variety of waste materials produced. The building contractors must adhere to all proposed measures and provide adequate waste skips and bins around the site. Waste must be regularly removed from site and disposed of at appropriate waste disposal sites.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Waste generation and management	No	Negative	2	3	8	2	26 = Low
	Yes	Negative	1	2	6	2	18 = Low
Corrective Actions	<ul style="list-style-type: none"> <li>No waste should be buried on site or incorporated into the foundation trenches.</li> <li>The work force must be encouraged to sort waste into recyclable and non-recyclable waste.</li> <li>No burning of waste is allowed on site.</li> <li>Waste must be regularly removed from site and disposed of at a registered waste disposal facility.</li> <li>Where permits are required, it must be obtained from the relevant authority.</li> </ul>						

### 8.3.9. Noise pollution

The study area consists of primarily farms which are used for agriculture, game as well as for residential purposes. The potential impact of noise will vary from area to area, wherein some areas are more remote and not habitable while some areas are inhabited. The impact of noise on the northern part of the proposed routes would be more significant given the ambient noise levels, however it will pose a lower impact as the area is less populated. While the southern part of the proposed route consists of primarily residential settlements and commercial, wherein given the ambient noise levels and the activities in the area the additional noise from the proposed project may not be significant. There are no major sources of noise adjacent to the route alignment; however, the construction process is likely to result in an increase in noise levels due to construction vehicles, machinery which can be a nuisance during the construction. The level of noise and the distance it will travel will depend entirely on the prevailing construction activities within the site which will include groundwork, foundations, hauling of building material to and from specific area assembling of equipment. The additional noise will be local, short term in duration and low in significance. Noise associated with the construction activities can be mitigated by limiting the construction operation to business hours, during which noise will not be of such a big concern to surrounding residents.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Noise pollution	No	Negative	2	1	4	3	21 = Low
	Yes	Negative	1	1	2	2	12 = Low
Corrective Actions	<ul style="list-style-type: none"> <li>It must be ensured that all vehicles used during construction are appropriately maintained.</li> <li>Surrounding residents should be notified in advance of construction schedules.</li> <li>Working hours must be restricted to daytime only (7am – 5pm).</li> <li>Selecting equipment with lower sound power levels which is in accordance with the IFC'S Health and Safety Regulations</li> <li>Taking advantage during the design stage of using natural topography as a noise buffer</li> </ul>						

### 8.3.10. Safety and security

The proposed routes transverse game farm that are privately owned and managed these game farms are home to an array of wild animals including predators, therefore the safety and security of the construction workforce is a concern similarly the safety of wild animals such as the white and black rhino is also an issue of concern. Furthermore, people and animals in the area may be at risk as a result of on-site activities (e.g. falling into holes, being knocked over by vehicles etc.). The presence of the construction workforce within these private properties is a potential risk to the surrounding landowners in terms of safety, crime and security. The significance of the potential impacts without the corrective actions (adequate safety measures in dangerous areas) is of high significance. The implementation of corrective actions could reduce the impacts to a low level of significance. The impact remains the same for the 275kV and 400kV powerline.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Safety and security	No	Negative	3	2	8	5	65 = High
	Yes	Negative	1	2	6	3	27 = Low
Corrective Actions	<ul style="list-style-type: none"> <li>Liaison with landowners prior to entering their properties.</li> <li>Access to the construction site should be controlled.</li> <li>Warning signs should be placed on site to make people aware of the dangers.</li> <li>No-go area should be clearly demarcated, marked and visible.</li> <li>Where necessary, particularly where there is a threat to wild life due to poaching, additional security should be provided</li> <li>Landowners must be kept abreast with movements in and around their properties.</li> <li>Health and safety standards and guidelines must be implemented.</li> <li>The construction site must be delineated and properly fenced off particularly within the game farms. Fencing must be inspected weekly and ensure it is properly maintained by the contractor until completion.</li> <li>It must be ensured that personnel undertaking the construction work do so when conditions are safe (i.e. no work at night, no work during adverse weather conditions, etc.).</li> <li>Consequently, the time spent by construction crews on site permanently must be kept to a minimum.</li> <li>The construction crew should be clearly visible and identifiable so that they can be differentiated from ordinary members of the public.</li> <li>There should be warning signs that are clear and visible on the site.</li> <li>Construction vehicles should be fitted with warning signs and devices to warn personnel in case of dangerous manoeuvres (e.g. reversing).</li> <li>No construction personnel may be allowed to stay overnight on site except for the security personnel.</li> <li>The construction site must be clearly demarcated and indicated by barrier tape</li> </ul>						

	<p>and/or proper fence.</p> <ul style="list-style-type: none"> <li>• The gate around the construction site must be closed at all times.</li> <li>• No hunting of any form shall be allowed.</li> </ul>
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### 8.3.11. Fire hazards

There may be an increase in the risk of veld fires due to construction activities and these would result from activities such as smoking and cooking food, storage of fuel and other flammable solvents on site. These uncontrolled fires on site could cause damage to infrastructure and the biophysical environment and impact on the working environment. This impact is of medium significance. Should the recommended mitigation measures be implemented, the significance of the impact will be even lower and negative.

Impact remains the same for 275kV and 400kV.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Fire hazards	No	Negative	2	2	4	4	32 = Medium
	Yes	Negative	2	2	4	2	16 = Low
Corrective Actions	<ul style="list-style-type: none"> <li>• Camp sites and laydown areas will not be allowed within the nature reserves and sensitive sites</li> <li>• Areas where flammable substances are kept must have proper warning signs on display (highly flammable, no smoking etc.) to warn personnel on site of risk associated with such areas.</li> <li>• No burning of waste and cooking will be allowed on site.</li> <li>• Contracting personnel must be well versed in the relevant existing fire and safety management procedures and activities on site.</li> <li>• Implement fire hazard sensitive on- and offloading procedures;</li> <li>• Designate a site safety official and ensure that personnel are adequately trained regarding fire hazards and procedures.</li> </ul>						

### 8.3.12. Visual Impact

The temporary duration of the construction phase is not expected to cause major visual impacts. The regulation of the severity of this impact highly depends on the location, number and size of the construction camps. During construction, the visual impact will primarily be from the access roads, construction camp and laydown areas as well as cleared servitudes. These impacts will be site specific and of medium significance, with mitigation measure in place the impact will be low.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Cultural and heritage resources	No	Negative	2	2	6	4	40 = Medium
	Yes	Negative	1	2	4	3	21 = Low
Corrective Actions	<p><b><u>Access Routes</u></b></p> <ul style="list-style-type: none"> <li>• Make use of existing access roads where possible;</li> <li>• Where new access roads are required, the disturbance area should be kept to a minimum. A two-track dirt road will be the most preferred option;</li> <li>• Locate access routes to limit modification to the topography and to avoid the removal of established vegetation;</li> <li>• Avoid crossing over or through ridges, rivers, pans or any natural features that have visual value. This also includes centres of floral endemism and areas where vegetation is not resilient and takes extended periods to recover;</li> <li>• Maintain no or minimum cleared road verges;</li> <li>• Access routes should be located on the perimeter of disturbed areas such as cultivated/fallow lands as not to fragment intact vegetated areas; and</li> <li>• If it is necessary to clear vegetation for a road, avoid doing so in a continuous straight line. Alternatively, curve the road to reduce the visible extent of the cleared corridor.</li> </ul> <p><b><u>Construction camp Laydown area</u></b></p>						

	<ul style="list-style-type: none"> <li>• If practically possible, locate construction camps in areas that are already disturbed or where it isn't necessary to remove established vegetation like for example naturally bare areas;</li> <li>• Utilise existing screening features such as dense vegetation stands or topographical features to place the construction camps and lay-down yards out of the view of sensitivity visual receptors;</li> <li>• Keep the construction sites and camps neat, clean and organised to portray a tidy appearance; and</li> <li>• Screen the construction camp and lay-down areas by enclosing the entire area with a dark green or black shade cloth of no less than 2m height.</li> <li>• Keep the construction camps away from existing residents and especially lodges and tourist venues.</li> </ul> <p><b><u>Cleared Servitudes</u></b></p> <ul style="list-style-type: none"> <li>• Locate the alignment and the associated cleared servitude to avoid the removal of established vegetation; and</li> <li>• Avoid a continuous linear path of cleared vegetation that would strongly contrast with the surrounding landscape character. Feather the edges of the cleared corridor to avoid a clearly defined line through the landscape.</li> </ul>
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### 8.3.13. Job creation

The proposed development will have the capacity to produce considerable opportunities of employment during the construction phase, the job opportunities will however, be limited as the construction process is put out to tender and contractors who usually have their own skilled workforce are appointed to undertake the construction. The construction activities will also result in a demand for equipment, building material and labour. The use of local labour would have a positive impact on the local economy and promote skills transfer. The significance of this impact is anticipated to be medium positive.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Employment creation	No	Positive	3	4	6	3	39 = Medium
	Yes						
Corrective Actions	<ul style="list-style-type: none"> <li>• Ensure the prioritisation of locals as and when opportunities arise.</li> <li>• Utilise local labour where possible.</li> <li>• Create opportunities for the employment of women.</li> <li>• Where possible use labour intensive methods of construction.</li> <li>• Go beyond the minimum wage rate and invest in local staff.</li> </ul>						

#### 8.3.14. Influx of job seekers

Construction activities will require a well-established work force. The workmanship required may not necessarily be available from the local communities and result in workers being sourced from other communities. In addition, there may be a likelihood of migrant workers (including unskilled labourers) moving into the area in search of employment. These workers could have an impact on the social structures present in the local communities due to the lengthy period of construction.

- The threat of HIV/Aids and other Sexually Transmitted Infections (STI) may also have an impact on the local community resulting from an influx of migrant labourers to the areas surrounding the site.
- Increased risk of criminal activities due to influx of workers.
- Social instability on existing families.

With the implementation of the suggested mitigation measures the significance of the impact can be reduced from medium negative to low negative.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Influx of job seekers	No	Negative	3	4	4	3	36 = Medium
	Yes	Negative	2	3	2	2	21 = Low



Corrective Actions	<ul style="list-style-type: none"> <li>• Ensure that employment procedures and policies are communicated to local stakeholders, especially community representative organisations and ward councillors.</li> <li>• Raise awareness amongst construction workers about local traditions and practices.</li> <li>• Ensure that the local community communicates their expectations of construction workers' behaviour with them.</li> <li>• Have clear rules and regulations for access to the camp / site office to control loitering. Consult with the local South African Police Service (SAPS) to establish standard operating procedures for the control of the workforce</li> <li>• Make condoms and other forms of contraceptives readily accessible to workers</li> <li>• Construction workers should be clearly identifiable by wearing proper construction uniforms displaying the logo of the construction company. Where possible, construction workers could also be issued with identification tags to enable them to be visible and distinguishable within the community.</li> <li>• An aggressive STI and HIV/AIDS awareness campaign should be launched, which is not only directed at construction workers but also at the community in general.</li> </ul>
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### 8.3.15. Resettlement

The approved corridor warrants resettlement of family dwellings, graves, businesses, however the extent will only be determined once the route has been approved and during pegging. The Social Impact Assessment Report indicated that resettlement exposes affected people to a range of risks which include landlessness, homelessness, joblessness, economic and social marginalisation, increased morbidity and mortality, food insecurity and loss of access to common property resources. The resettlement impact on communities does at times yield positive benefits, however from a social perspective it can be viewed as a high negative impact which is long term but with proper mitigation in place the impact can be reduced to medium.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Resettlement	No	Negative	2	5	6	5	65 = High
	Yes	Negative	2	5	4	4	44 = Medium
Corrective Actions	<ul style="list-style-type: none"> <li>Involuntary resettlement should be avoided, or minimised where unavoidable.</li> <li>Where resettlement is unavoidable, resettlement plans and activities should be seen and executed as development programmes.</li> <li>Resettled persons should be provided with sufficient investment resources and opportunities to share in project benefits.</li> <li>Displaced persons should be meaningfully consulted, and should participate in the planning and implementation of resettlement programmes.</li> <li>Displaced persons should be compensated, prior to the move, for their losses at full replacement cost.</li> <li>Resettled persons should be assisted with the move and provided with support during the transition period.</li> <li>Eskom's resettlement standard must be put in place to ensure minimal impact</li> </ul>						

### 8.3.16. Impact on Agriculture

The proposed transmission line will have a negative impact on the agricultural potential, however, the isolated nature of transmission towers will result in a minimal impact on the soil and furthermore agricultural activities can continue next or underneath the line. The overall impact on agriculture without mitigation is medium; however, with proper mitigation in place the impact will be low in significance.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Traffic	No	Negative	2	4	4	4	40 = Medium
	Yes	Negative	1	4	2	3	21 = Low
Corrective	<ul style="list-style-type: none"> <li>Effort must be made to avoid areas where overhead sprayers are used.</li> </ul>						

Actions	<ul style="list-style-type: none"> <li>Disturbance must be reduced to the footprint of the construction activities.</li> </ul>
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**Indirect Impacts:** None Identified

**Cumulative Impacts:** None identified

#### 8.4. OPERATIONAL PHASE IMPACTS

### Direct Impacts:

#### 8.4.1. Bird collision, electrocutions and Faulting

Direct interactions occur when birds collide with power lines, possibly because they fail to see the wires as they are focusing on something that lies beyond, e.g. a perch or food source. Birds might also be killed by striking power lines support structures. The likelihood of birds colliding with power lines depends on various aspects. Bird collision and electrocution at substation yard has been rated as low for this project, while faulting which is caused by bird on power lines was rated medium. With proper mitigation in place, the potential impact of faulting is one that can be reduced to low significance.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Bird Faulting	No	Negative	1	4	4	4	36 = Medium
	Yes	Negative	1	4	3	2	16 = Low
Bird Collision	No	Negative	2	4	4	4	40 = Medium
	Yes	Negative	2	4	4	2	20 = Low
Corrective Actions	<ul style="list-style-type: none"> <li>Installation of bird guards to reduce faulting</li> <li>Installation of mitigation devices to insulate different live components, recommended to fit this only if electrocution occurs after construction</li> </ul>						

#### 8.4.2. Visual Impact

The approved route follows along an existing line and servitude and along a main transportation route. This route will cause the least impact on the landscape character due to the reduced sensitivity of the landscape along the roads and servitudes.

The impact of the approved route on visual receptors varies between residents, tourists and motorists. This route follows partially along the existing route and partially along a portion of a main transportation route. Its great advantage lies in the fact that viewers are already exposed to a similar power line, so negative perception of a new power line following along an existing route has a less significant landscape and visual impact on tourists and residents. Further, the public association with transmission lines and major public roads is a common perception which makes the co-existence of these two features more acceptable. The impact will be definite, local in extent, long term and of high significance. The difference in significance for 400kV and 275kV is minimal.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Visual Impact	No	Negative	2	5	6	5	75 = High
	Yes	Negative	1	5	4	3	27 = Low
Corrective Actions							

#### 8.4.3. Economic

The construction of the proposed transmission line has become necessary as part of Eskom's strategy to upgrade the country's existing electricity infrastructure. Economically the proposed 400kV will cost Eskom a lot more; however the social benefits far outweigh the project cost. The proposed development will add significantly to the current energy supply within the area and surrounding settlements and resolve the current and foreseen challenges.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Energy Supply	No	Positive	3	4	6	5	65 = High
	Yes	Positive	3	4	6	5	65 = High
Corrective Actions	<ul style="list-style-type: none"> <li>Regular maintenance of the facility should be done continuously to ensure uninterrupted supply of energy.</li> <li>Ensure that the project is run in a responsible manner and that the environment is adequately protected from negative impacts.</li> <li>Put adequate monitoring systems in place throughout the duration of the project and beyond.</li> <li>Ensure that the value of the project is balanced against cost related to both the negative environmental and social impacts in the region.</li> </ul>						

#### 8.4.4. Employment creation

The proposed development will have the capacity to produce considerable opportunities of employment only during the construction phase. During operation, employment opportunities will arise because of the actual maintenance work required to keep the facility running. The significance of this impact is anticipated to be low and positive.

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Employment creation	No	Positive	1	4	6	2	22 = Low
	Yes	Positive	1	4	6	2	22 = Low
Corrective Actions	Employment of locals should be encouraged during construction.						

**Indirect Impacts:** None identified.

**Cumulative Impacts:**

Cumulative impact of power lines on bird species will be significant if not managed, since the species already suffer from significant power line mortalities.

**8.5. DECOMMISSIONING PHASE IMPACTS**

On-going maintenance and upgrades, where necessary, will be carried out. Decommissioning will be subjected to Environmental and other Legislations applicable at the time; however, potential impacts are assessed hereunder.

**Direct Impacts:**

**8.5.1. Dust generation**

Decommissioning of the facility and other infrastructure may lead to an increased amount of airborne particles in the local atmosphere as the infrastructure is dismantled and transported to the disposal site. The significance of this impact will be of low negative significance.

Issue	Corrective measures	Impact					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Dust generation	No	Negative	2	1	4	4	28 = Low
	Yes	Negative	2	1	4	3	21 = Low
Corrective Actions	<ul style="list-style-type: none"> <li>Personnel must be well versed in the relevant existing waste management procedures and activities on site.</li> <li>This will include sorting of waste types and correct disposal to either recycling facilities, local registered waste disposal sites, and in extreme cases to registered hazardous waste disposal sites.</li> </ul>						

### 8.5.2. Loss of flora

The disturbances created during the decommissioning phase will likely lead to a loss of floral species within the development footprint. However; due to the site being surrounded by large areas of natural vegetation, as well as the fact that no sensitive species were recorded on site, it is anticipated that the loss of flora within the development footprint will not result in a disruption to the ecological functioning of the site and surroundings. Due to the loss of species diversity within the development footprint, it is recommended that the disturbed areas be rehabilitated with indigenous species as far as possible and that a weed eradication program is implemented to curb the spread of weedy species following decommissioning. It is anticipated that the impact on loss of flora (natural vegetation) will be of low negative significance.

### 8.5.3. Surface and Groundwater Pollution

During the decommissioning phase spillages from construction vehicles and machinery may occur when existing facility is removed from the site. Potential sources of pollution to this resource result from surface and sub-surface activities that could possibly leak and or spill hazardous substances onto the surface that are then transported to the groundwater body through the underlying soils. It is anticipated that the significance rating can be reduced with the implementation of mitigation measures; however, the significance will remain medium negative.

Issue	Corrective measures	Impact					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Surface and ground water pollution	No	Negative	3	3	6	3	36 = Medium
	Yes	Negative	2	2	4	2	16 = Low
Corrective Actions	<ul style="list-style-type: none"> <li>Possible leaks and spills of hazardous substances into the ground should be avoided at all times.</li> <li>In the event of a spillage of a hazardous substance the requirements of the EMPr must be implemented.</li> </ul>						



#### **8.5.4. Soil Erosion**

The clearing of vegetation, as well as the exposing of soil during decommissioning of the facilities may lead to erosion of these surfaces due to rain and wind. It is anticipated that the significance of this impact can be reduced from medium negative to low negative significance with the implementation of the recommended mitigation measures.

### **9. ADVANTAGES AND DISADVANTAGES WITH THE PROPOSED CHANGE**

The current demand versus supply in the area indicates an additional load requirement and therefore this gap will be bridged as a result of the proposed new upgrade to 400kV. The proposed project will offer a solution that will improve and strengthen the current supply to cater for future developments.

Should the application for amendment be granted it will have a positive impact on the social and economic outlook of the communities affected and the country at large. This in turn will enhance accessibility of electricity to marginalised and historically disadvantaged communities; improve the standard of living of individuals and alleviate poverty to a certain extent especially in Limpopo Province. It is expected that the proposed power line and associated infrastructure like new transformers will increase capacity and ensure reliable supply in the near future. The amendment will also help in avoiding the construction of a third transmission power line (400kV) between Foskop and Merensky to align with the future projects.

The advantages and disadvantages associated with the proposed project are highlighted hereunder.

#### **9.1. ADVANTAGES OF THE PROPOSED CHANGE**

The proposed project will have the following advantages:

- It aligns with future projects and phases out the dependency on 275kV network in Limpopo Province.

- It will create a comprehensive long term solution that will cater for future demands without the need to construct new power lines in the same area; and
- The construction of the 400kV transmission power line will result in the job creation and investments into the project during the planning and design phases. This impact will typically be limited to skilled engineers and planning professionals.

As a result, it is crucial that the proposed changes be undertaken as the construction of a 400kV transmission line forms part of the new infrastructure that Eskom has planned, the objective being to ensure reliable energy supply which will benefit agriculture, tourism and South Africa's economic status.

In addition, electrification has significant positive benefits from a socio-economic perspective. The provision of electricity leads to many social benefits for organs of state, individuals, industries and communities including the following:

- Enables development; and
- Encourages small and medium enterprise development, and thus, contributes to a possible increase in disposable income.

## **9.2. DISADVANTAGES OF THE PROPOSED CHANGE**

The disadvantages of the proposed change are as follows:

- The 400kV power line will require a clearance of 55m servitude whereas the 275kV would have only required a clearance of 47kV as highlighted by the biodiversity specialist the difference in impact significance will be minor.
- The type of towers that will be used for a 400kV power line is higher and wider, however, as highlighted by the VIA specialist the difference in impact significance will be minor.
- The financial cost of the 400kV line and associated structures will be more than that of the 275kV line and its associated structures.

## **10. ANY CHANGES TO THE EMPR**

An EMPr that aligns to the proposed amendment is attached as Appendix F to this Amendment Report. Following decision making by the DEA, it is envisaged that a site-specific walk-down will be undertaken were a site specific (tower to tower) EMPr will be prepared and submitted to the DEA for review and approval.

### **10.1. PUBLIC PARTICIPATION PROCESS**

Public Participation Process (PPP) is any process that involves the public in decision-making and it forms an integral part of the EA Amendment process. The PPP provides people who may be interested in or affected by the proposed development, with an opportunity to provide comments and to raise issues or concern, or to make suggestions that may result in enhanced benefits for the project.

Chapter 6, regulation 39 through 44, of the December 2014 EIA Regulations stipulates the way the PPP should be conducted as well as the minimum requirements for a compliant process. These requirements include (but not limited to):

- (a) fixing a notice board at a place conspicuous to the public at the boundary or on the fence of—
  - (i) the site where the activity to which the application relates is or is to be undertaken;
- (b) giving written notice to—
  - (i) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (ii) the owners or persons in control of that land occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iii) the municipal councilor of the ward in which the site or alternative site is situated and any organization of rate payers that represent the community in the area;
  - (iv) the municipality which has jurisdiction in the area;
  - (v) any organ of state having jurisdiction in respect of any aspect of the activity; and

- (vi) any other party as required by the competent authority;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken.

In addition, Section 32 of GN R.982 requires that the report be subjected to a public participation process, whereby all registered Interested and Affected Parties (I&APs) are made aware of the proposed EA amendment, and that all such parties are afforded the opportunity to review and comment on the Draft EA Amendment Report.

A database of all I&APs, a record of all comments received and responses given and proof of correspondence is included in Appendix E7. The Draft EA amendment report will be made available for public review for a period of 30 calendar days.

#### **10.1.1. Identification of Interested & Affected Parties**

I&APs include pre-identified stakeholders, government departments, landowners and the public. Notification and request for comments were submitted to the following key stakeholders:

- Limpopo Department of Economic Development Environment and Tourism (LEDET)
- Limpopo Department of Water and Sanitation;
- Limpopo Department of Agriculture and Rural Development;
- South African National Parks (SANPARKS);
- Tribal Authorities;
- Affected Municipalities;
- South African Heritage Resources Agency (SAHRA)

The notification letters and Background Information Document (BID) were sent by registered mail; refer to Appendix E4.

### 10.1.2. Public Participation Database

In accordance with the requirements of regulation 42 of GN R.982 of 2014 EIA Regulations, a register of I&APs must be kept. The database is attached as Appendix E7.

### 10.1.3. Site Notice

Site notices were placed at conspicuous areas on different dates as depicted in the Table below:

Date	Area
25 October 2016	<ul style="list-style-type: none"><li>• Foskop substation</li></ul>
26 October 2016	<ul style="list-style-type: none"><li>• The Oaks</li><li>• Along R36 near Shikwari game reserve</li><li>• Along R36 near Ga Moraba</li><li>• Mshefane Park</li></ul>
27 October 2016	<ul style="list-style-type: none"><li>• Merensky substation</li><li>• R555 near Steelpoort diesel</li></ul>

Photographic evidence of the site notices is attached as Appendix E1.

### 10.1.4. Place of advertisement in the newspaper

Advertisements were published in English, Sepedi, Tsonga and Afrikaans in the following newspapers:

- The Star newspaper edition of the 24<sup>th</sup> October 2016 and
- Mopani and Letaba Herald newspapers editions of the 28<sup>th</sup> October 2016
- Beeld on 24 October 2016

The advertisement was aimed at further informing the I&APs of the proposed activity. A 30-day period was allowed for the public to submit their comments, issues and concerns. Proof of newspaper advertisement is attached as Appendix E2.

#### **10.1.5. Placement of Draft EA Amendment Report**

The Draft Environmental Amendment Report will be made available to the public for review for a period of 30 days. The copies of the draft EA Amendment report will be placed at various places that are accessible by the I&APs. Further, copies of the draft EA Amendment report will be submitted to various government departments for review and comments and this will include the DEA, Department of Water and Sanitation LEDET, SAHRA and more.

#### **10.1.6. Summary of Issues raised by Interested & Affected Parties**

Appendix E6 contains the comments, issues and concerns raised together with the responses provided by the EAP. Proof of correspondence with I&APs is included in Appendix E8.

Comments raised on the Draft EA amendment will be addressed and incorporated into the Final EA Amendment report for submission to the DEA.

### **10.2. ASSUMPTIONS, LIMITATIONS AND GAPS IN KNOWLEDGE**

It is our assumption that:

- The information provided by the Eskom and specialists is accurate, unbiased and valid at the time it was provided.
- The scope of this investigation is limited to assessing the environmental impacts associated with the proposed amendment, as outlined in this report.
- The baseline environment information and assessment methodology contained in the final EIR submitted to DEA in 2013 was used as a guideline.

## 11. CONCLUSION

The EAP does not foresee any circumstances associated with the proposed changes that have not been assessed or catered for. The assessment of potential negative impacts of not going ahead with the changes led the EAP to the conclusion that no further assessment is required and no fatal flaws to the issuing of the EA amendment are present. Further, the assessment of all impacts relating to the proposed change indicates that the impacts can be managed, resulting in low significance. The advantages of going ahead with the proposed changes outweigh the disadvantages associated with the proposed change. Measures to ensure avoidance, management and mitigation of impacts associated with such proposed change have been outlined in this report and should be implemented without fail. Therefore, the EAP recommends that the EA Amendment be approved.

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