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ESKOM 132KV POWER LINE BETWEEN MAPHUTA MTS (UCHOBA SUBSTATION) AND DER BROCHEN SUBSTATION

DFFE REF: 2022-03-0023

DATE APRIL 2022

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TABLE OF CONTENTS

TABLE OF CONTENTS	2
GLOSSARY OF TERMS	4
ACRONYMS	8
1 INTRODUCTION	9
2 APPROACH TO THE BASIC ASSESSMENT PROCESS	9
3 PROJECT LOCALITY	10
4 PROPERTY DESCRIPTION	11
5 PROJECT DESCRIPTION	11
6 COORDINATES OF DEVELOPMENT PROPOSAL	15
7 PHYSICAL SIZE OF THE ACTIVITY	18
8 ACCESS TO THE SITE	18
9 TOPOGRAPHY	19
10 GRADIENT OF THE SITE	19
11 LOCATION IN LANDSCAPE	19
12 GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE	20
13 GROUNDCOVER	20
15 SOCIO-ECONOMIC ASPECTS	21
16 NEED FOR THE PROJECT	21
17 LEGAL REQUIREMENTS	22
1 APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES	22
2 NATIONAL ENVIRONMENTAL MANAGEMENT ACT	24
18 FEASIBLE AND REASONABLE ALTERNATIVES	27
1 POWER LINE ROUTE ALTERNATIVES	27
2 NO-GO ALTERNATIVE	30
19 SPECIALIST INPUT	31
1 BIODIVERSITY ASSESSMENT	31
2 AVIFAUNAL ASSESSMENT	36
3 HERITAGE IMPACT ASSESSMENT	41
4 PALEONTOLOGICAL SENSITIVITY	43
20 SPATIAL DEVELOPMENT TOOLS	44
1 NATIONAL PRIORITY AREAS	44
2 LIMPOPO CONSERVATION PLAN	45
3 NATIONAL ENVIRONMENTAL SCREENING TOOL	46
21 PUBLIC PARTICIPATION	47
1 ADVERTISEMENT AND NOTICE	47
2 PUBLIC NOTIFICATION	47
3 MEETINGS AND SITE VISITS	48
4 DISTRIBUTION OF DRAFT BASIC ASSESSMENT REPORT FOR COMMENT	49
5 COMMENTS AND RESPONSE REPORT	49
6 SUMMARY OF ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES	49
7 CONCLUSION OF PUBLIC PARTICIPATION PROGRAMME	50
22 IMPACT ASSESSMENT	50
1 PLANNING AND DESIGN PHASE	52
2 CONSTRUCTION PHASE	54
3 OPERATIONAL PHASE	66
4 IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING AND CLOSURE PHASE	68
5 ENVIRONMENTAL IMPACT STATEMENT	68
6 IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE	69
23 RECOMMENDATION OF PRACTITIONER	70
24 ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)	70

25 THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

70

26 CONCLUSION

71

APPENDIX A	MAPS <ol style="list-style-type: none">1. <i>Site Location new application 2022 vs Authorised 2018</i>2. <i>Site Location Uchoba - Der Brochen line and subs Authorised 2018 - topographical map</i>3. <i>Site Location Alternatives 2022 – google earth</i>4. <i>Sensitivity map - topographical</i>5. <i>Sensitivity map – google earth</i>6. <i>Critical Biodiversity Areas</i>7. <i>Priority Areas</i>8. <i>Site Location with sensitivities kml</i>
APPENDIX B	PHOTOGRAPHS
APPENDIX C	FACILITY ILLUSTRATIONS <ol style="list-style-type: none">1. <i>Images of distribution 132kV power line structures</i>
APPENDIX D	SPECIALIST REPORTS <ol style="list-style-type: none">1. <i>Biodiversity Assessment</i>2. <i>Avifaunal Impact Assessment</i>3. <i>Heritage Impact Assessment</i>
APPENDIX E	PUBLIC PARTICIPATION <ol style="list-style-type: none">1. <i>Proof of placement of advertisements</i><ol style="list-style-type: none">a) <i>Proof of newspaper notice</i>b) <i>Proof of site notices</i>2. <i>Proof of written notification</i><ol style="list-style-type: none">a) <i>Background Information Document (BID) and Registration sheet</i>b) <i>Submission of notification letters</i>c) <i>Submission of draft Basic Assessment Report- to follow in FBAR</i>d) <i>Submission of reminders to comment – to follow in FBAR</i>3. <i>Comment received</i><ol style="list-style-type: none">a) <i>Written comment received in the notification phase</i>b) <i>Written comments received on the DBAR – to follow in FBAR</i>4. <i>Registers</i><ol style="list-style-type: none">a) <i>Register of I&APs</i>5. <i>Correspondence and minutes of meetings</i><ol style="list-style-type: none">a) <i>Public information meetings/virtual meetings – to follow in FBAR</i>6. <i>Comments and Response Report</i>
APPENDIX F	ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) <ol style="list-style-type: none">1. <i>Generic Environmental Management Programme (EMPr) for the development and expansion of infrastructure for the overhead transmission and distribution of electricity</i>
APPENDIX G	DETAILS OF EAP AND EXPERTISE
APPENDIX H	SPECIALIST'S DECLARATION OF INTEREST
APPENDIX I	OTHER INFORMATION <ol style="list-style-type: none">1. <i>Environmental Authorisation, DEA Ref 14/12/16/3/3/1/1913 Oct 2018</i>2. <i>Amendment to EA, DEA Ref 14/12/16/3/3/1/1913/AM Feb 2019</i>

GLOSSARY OF TERMS

Activity (Development) – an action either planned or existing that may result in environmental impacts through pollution or resource use.

Alien vegetation - Alien vegetation is defined as undesirable plant growth (usually of foreign origin) which includes, but is not limited to all declared category 1 and 2 listed invader species as set out in the 1983 Conservation of Agricultural Resources Act (CARA) regulations. Other vegetation deemed to be alien are those plant species that show the potential to occupy in number any area within the defined construction area and which are declared undesirable.

Alternative – a possible course of action, in place of another, of achieving the same desired goal of the proposed project. Alternatives can refer to any of the following but are not limited to: site alternatives, site layout alternatives, design or technology alternatives, process alternatives or a no-go alternative. All reasonable alternatives must be rigorously explored and objectively evaluated.

Applicant – the project proponent or developer responsible for submitting an environmental application to the relevant environmental authority for environmental authorisation.

Biodiversity – the diversity of animals, plants and other organisms found within and between ecosystems, habitats, and the ecological complexes.

Construction – means the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint.

Cumulative Impacts – impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities to produce a greater impact or different impacts.

Direct impacts – impacts that are caused directly by the activity and generally occur at the same time and at the same place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally quantifiable.

Ecosystem – a dynamic system of plant, animal (including humans) and micro-organism communities and their non-living physical environment interacting as a functional unit. The basic structural unit of the biosphere, ecosystems are characterised by interdependent interaction between the component species and their physical surroundings. Each ecosystem occupies a space in which macro-scale conditions and interactions are relatively homogenous.

Emmissions - The release or discharge of a substance into the environment which generally refers to the release of gases or particulates into the air.

Environment – In terms of the National Environmental Management Act (NEMA) (Act No 107 of 1998) (as amended), “Environment” means the surroundings within which humans exist and that are made up of:

- a) the land, water and atmosphere of the earth;
- b) micro-organisms, plants and animal life;
- c) any part or combination of (i) of (ii) and the interrelationships among and between them; and
- d) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.

Environmental Assessment (EA) – the generic term for all forms of environmental assessment for projects, plans, programmes or policies and includes methodologies or tools such as environmental impact assessments, strategic environmental assessments and risk assessments.

Environmental Authorisation – an authorisation issued by the competent authority in respect of a listed activity, or an activity which takes place within a sensitive environment.

Environmental Assessment Practitioner – the individual responsible for planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management programmes or any other appropriate environmental instrument introduced through the EIA Regulations.

Environmental Impact – a change to the environment (biophysical, social and/ or economic), whether adverse or beneficial, wholly or partially, resulting from an organisation’s activities, products or services.

Environmental Impact Assessment (EIA) – the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made.

Environmental Issue – a concern raised by a stakeholder, interested or affected parties about an existing or perceived environmental impact of an activity.

Environmental Management - ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.

Environmental Management Programme - A detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive impacts and limiting or preventing negative environmental impacts are implemented during the life cycle of a project. The EMP focuses on the construction phase, operation (maintenance) phase and decommissioning phase of the proposed project.

Expansion - means the modification, extension, alteration or upgrading of a facility, structure or infrastructure at which an activity takes place in such a manner that the capacity of the facility or the footprint of the activity is increased.

Fatal Flaw – issue or conflict (real or perceived) that could result in developments being rejected or stopped.

General Waste – household water, construction rubble, garden waste and certain dry industrial and commercial waste which does not pose an immediate threat to man or the environment.

Hazardous Waste – waste that may cause ill health or increase mortality in humans, flora and fauna.

Incident - An undesired event which may result in a significant environmental Impact but can be managed through internal response.

Indirect impacts – indirect or induced changes that may occur as a result of the activity. These types of impacts include all of the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity.

Integrated Environmental Management – a philosophy that prescribes a code of practice for ensuring that environmental considerations are fully integrated into all stages of the development and decision-making process. The IEM philosophy (and principles) is interpreted as applying to the planning, assessment, implementation and management of any proposal (project, plan, programme or policy) or activity – at local, national and international level - that has a potentially significant effect on the environment. Implementation of this philosophy relies on the selection and application of appropriate tools for a particular proposal or activity. These may include environmental assessment tools (such as strategic environmental assessment and risk assessment), environmental management tools (such as monitoring, auditing and reporting) and decision-making tools (such as multi-criteria decision support systems or advisory councils).

Mitigate – the implementation of practical measures designed to avoid, reduce or remedy adverse impacts or enhance beneficial impacts of an action.

No-Go Option – in this instance the proposed activity would not take place, and the resulting environmental effects from taking no action are compared with the effects of permitting the proposed activity to go forward.

Open Space – environmentally sensitive areas which are not suitable for development and consist of watercourses, buffers, floodplains, steep slopes, sensitive biodiversity and/or areas of cultural or heritage significance.

Registered Interested and Affected Party – an interested and affected party whose name is recorded in the register opened for that application.

Rehabilitation – a measure aimed at reinstating an ecosystem to its original function and state (or as close as possible to its original function and state) following activities that have disrupted those functions.

Scoping – the process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addressed in an environmental assessment. The main purpose of scoping is to focus the environmental assessment on a manageable number of important questions. Scoping should also ensure that only significant issues and reasonable alternatives are examined.

Sensitive environment – any environment identified as being sensitive to the impacts of the development.

Significance – significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. magnitude, intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of significance and

acceptability). It is an anthropocentric concept, which makes use of value judgements and science-based criteria (i.e. biophysical, social and economic).

Stakeholder engagement – the process of engagement between stakeholders (the proponent, authorities and I&APs) during the planning, assessment, implementation and/or management of proposals or activities.

Sustainable Development – development which meets the needs of current generations without hindering future generations from meeting their own needs.

Watercourse – means:

- a) a river or spring;
- b) a natural channel or depression in which water flows regularly or intermittently;
- c) a wetland, lake or dam into which, or from which, water flows; and
- d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998) and a reference to a watercourse includes, where relevant, its bed and banks.

Wetland – means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

ACRONYMS

CBA	Critical Biodiversity Areas
CBD	Central Business District
CMA	Catchment Management Agencies
CSIR	Council for Scientific and Industrial Research
DFEE	Department of Forestry, Fisheries and Environment
DMRE	Department of Mineral Resources and Energy
DSOE	Desired State of the Environment
DWS	Department of Water and Sanitation
ECF	Environmental Constraints Framework
EAP	Environmental Assessment Practitioner
ECA	Environment Conservation Act, 1989 (Act No. 73 of 1989)
EIA	Environmental Impact Assessment
EIS	Ecological Importance & Sensitivity
EMC	Environmental Management Class
EMP	Environmental Management Plan
EWR	Ecological Water Requirements
GIS	Geographic Information System
HGM	Hydrogeomorphic
IBA	Important Bird Area(s)
IDP	Integrated Development Plan
I&AP	Interested and/or affected parties
MAP	Mean Annual Precipitation
MASL	Metres above sea level
NBA	National Biodiversity Assessment
NEMA	National Environmental Management Act
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resources Act
NPAES	National Protected Areas Expansion Strategy
NWA	National Water Act
PAES	Protected Areas Expansion Strategy
PES	Present Ecological State
PDA	Primary Drainage Area
PPP	Public participation process
QDA	Quaternary Drainage Area
REC	Recommended Ecological Category (or Class)
REMC	Recommended Ecological Management Category (or Class)
RVI	Riparian Vegetation Index
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SDF	Spatial Development Framework
SDI	Spatial Development Initiative
SEA	Strategic Environmental Assessment
SEMP	Strategic Environmental Management Plan
SWSA	Strategic Water areas of South Africa
WMA	Water Management Areas
WUL	Water Use Licence
WULA	Water Use Licence Application

1 INTRODUCTION

Eskom Holdings SOC Ltd (the applicant) appointed Setala Environmental (Pty) Ltd as the independent environmental assessment practitioner (EAP) to undertake the Environmental Impact Assessment (EIA) for a proposed electricity strengthening project.

An application for authorisation of the project is submitted to the National Department of Forestry, Fisheries and Environment (DFFE), in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and the Environmental Impact Assessment (EIA) Regulations of 2017.

The proposed project is a listed activity in terms of Sections 24(2) and 24(d) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) (as amended). The Environmental Impact Assessment (EIA) Regulations, 2017 promulgated in terms of Chapter 5 of the NEMA provide for the control of certain activities that are listed in Government Notice Regulation (GN R.) No. 327, 325 and 324. Activities listed in these notices must comply with the regulatory requirements listed in GN R. 326, which prohibits such activities until written Authorisation is obtained from the Competent Authority. Such Environmental Authorisation (EA), which may be granted subject to conditions, will only be considered once there has been compliance with the EIA Regulations of 2017. GN R. No. 326 sets out the procedure and documentation that need to be compiled with undertaking a Basic Assessment Process.

This project is initiated by Eskom to ensure continuous reliable supply for the Steelpoort Area. The proposed construction of a ± 12km 132kV Bersfort line between Maphuta MTS (Uchoba Substation) and Der Brochen Substation is required to strengthen the network. It is crucial to improve the reliability and quality of supply of the network.

This Basic Assessment will provide information about the proposed Eskom 132kV overhead power line. The scope is restricted to this component of the project.

2 APPROACH TO THE BASIC ASSESSMENT PROCESS

The approach followed by the consultants is based on the specifications for the Basic Assessment Report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

The Department of Forestry, Fisheries and the Environment (DFFE) is the lead authority for this Environmental Impact Assessment (EIA) process and the development needs to be authorised by this Department in accordance with the National Environmental Management Act 107 of 1998 (NEMA) (as amended).

To ensure that all requirements and processes in terms of the Acts are followed, the following tasks need to be conducted. The following has to be submitted to the DFFE:

- Application form for Authorisation
- Draft Basic Assessment Report
- Environmental Management Programme (EMPr)
- Final Basic Assessment Report

The environmental authority will review the Application and final Basic Assessment Report and the following decisions may be made:

- Grant authorisation of the activity



Figure 2: Site location (Google Earth)

4 PROPERTY DESCRIPTION

The proposed project is located on the Farms as per below in the Fetakgomo Tubatse Local Municipality, Sekhukhune District Municipality, Limpopo Province.

Item	Farm Name	No	Reg. Dev.	Ptn
1	Dwarsrivier	372	KT	0
2	Dwarsrivier	372	KT	6
3	Dwarsrivier	372	KT	7
4	Dwarsrivier	372	KT	1
5	Dwarsrivier	372	KT	7
6	Thornccliffe	374	KT	3
7	Thornccliffe	374	KT	7
8	Thornccliffe	374	KT	0

5 PROJECT DESCRIPTION

Eskom Holdings SOC Ltd is mandated by the South African Government to ensure the provision of reliable and affordable power to South Africa. Eskom's core business is in the generation, transmission (transport), trading and retail of electricity. The reliable provision of electricity by Eskom is critical for industrial development and related employment and sustainable development in South Africa. As electricity cannot practically be stored on a significant scale, power is generated and delivered over long distances at the instant that it is required. In South Africa, thousands of kilometers of high voltage Transmission lines (i.e. 765kV, 400kV and 275kV Transmission lines) transmit this power to Eskom's major substations. At these

major substations, the voltage is down-rated and distributed to smaller substations all over the country via Distribution lines (e.g. 132kV, 88kV and 66kV power lines). Here the voltage is down-rated further for distribution to industry, business, farms and homes. In order to maintain a reliable power supply within the entire network, the voltages at all substations are required to be within certain desired limits. If the network is operated at voltages which are below these limits, voltage collapse problems and power outages may be experienced.

The activity will ensure that the electrical needs of the province, as stated in the Provincial Spatial Development Framework (PSDF), are satisfied. This project is initiated by Eskom to ensure continuous reliable supply for the Steelpoort Area. The proposed construction of a ± 12km 132kV Bersfort line between Maphuta MTS (Uchoba Substation) and Der Brochen Substation is required to strengthen the network. It is crucial to improve the reliability and quality of supply of the network.

The Application for Authorisation is for the construction of the following:

- Construct a ± 12km overhead 132kV line between Maphuta MTS (Uchoba Substation) and Der Brochen Substation.
- Construct Power line structures/ stayed monopole steel poles within 32 meters of a waterbody along the 132kV feeder line.
- Construct a temporary laydown area of approximately 60 metres by 60 metres.
- Clear more than 300 square metres of indigenous vegetation to construct the temporary laydown area of 60m X 60m in a Critical Biodiversity Area.

To date, viable route alignments have been identified and investigated. The preferred (Route 1) and alternative option (Route 2) were determined through the environmental and specialist studies, as well as by the limitations posed by existing activities in the project area.

Note that the DEA (National Department of Environmental Affairs) issued Environmental Authorisation, DEA Reference 14/12/16/3/3/1/1913, for an Eskom strengthening project on 25 October 2018. (EA hereto attached App I1). The scope covered several power lines and substations, inclusive of the the 132kV line between Maphuta MTS (Uchoba Substation) and Der Brochen Substation, as well as Uchoba and Der Brochen Substations. (indicated on the map below).

Subsequently, an amendment to the project was authorised on 11 February 2019. DEA Ref 14/12/16/3/3/1/1913/AM1. The amendment addressed only the project title and one condition. (Amendment hereto attached App I2).

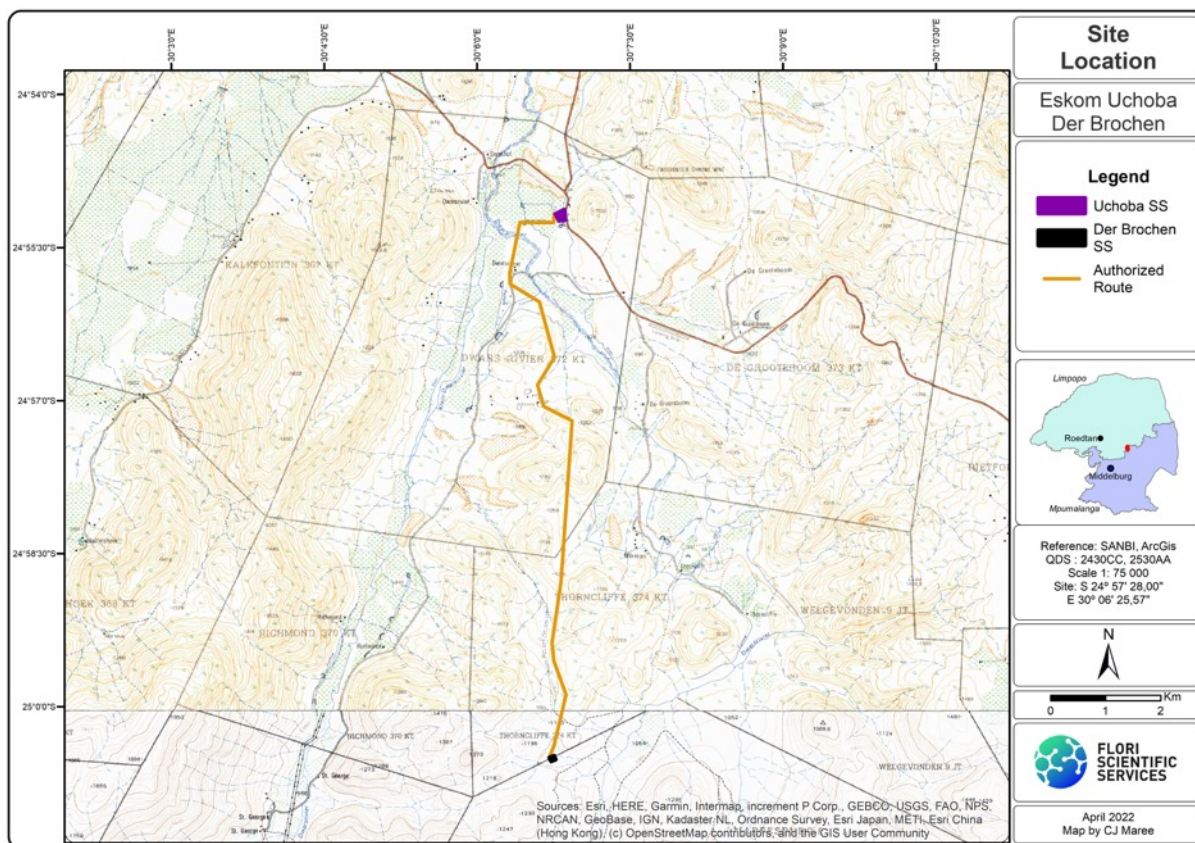


Figure 3: Site Location of Authorised Uchoba Substation, Der Brochen Substation and power line - 2018

Eskom now requires a section of the authorised project to be deviated. The section to be deviated is only the ± 15km line between Maphuta MTS (Uchoba Substation) and Der Brochen Substation (indicated in orange on the map above).

The following is relevant:

- The mine and property owner are extending the opencast mining activities in the area of the authorised power line.
- As a result of this action, the authorised line route (in orange) is not feasible/suitable any more for the construction of a permanent power line.
- The outcome is that a deviation to the authorised power line is now required.
- The deviation is a new development and will require environmental authorisation as listed activities are triggered.
- The deviation was not assessed as part of the initial application in 2018. Therefore, a new BA process is followed. (this current application). The current application indicated in red and green in Figure below.
- In the pre-application meeting with DFFE it was advised, for the sake of completeness and to assess all the possible impacts, to assess the route commencing at Maphuta MTS (Uchoba Substation) up to Der Brochen Substation as end point.

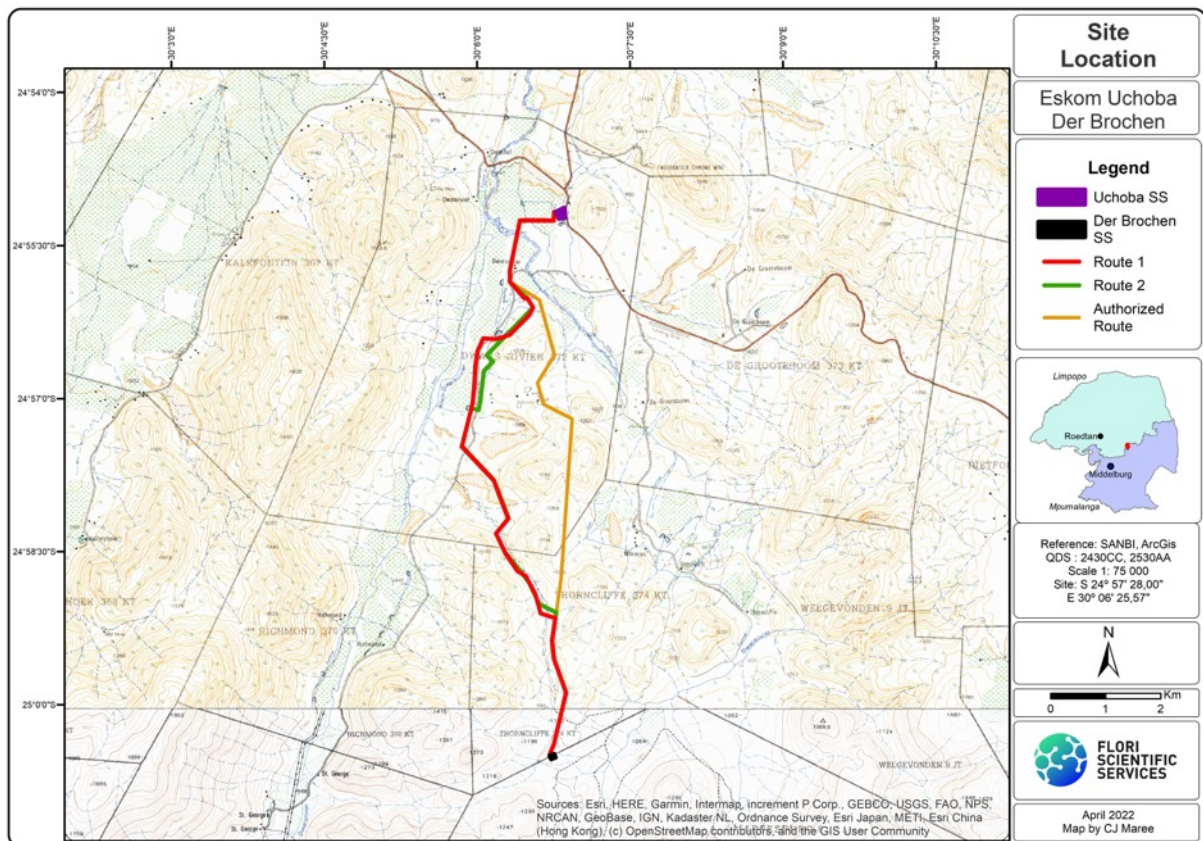


Figure 4: Site Location of the current application vs the authorised route of 2018

Laydown area

Part of the scope of work is to identify and construct / establish a temporary laydown area required for the construction phase of the power line.

The laydown area will need to include the following:

- A yard / area where materials such as poles and wires are temporary stored;
- A small mobile site office;
- Toilets;
- Area to park work vehicle;
- Parking area for visitors;
- Containers or other temporary structures for the secure storage of tools, materials such as nuts and bolts, paints, etc.;
- A small security guard hut at the entrance; and
- An access road (permanent or temporary, depending on site location etc.)

The temporary laydown area does not need to be very large. A suitable area near the Der Brochen Substation was proposed because it is already fenced (secured), easily accessible by cars and trucks, and is a completely transformed site (Figure 5). The size of the temporary laydown area is 0,41ha. There is an existing access road on the left (west) side of the laydown area, so no new access roads will need to be built. The entire area is transformed and consists of hard surface and gravel stones. There will be no need to remove any natural vegetation.



Figure 5: Temporary Laydown Area

During the construction phase of the power line and use of the laydown area the access road needs to be maintained. The yard area also needs to be maintained and kept clean. A basic weed control plan needs to be implemented during the construction phase to keep the site free of weeds and the grass, even any emerges short and maintained. On completion of the construction phase the laydown area must be rehabilitated and cleaned up. All material and equipment brought on to the site must be removed. The surface area recontoured if need be. The access road also needs to be repaired where it has been damaged during its use by large vehicles, etc.

6 COORDINATES OF DEVELOPMENT PROPOSAL

1 Uchoba – Der Brochen 132kV power line routes

The GPS coordinates of the Uchoba – Der Brochen 132kV power line routes are as follows:

Preferred Route 1

- Length: 11,9 km.
- Starting Point at Uchoba substation: 24°55'12.06"S; 30° 6'49.27"E.
- Middle Point: 24°57'36.68"S; 30° 5'59.03"E
- End Point at Der Brochen Substation site: 25° 0'30.55"S; 30° 6'44.45"E

Alternative Route 2

- Length: 11,9 km.

Eskom 132kV power line between Maphuta MTS (Uchoba substation) and Der Brochen substation

- Starting Point at Uchoba substation: 24°55'12.06"S; 30° 6'49.27"E.
- Middle Point: 24°57'38.12"S; 30° 6'0.36"E
- End Point at Der Brochen Substation site: 25° 0'30.55"S; 30° 6'44.45"E

Uchoba – Der Brochen 132kV power line

Co-ordinates every 250m

Table 1: GPS Co-ordinates along Uchoba – Der Brochen 132kV power lines - every 250m

PREFERRED ROUTE 1 (Metres)	Longitude (E) (Decimal Degrees)	Latitude (S) (Decimal Degrees)
Der Brochen Substation	30,112347	-25,008486
250	30,10578376	-24,93142154
500	30,10743822	-24,93329577
750	30,11258096	-25,00634127
1000	30,11315742	-25,00390864
1250	30,11373388	-25,00147601
1500	30,11431034	-24,99904338
1750	30,11404011	-24,99665832
2000	30,11319478	-24,99430557
2250	30,1124939	-24,99191976
2500	30,11226849	-24,98943437
2750	30,11263987	-24,98696211
3000	30,11146206	-24,98544715
3250	30,11002742	-24,98377135
3500	30,10923942	-24,98141027
3750	30,10805931	-24,97920634
4000	30,10621046	-24,97762118
4250	30,10479492	-24,97556054
4500	30,1037001	-24,97331623
4750	30,10381066	-24,97119848
5000	30,10491719	-24,9691861
5250	30,10403336	-24,96684754
5500	30,10314953	-24,96450899
5750	30,10183546	-24,96244028
6000	30,10011494	-24,96062649
6250	30,09839442	-24,95881271
6500	30,09779577	-24,9567047
6750	30,09840472	-24,95428
7000	30,09901366	-24,95185529
7250	30,09942117	-24,9493952
7500	30,09959895	-24,94690205
7750	30,09977697	-24,94440965
8000	30,10020552	-24,94195572
8250	30,10155313	-24,94020571
8500	30,10401455	-24,94001775
8750	30,1061113	-24,93881071
9000	30,1078705	-24,93703442
9250	30,10905798	-24,93498183
9500	30,10545117	-24,92867728
9750	30,1059434	-24,92622622

Eskom 132kV power line between Maphuta MTS (Uchoba substation) and Der Brochen substation

10000	30,10643562	-24,92377515
10250	30,10692785	-24,92132409
10500	30,10908686	-24,92092025
10750	30,11158682	-24,92093518
11000	30,113686	-24,920017
Uchoba Substation	30,113686	-24,920017
ALTERNATIVE ROUTE 2	Longitude (E)	Latitude (S)
(Metres)	(Decimal Degrees)	(Decimal Degrees)
Der Brochen Substation	30,112347	-25,008486
250	30,11269174	-25,00590712
500	30,11327558	-25,00347625
750	30,11385942	-25,00104538
1000	30,11444325	-24,9986145
1250	30,11392781	-24,99624499
1500	30,11307709	-24,99389418
1750	30,11246851	-24,9914874
2000	30,11234218	-24,98900435
2250	30,11270118	-24,98653026
2500	30,11210773	-24,98454859
2750	30,11001106	-24,9832858
3000	30,10894906	-24,98102258
3250	30,10761791	-24,97892583
3500	30,10606735	-24,97696477
3750	30,10453505	-24,97499222
4000	30,10343953	-24,97274504
4250	30,10420065	-24,97072047
4500	30,10481443	-24,96863571
4750	30,10391342	-24,96630372
5000	30,10301241	-24,96397173
5250	30,10152515	-24,9620108
5500	30,09980305	-24,96019852
5750	30,09808094	-24,95838625
6000	30,0979173	-24,95616943
6250	30,09854054	-24,95374836
6500	30,09937459	-24,95167156
6750	30,10055286	-24,95031161
7000	30,10084251	-24,94782845
7250	30,10122031	-24,9453877
7500	30,102278	-24,94362219
7750	30,10261417	-24,9418601
8000	30,10436395	-24,94007452
8250	30,10611372	-24,93828894
8500	30,1078635	-24,93650337
8750	30,1088443	-24,93462915
9000	30,10726176	-24,9327243
9250	30,10543211	-24,93102066
9500	30,10546235	-24,9285594
9750	30,10596237	-24,92610992
10000	30,1064624	-24,92366043
10250	30,10696243	-24,92121095
10500	30,10920191	-24,92090687

10750	30,11170185	-24,92092403
Uchoba Substation	30,113686	-24,920017

2 Temporary Laydown area

Table 2: GPS Co-ordinates

LAYDOWN AREA AT DER BROCHEN SUB	
Approximate Centre of Site	25° 0'31.45"S; 30° 6'42.15"E

7 PHYSICAL SIZE OF THE ACTIVITY

The physical size of the preferred and alternative activity/ (footprint):

1 Uchoba – Der Brochen 132kV power line routes

Table 3: The Uchoba – Der Brochen 132kV power lines

Alternative:	Length of the activity:
Route 1 (Preferred)	11,9 km / 11 900 m
Route 2	11,9 km / 11 900 m

The size of the servitudes (within which the above footprints will occur):

1 Uchoba – Der Brochen 132kV power line routes

Table 4: The Uchoba – Der Brochen 132kV power lines

Alternative:	Size of the site/servitude:
Route 1 (Preferred)	31m servitude x 11 900 m = 368 900m ² / 36,98 ha
Route 2	31m servitude x 11 900 m = 368 900m ² / 36,98 ha

2 Temporary Laydown area

Table 5: The Uchoba – Der Brochen Laydown area

Alternative:	Footprint of the activity:
Laydown area	56m x 74m (0,41ha in area)

The EIA will seek to authorise a corridor for the power line, and not just for the actual width of the power line servitude. The wider corridor of 100m that was investigated will allow for potential amendments to the Environmental Authorisation (should it be required at a later stage).

8 ACCESS TO THE SITE

No new access to the site is planned. During construction all vehicle movement must be along existing roads. The servitude area of the new power lines will also be used to gain access during construction. A temporary construction road will be selectively cleared in the new servitude area underneath the future power lines to enable the construction activities. An area of 8m will be cleared of major trees and bushes, 4m on either side of the proposed alignment of the line. As mentioned the existing servitudes and existing

roads should be used during construction. Therefore road alternatives are not being investigated for this project.

9 TOPOGRAPHY

The topography of the study area is mountainous and hilly terrain, with narrow and broad valley and ravines. Large flat open plains are rare with some flat areas present on hilltops, ridge tops or plateaus. The average height above sea level (elevation) across the study site is approximately 982m, while the maximum and minimum elevations are about 1 125m and 910m, respectively. The gradient of the study site varies considerably across the length of the study site with the average slope between 4% and 3%. The lowest point along the power line servitude is in the area where the line crosses the Groot-Dwars River, while the highest point is just north of the Der Brochen Substation in the south of the study site. The general downward slope across the study site is from Der Brochen Substation in the south to Uchoba Substation (Maphuta MTS) in the north (Figure 4 below).

10 GRADIENT OF THE SITE

Table 6: Gradient

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Note: The average slope / gradient across the entire project is: **1:50 to 1:25**.

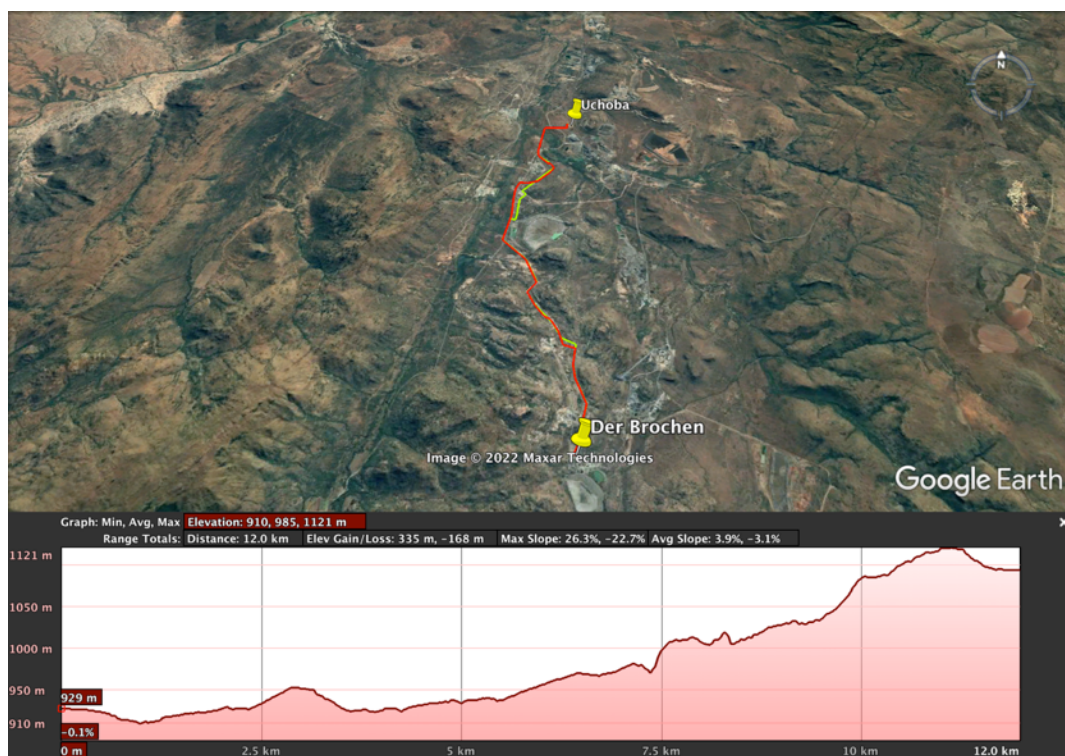


Figure 6: Topography from Uchoba (left) to Der Brochen (right)

11 LOCATION IN LANDSCAPE

The landform(s) that best describes the site.

Table 7: Landform

Ridgeline	Plateau	Side slope of hill/ridge	Valley	Plain	Undulating plain/low hills	River front
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12 GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site located on any of the following?

Table 8: Site stability

Shallow water table (less than 1.5m deep)	YES	NO X
Dolomite, sinkhole or doline (sinkhole) areas	YES	NO X
Seasonally wet soils (often close to water bodies)	YES	NO X
Unstable rocky slopes or steep slopes with loose soil	YES	NO X
Dispersive soils (soils that dissolve in water)	YES	NO X
Soils with high clay content (clay fraction more than 40%)	YES	NO X
Any other unstable soil or geological feature	YES	NO X
An area sensitive to erosion	YES X	NO

Some areas have loose gravel and shallow soils underlain by sheet rock, where denuded of vegetation these areas have a medium to high erosion potential.

13 GROUNDCOVER

The types of groundcover present on the site and the estimated percentage found on site

Table 9: Groundcover

Natural veld - good condition % = 0	Natural veld with scattered aliens % = 95	Natural veld with heavy alien infestation % = 0	Veld dominated by alien species % = 0	Landscaped (vegetation) % = 0
Sport field % = 0	Cultivated land % = 0	Paved surface (Hard landscaping) % = 0	Building or other structure % = 5	Bare soil % = 0

Note: The Groundcover categories do not give enough options. 95% of the study site is within highly degraded and transformed veld from mining operations, with low levels of scattered alien species. There are also areas of open vacant areas that were previously mined (open cast) and are presently transformed and not 'natural veld'.

14 LAND USE CHARACTER OF SURROUNDING AREA

The landcover or landuse of the region is a mix of high-density urban areas; cultivated farmlands; and open to semi-open bushveld and mountainous areas. The dominant landuse of the study area and surrounding areas are high-density, urban townships, along with associated infrastructure such as roads, graveyards, etc. Other significant landcover and landuses within the study area include citrus farmlands, and open, bushveld covered granite koppies and rocky hills.

Table 10: Current land use

1. Vacant land	2. River, stream, wetland	3. Nature conservation area	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	9. Medium to high density residential	10. Informal residential

Eskom 132kV power line between Maphuta MTS (Uchoba substation) and Der Brochen substation

11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial ^{AN}	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport ^N	23. Train station or shunting yard ^N	24. Railway line ^N	25. Major road (4 lanes or more) ^N
26. Sewage treatment plant ^A	27. Landfill or waste treatment site ^A	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33. Spoil heap or slimes dam ^A	34. Small Holdings	
Other land uses (describe):				

The block below represents the position of the current land uses, using the associated number from the table above. The position of the land-uses represent a 500m radius around the site. Each block represents an area of 250m X 250m.

NORTH						
WEST	1,5	2,31,32	31,32	31,32	31,32	EAST
	1,31,32	2,31,32	2,31,32	5,31,32	31,32	
	1,31,32	2,5,31	31,32	5,31,32,33	31,32	
	1,31,32	5,31	31,32	5,31,32	31,32	
	1	5,31,32	33	5,31,32	31,32	
SOUTH						

Note: Much of the mining in the area is opencast on koppies / hills, but there is also a number of underground mines in the area, the full and precise extent of which is not known.

15 SOCIO-ECONOMIC ASPECTS

According to StatsSA the population of the Greater Tubatse Municipality is 335 676. The population in the municipality is constituted by 97,8% black African, 1,6% white people, with other population groups making up the remaining 0,7. The sex ratio in the municipality is 88, meaning that for every 100 women there are 88 men. Languages spoken in the municipality include Sepedi (78,6%), Tsonga (6,9%), isiNdebele (3,8%), isiZulu (2,1%) and other languages make up 8,6%. Of those aged 20 years and older, 22,6% have completed matric and 6,6% have some form of higher education. The municipality has a weak economic base and high poverty levels. The Burgersfort town in the municipality has been identified as a growth point in the province because of its mining activities. A potential to grow the economic base in the municipality, through tourism, has been brought by the availability of natural resources. Poverty alleviation projects implemented by the municipality have improved the socio-economic conditions.

16 NEED FOR THE PROJECT

In 2012, the Government adopted the National Infrastructure Plan, wherein it highlighted that South Africa would be embarking on a process to accelerate infrastructure development, in order to deal with

service delivery backlogs and to build a platform for future economic growth and employment. This infrastructure growth would be spearheaded by Strategic Infrastructure Projects (SIPs), which are large-scale infrastructure projects that were also projected to have numerous environmental impacts, which in turn could trigger many EIAs. SIP 10 states that: Electricity Transmission and Distribution for all, has been identified as a major infrastructure development need by the Presidential Infrastructure Coordinating Committee (PICC). This project is therefore in line with the above-mentioned SIP.

The proposed activity will provide support to electrical infrastructure that will contribute to sustainable economic growth, provide for sustainable human settlements.

Eskom Holdings SOC Ltd is mandated by the South African Government to ensure the provision of reliable and affordable power to South Africa. Eskom's core business is in the generation, transmission (transport), trading and retail of electricity. The reliable provision of electricity by Eskom is critical for industrial development and related employment and sustainable development in South Africa. As electricity cannot practically be stored on a significant scale, power is generated and delivered over long distances at the instant that it is required. In South Africa, thousands of kilometres of high voltage Transmission lines (i.e. 765kV, 400kV and 275kV Transmission lines) transmit this power to Eskom's major substations. At these major substations, the voltage is down-rated and distributed to smaller substations all over the country via Distribution lines (e.g. 132kV, 88kV and 66kV power lines). Here the voltage is down-rated further for distribution to industry, business, farms and homes. In order to maintain a reliable power supply within the entire network, the voltages at all substations are required to be within certain desired limits. If the network is operated at voltages which are below these limits, voltage collapse problems and power outages may be experienced.

The activity will ensure that the electrical needs of the province, as stated in the Provincial Spatial Development Framework (PSDF), are satisfied. This project is initiated by Eskom to ensure continuous reliable supply for the Steelpoort Area.

17 LEGAL REQUIREMENTS

1 APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

The National Environmental Management Act (Act No. 107 of 1998) and the Environmental Impact Assessment (EIA) Regulations, of 2017

An application for authorisation of the project is submitted to the National Department of Forestry, Fisheries and Environment (DFFE), in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and the Environmental Impact Assessment (EIA) Regulations of 2017.

The proposed project is a listed activity in terms of Sections 24(2) and 24(d) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) (as amended). The Environmental Impact Assessment (EIA) Regulations, 2017 promulgated in terms of Chapter 5 of the NEMA provide for the control of certain activities that are listed in Government Notice Regulation (GN R.) No. 327, 325 and 324. Activities listed in these notices must comply with the regulatory requirements listed in GN R. 326, which prohibits such activities until written Authorisation is obtained from the Competent Authority. Such Environmental Authorisation (EA), which may be granted subject to conditions, will only be considered once there has been compliance with the EIA Regulations of 2017. GN R. No. 326 sets out the procedure and documentation that need to be compiled with undertaking a Basic Assessment Process.

National Water Act (Act No. 36 of 1998)

No application required to be submitted to the Department of Water and Sanitation (DWS), for a water use authorisation in terms of the General Notice 509, Government Gazette 40229, dated 26 August 2016, "General Authorisation in terms of Section 39 of the National Water Act, 1998 (Act No. 36 of 1998) (NWA)".

National Heritage Resources Act (Act No. 25 of 1999)

In addition to the above, A Phase I Heritage Impact Assessment (HIA) study is generally required in terms of Section 38 of the National Heritage Resources Act (No 25 of 1999) to establish whether any of the types and ranges of heritage resources ('national estate') as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) do occur on the property and, if so to determine the significance of these heritage resources, and to make recommendations regarding the mitigation and management of significant heritage resources that may be affected.

National Forests Act (Act No. 84 of 1998)

The project might involve the cutting, disturbing, damaging or destroying of protected trees declared in terms of section 12 of the National Forest Act (NFA) (Act 84 of 1998), as amended. A licence in terms of section 15 of the NFA will be required should any protected tree be impacted.

National Veld and Forest Fire Act (Act No. 101 of 1998)

The applicant should provide fire breaks in accordance with Chapter 4 of the National Veld and Forest Fire Act (Act 101 of 1998) and should consider amongst other the following:

- Fire rating
- Consultation of adjoining owners and the fire protection association (if any)
- be present at such burning or have an agent attend.

The fire break should be:

- wide and long enough to prevent to have a reasonable chance of preventing a veldfire from spreading to or from neighbouring land;
- it does not cause soil erosion; and is reasonably free of inflammable material capable of carrying a veldfire across it.

Permitting and License Requirements

The following permitting and or license requirements are applicable to the proposed project:

Protected Tree Removal – Section 15 of National Forests Act (Act No. 84 of 1998)

A few scattered specimens of the following protected trees were observed in the general area, namely: *Boscia albitrunca* (Shepherd's tree), *Sclerocarya birrea* (Marula), and *Spirostachys africana* (Tamboti). Tamboti is a provincially protected tree, while the others are nationally protected.

It does not appear that any of these trees will be impacted, but a final walk-down is recommended once final placing of markers for pylons / poles has been done to verify if any protected trees are impacted. If so to either shift the pole position or as a last resort apply for a plant permit in terms of section 15 of the NFA.

2 NATIONAL ENVIRONMENTAL MANAGEMENT ACT

In the South African legislative framework, the National Environmental Management Act No. 107 of 1998, as amended (NEMA) regulates development activities, which may pose a risk to the integrity of the ecological and human environment. Coupled with NEMA, listed activities are provided, which describe the types, limits, expanse and nature of developments that require a Basic Environmental Assessment Process, in application for Environmental Authorisation prior to commencement.

The following construction activities will require Environmental Authorisation:

2.1 The listed activities for the proposed project are the following

Table 11: Listed Activities

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
Activity 11	The development of facilities or infrastructure for the transmission and distribution of electricity— (i) <u>outside urban areas</u> or industrial complexes with a <u>capacity of more than 33</u> but less than 275 kilovolts; or (ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more; excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is — (a) temporarily required to allow for maintenance of existing infrastructure; (b) 2 kilometres or shorter in length; (c) within an existing transmission line servitude; and (d) will be removed within 18 months of the commencement of development.	The 132kV overhead distribution Uchoba – Der Brochen power line will be constructed over approximately 12 km, outside an urban area, from the Uchoba substation to the Der Brochen Substation
Activity 19	The <u>infilling or depositing</u> of any material of more than 10 cubic metres into, or the <u>dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse</u> ; but excluding where such infilling, depositing, dredging, excavation, removal or moving— (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.	The construction of power line structures/ pylons within 32 meters of various waterbodies along the 132kV feeder line.
Activity No(s):	Provide the relevant Scoping and EIA Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
	N/A	
Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
Activity 4	The development of a road wider than 4 metres with a reserve less than 13,5 metres. Limpopo	<u>In Limpopo:</u> Access roads wider than 4 metres might be required to construct the power line. 4m on either side of the

	<p>i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding disturbed areas; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an international convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; or (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 areas of a biosphere reserve, excluding disturbed areas</p>	<p>line might be cleared of vegetation that interferes with the construction of the line. The site is in a Critical biodiversity area.</p>
Activity 12	<p>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan</p> <p><u>Limpopo</u></p> <p>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; ii. Within critical biodiversity areas identified in bioregional plans; or iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.</p>	<p><u>In Limpopo:</u> More than 300 square metres of indigenous vegetation might be cleared in the servitude area to construct the line and the temporary laydown area of 60m X 60m. The project is in a Critical biodiversity area.</p>

2.2 The Description of Listed activities associated with the Project activities

1 Listing Notice 1 Activity 11: Construct a 132kV overhead power line outside an urban area

132kV Design specifications

It is proposed to construct the 132kV overhead distribution Uchoba – Der Brochen power line over approximately 12 km, outside an urban area, from the existing Uchoba substation to the existing Der Brochen Substation.

The proposed structure for the 132kV overhead power lines, is a monopole steel structure. In general, these structures could be placed 220-350 metres apart, over the length of a power line. The structures for a power line are between 14 and 30 metres high, depending on the terrain and existing land use. The flatter the terrain, the shorter the structures as well as the distance between the structures needs to be. The conductor attachment height on a pole is typically about 13m (for 20m intermediate poles) and more for longer poles, depending on the pole length. Ground clearances will adhere to the requirements of the Occupational Health and Safety Act (Act No. 58 of 1993) of 6.3m and 7.5m.

Strain poles have an average planting depth of 2m while intermediate pole planting depths vary between 2.6m (for 20m poles) and 3m (for 24m poles) or more depending on the pole length. The pole foundation is dependant on the soil type and varies in size and consists of a 8:1 good soil:cement mix that are compacted in 200mm layers. A concrete cap of 1.2m x 1.2m is cast around the pole to "seal" the soil

around the pole from oxygen - to control oxidation or rust on the pole and to prevent erosion damage to the foundations.

Should the structures be 21m high above ground then the planting depth of the structure could be calculated as follows: For a structure that need to be 21m above ground, the planting depth will be 0.6 metres plus 10% of the height of the structure above ground = 0.6 metres plus 2.1 metres = structure is planted 2.7 metres deep. Should stays be needed then the stays will be at a 45° angle to the structure and planted 21 metres from the structure into the ground.

Where the site is relatively flat, single structures without stays will be used, except for where the power line has to change direction. Refer to *Appendix C* in the BAR for visuals of the monopole steel structure.

The Uchoba – Der Brochen 132kV line requires a servitude width of 31 metres (15,5 metres on either side of the centre line of the power line). A servitude area is a no building area, except for Eskom structures.

2 Listing Notice 1 Activity 19 - Infilling or excavation of more than 10 cubic metres into/from a watercourse

There are two perennial / semi-perennial rivers in the area, namely the Groot-Dwars and the Klein-Dwars Rivers. There are also a few small drainage lines and seasonal small streams. The project should have no impact on these as the line should be designed to jump these watercourses. It might however be impossible to completely avoid them and the construction of the power line structures/ pylons might impact on some. This will result in excavation and infilling of more than 10 cubic metres to plant the pylons.

3 Listing Notice 3 Activity 4 - development of a road wider than 4 metres

Limpopo:

i. Outside urban areas, within (ee) Critical biodiversity areas.

Access roads wider than 4 metres might be required to construct the power line. 4m on either side of the line might be cleared of vegetation that interferes with the construction of the line. The site is in a Critical biodiversity area.

4 Listing Notice 3 Activity 12 - clearance of an area of 300 square metres or more of indigenous vegetation

Limpopo:

ii. Within critical biodiversity areas identified in bioregional plans.

More that 300 square metres of indigenous vegetation might be cleared in the servitude area to construct the line and the temporary laydown area of 60m X 60m. The project is in a Critical biodiversity area.

18 FEASIBLE AND REASONABLE ALTERNATIVES

During investigations alternatives within the larger study area were investigated. The best options were determined through the environmental and specialist studies, as well as the limitations inherent to the project area, and the technical requirements for electrical infrastructure. Comment from Interested and Affected Parties were also synthesised to identify options.

The following alternatives have been identified and are described as follows:

1 POWER LINE ROUTE ALTERNATIVES

1 Uchoba – Der Brochen 132kV power line routes

Route alternatives were assessed and a preferred alternative identified. The study site is within a critical biodiversity area (CBA), but not within a demarcated ecological support area (ESA). There are two perennial / semi-perennial rivers in the area, namely the Groot-Dwars and the Klein-Dwars Rivers. There are also a few small drainage lines and seasonal small streams. The project should have no impact on any of these watercourses.

The high sensitive areas of the study site are the watercourse crossings and include the buffer areas. There are no other 'high' sensitive areas along the study site (power line route). All available information and data sets are taken into account when determining the sensitivity of the study site, including CBAs, ESAs, priority areas, ideal habitats for priority species (fauna and flora), watercourses, ridges, koppies (rocky outcrops), presence of RDL and ODL species, threat status of the veldtype in which the study site is situated, etc.

Uchoba – Der Brochen Route 1 (preferred)

Two power line route / servitude alternatives were investigated. Due to the spatial constraints for the servitude the alternatives follow the same corridor in certain areas.

Route 1 starts at the existing Uchoba substation site, on the farm Dwarsrivier 372 KT. From there the route follows a westerly direction, turns south and jumps the Groot- Dwarsrivier. The route turns east to circumvent the new substation area of Two Rivers Platinum Mine. From there the route turns south west, jumps the tar road running west of the offices of Two Rivers Mine. The alignment follows to the west of this road on flat ground next to existing parallel disturbances of a pipeline with another pipeline to be added in the same area. The route crosses back over the tar and follows a dirt road just south west of a huge tailings facility and a koppie. The route continues south east, then south west, then crosses a water course and runs parallel to the water course to the south east and crosses it again to the east, immediately east of Lebowa Mine. From there the route turns south, runs towards the east of Borwa Shaft, and ends at the Der Brochen Substation at Mototolo Concentrator on the farm Thorncliffe 374 KT.

Uchoba – Der Brochen Route Alternative 2

Alternative Route 2 follows the same alignment as Route 1 except for where it circumvents the new substation area of Two Rivers Platinum Mine. It follows a straight alignment over a rocky outcrop just south of Two Rivers mine. From there Route 2 stays on the eastern side of the tar road for a short distance. Immediately east of the huge tailings facility it crosses the tar road to join Route 1 for the rest of the route up to Lebowa Mine where Route 2 crosses the water course to the north of Route 1. From there Route 2 follows the same corridor as Route 1 to Der Brochen substation.

Route alternative recommendations: Ecological

Two alternative routes for the power line were investigated. They are similar in terms of potential impacts on watercourses and other habitats, except rocky outcrops (Table 25).

However, Route 1 has less turns resulting in less corner poles and stay wires, resulting in less potential impacts on birds. Route 1 also crosses over the small stream (Crossing Point 1) at a shorter distance and therefore is more likely to be able to stay further outside of the watercourse and riparian zone.

Route 2 also crosses over more rocky outcrops. There is a isolated rocky outcrop just south of Two Rivers mine that Route 2 will need to cross over along the lower foothills. However, this outcrop is sensitive, compared to Route 1 where it will be running on flat ground next to existing parallel disturbances of a pipeline with another pipeline to be added in the same area. Therefore, across this area Route 1 is within less sensitive environments. Route 1 also runs closer to the existing road disturbance over a longer distance than Route 2. These small but meaningful differences show that Route 1 will overall have less negative impact on sensitive environments.

Therefore recommended / preferred route alternative is: **Route 1 (Preferred)**

Table 12: Potential ecological impacts by route alternatives

Ecological Sensitive Aspect	Route 1 (Preferred)	Route 2 (Alternative)
No. of river / stream crossings	2	2
Drainage lines	3	3
Rocky outcrops	1	2
Ridges	0	0
Wetlands	0	0
No of potential impacts	6	7

Route alternative recommendations: Avifauna

The final risk rating for an alignment was calculated as the sum of the risk scores of the individual factors:

Table 13: Measurements of impacting factors per route alternative

Factors	Route 1	Route 2
Risk-creating factors		
Wetlands & dams	0	0
Number of rivers & streams	3	3
Number of drainage lines	4	4
Grassland (m)	0m	0m
Risk-reducing factors		
Cultivated lands (m)	0	0
TX lines (m)	0	0
Roads (m)	2 000m	695m
Suburban / Industrial (m)	2 060m	2 060m
Total length of power line (m)	11 900m	11 900m

Table 14: Sensitivity analysis ratings (Score)

Factors	Route 1	Route 2
Risk-creating factors		
Wetlands & dams	0,00	0,00
Number of rivers & streams	9,00	9,00
Number of drainage lines	12,00	12,00
Grassland	0,00	0,00
Risk-reducing factors		
Cultivated lands	0,00	0,00
Existing TX lines	0,00	0,00
Roads	-4000,00	-1390,00
Suburban/industrial	-10300,00	-10300,00
TOTAL	-14279,00	-11669,00

The final rating, or score, shows that Route 1 (Preferred) has a better rating due to the lower total score of -14 279 compared to – 11 699 (Table 6). In other words, in terms of the rating criteria used, Route 1 will potentially have less negative impacts on birds.

The two power line route alternatives are very similar in most aspects, but Alternative 2 does traverse more rocky outcrops. Alternative 1 runs for longer along and parallel to existing roads. Erecting a power line along an existing road lowers the potential for bird impacts and collisions, when compared to the same power line in open grassland or bushveld. The road is also already a disturbance within the natural environment and it is always preferable to keep disturbances within the same area. For these reasons the recommended route is **Route 1**.

Route alternative recommendations: Heritage

Two alternatives were considered namely Route 1 and 2 and both are acceptable from a heritage point of view. The study area is of insignificant and low paleontological sensitivity and no further studies are required for this aspect.

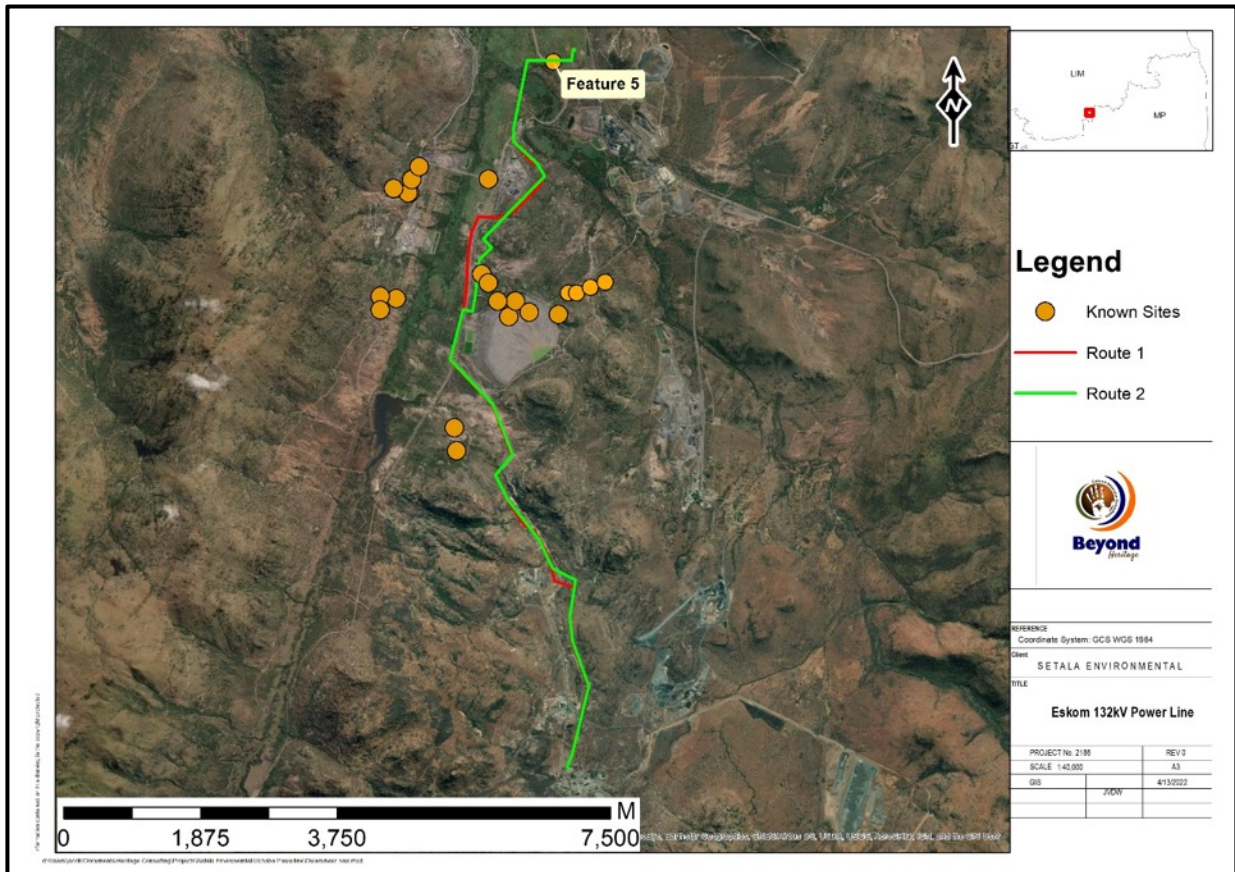


Figure 7: Heritage Resources

In summary, taking the **ecological, avifauna and heritage sensitivities into account, the recommended route is Route 1**.

2 NO-GO ALTERNATIVE

Taking all aspects into consideration including, ecological sensitivities, red data listed species (RDL), protected trees, the type of project and related activities, as well as mitigating measures and existing basic procedures for power lines, there are no fatal flaws and the project may go ahead.

It is suggested that to maintain the status quo is not the best option for the macro environment. The reliable provision of electricity by Eskom is critical for sustainable development and related employment, and sustainable human settlements in South Africa.

As mentioned, bulk electricity supply infrastructure is needed to supply the mentioned areas. The peak electricity load required in this area is further anticipated to increase significantly in the near future. Should this application not be approved the required demand will not be provided for.

This proposed project is therefore essential to improve the supply of electricity to the network. Should this application not be approved then the supply will not be reliable and this can result in major disturbances in provision to the customer base. The No-Go development alternative could therefore not be considered the responsible way to manage the site.

19 SPECIALIST INPUT

Specialist input was obtained to investigate the impact of the various alternatives that could accomplish the purpose of the project. The specialist input is summarised as follows:

1 BIODIVERSITY ASESMENT

A Biodiversity Assessment has been conducted by Flori Scientific Services . Refer to Appendix D of the BAR. The report identified the following:

Watercourses

There are two main watercourses (rivers) in the area of the study site, namely the Groot-Dwars and Klein-Dwars. Both are semi-perennial to perennial in nature, with their present active flow affected by in-stream dams. There are a few small seasonal streams and drainage lines in the area that flow into the two main rivers. These small streams and drainage lines are very seasonal and highly ephemeral and only have active flow for a few days at a time and for a few times a year, during periods of high rainfall and surface stormwater run-off.



Figure 8: Watercourses and Crossings

Table 15: Watercourse Crossings

Crossing ID	Location	Watercourse Type
1	24°59'6.78"S; 30° 6'43.61"E	Small seasonal stream & drainage line
2	24°58'16.75"S; 30° 6'13.26"E	Small seasonal stream
3	24°57'59.67"S; 30° 6'13.86"E	Small drainage lines & associated erosion gullies & mined area
4	24°57'17.02"S; 30° 5'53.58"E	Drainage lines
5	24°55'24.03"S; 30° 6'23.37"E	Groot Dwars River & associated valley bottom wetlands

Drainage Region

Table 16: Below is a summary of the drainage region / catchment area for the study site.

Level	Category
Primary Drainage Area (PDA)	B
Quaternary Drainage Area (QDA)	B41G
Water Management Area (WMA) – Previous / Old	Olifants
Water Management Area (WMA) – New (as of Sept. 2016)	Olifants (WMA 2)
Sub-Water Management Area	Steelpoort
Catchment Management Agency (CMA)	Olifants (CMA 2)
Wetland Vegetation Ecoregion (WetVeg)	Central Bushveld (Group 1)
RAMSAR Site	No
Wetland FEPA	No
Fish FEPA	No
Fish FSA	No
Fish Corridor	No
Fish Migratory	No
National Strategic Water Source Area (SWSA)	No
Provincial important Water Source Area (WSA)	No
Priority Quaternary Catchment	No

Vegetation

The study site is within the original extent of Sekhukhune Mountain Bushveld, which is not a threatened veldtype / ecosystem. Much of the study site (power line servitude) is transformed, altered and highly degraded environment.

A few scattered specimens of the following protected trees were observed in the general area, namely: *Boscia albitrunca* (Shepherd's tree), *Sclerocarya birrea* (Marula), and *Spirostachys africana* (Tamboti). Tamboti is a provincially protected tree, while the others are nationally protected. It does not appear that any of these trees will be impacted, but a final walk-down is recommended.

Priority areas

The Study Site is not within any national priority areas, except in the south where it is within a demarcated NPAES area (Figure 28). This NPAES (National Priority Area Expansion Strategy) area is known as the Mpumalanga Mesic Grasslands NPAES, even though where the study site is not Mesic Grasslands, let alone grassland. It is therefore, felt to be incorrectly demarcated, or alternatively incorrectly named. The Mpumalanga Mesic Grasslands NPAES extents from the grasslands of the Mpumalanga Province, north into the Limpopo Province grasslands, hence the name.

Sensitivity analyses

The ecological sensitivity of the study area is determined by combining the sensitivity analyses of both the floral and faunal components. The highest calculated sensitivity unit of the two categories is taken to represent the sensitivity of that ecological unit, whether it is floristic or faunal in nature.

Table 17: Ecological sensitivity analysis

Ecological community	Floristic sensitivity	Faunal sensitivity	Ecological sensitivity
Transformed	Low	Low	Low
Bushveld	Medium	Medium	Medium
Rocky Hills	Medium / High	Medium / High	Medium / High
Watercourse	Medium / High	Medium / High	Medium / High

High: 80% – 100%; Medium/high: 60% – 80%; Medium: 40% – 60%; Medium/low: 20% – 40%; Low: 0% – 20%

The rocky hills have a higher ecological sensitivity than the bushveld habitats. The bushveld habitats are also more impacted and degraded than the rocky hills. That is within the proximity of the proposed power line, as there are a number of hills that have been totally transformed and destroyed by the opencast mining of hills in the area. There is also a greater diversity of flora and fauna on the rocky hills and small in between valleys with small seasonal streams, including a greater diversity of fauna in terms of more small faunal species, lizards, insects and snakes. The ecological sensitivity of the watercourses in terms of fauna and flora is very similar to the rocky hills for the small presently untouched drainage lines and small seasonal streams. However, the two larger rivers have been quite negatively impacted in the areas close to the mines. However, all watercourses, by default, are viewed, by default, as having a sensitivity of 'High'. In other words, all watercourses need to be approached and viewed as sensitive, despite their level of degradation.

Buffer Zones for watercourse crossings

Buffer zones have been delineated / marked. No pylons (poles) may be planted / erected within these buffer zones as such actions will trigger the need for a General Authorisation (GA) application through the Department of Water and Sanitation (DWS). The only buffer zones required in the study area (power line servitude) area at the watercourse crossings as shown below (Figure 9 to Figure 13).

The crossings at Point 3 (Figure 11) are two very small seasonal drainage lines, but the area has become badly eroded and this is also the reason for these buffer zones, to ensure that the pylons (poles) are planted well outside of these eroded gullies.

Each of the buffer zones are a minimum of 32m from the edge of the watercourse, riparian zone and 100 year floodline.

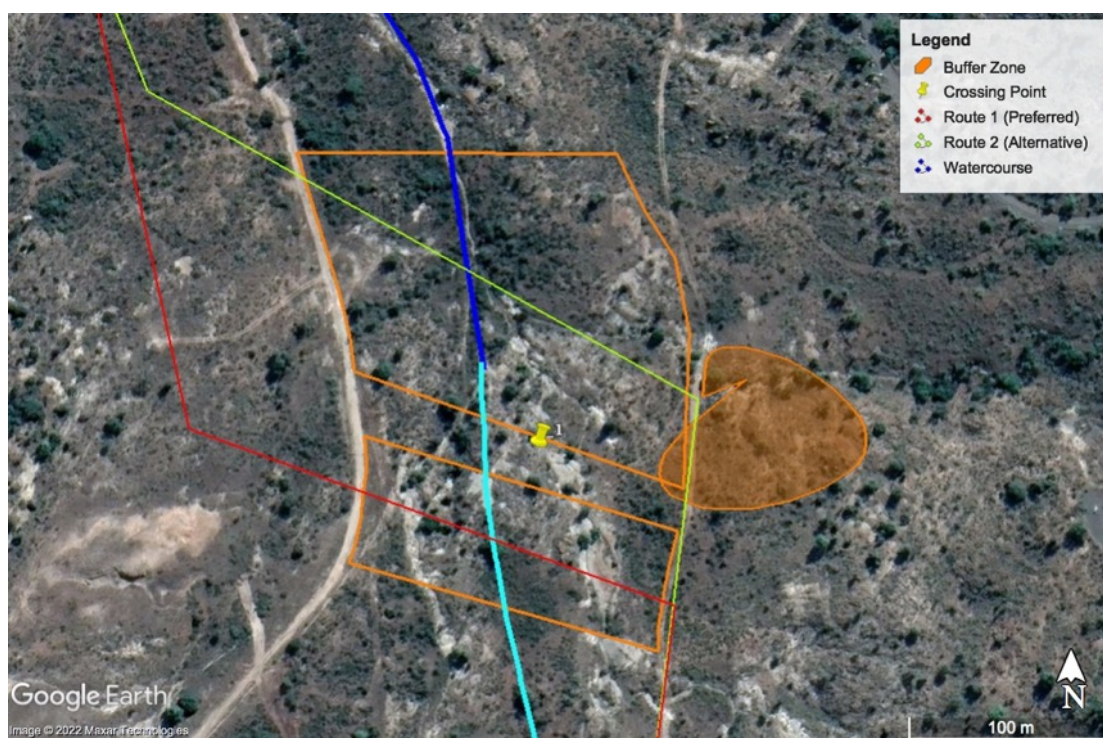


Figure 9: Buffer Zones (Area 1)



Figure 10: Buffer Zones (Area 2)



Figure 11: Buffer Zones (Area 3)



Figure 12: Buffer Zones (Area 4)



Figure 13: Buffer Zones (Area 5)

Conclusions

The conclusions of the ecological study are as follows:

- The site is within the original extent of veld types (ecosystems) that are not threatened. However, it is important to note that the study site is within the larger region of the Sekhukhuneland floristic endemic region of the Limpopo Province.
- The southern section of the study site is within the priority area of Mpumalanga Mesic Grasslands NPAES. The study site is not within any other priority areas such as protected areas or important bird areas (IBAs).
- The study site is within a critical biodiversity area (CBA), but not within a demarcated ecological support area (ESA).
- There are two perennial / semi-perennial rivers in the area, namely the Groot-Dwars and the Klein-Dwars Rivers. There are also a few small drainage lines and seasonal small streams. The project should have no impact on any of these watercourses.
- There are no obvious fatal flaws in terms of the natural ecology.
- Taking all findings and recommendations into account it is the reasonable opinion of the author / specialist that the activity may be authorised. The project and related activities should be allowed to proceed.

Recommendations

The recommendations of the study are as follows:

- Recommended mitigating measures as proposed in this study and report should be implemented if the findings of this report are to remain pertinent.
- The only bufferzones required for the project are at watercourse crossings. A minimum of a 32m buffer zone, from the edge of the stream banks, riparian zone and 100 year floodline have been demarcated and no pylons / poles are allowed to be planted within these buffer zones. Doing so may trigger the need for a General Authorisation (GA) process.
- A final walkdown is recommended once final placing of markers for pylons / poles has been done to verify if any protected trees or watercourses are impacted. If so to either shift the pole position or as a last resort apply for a plant permit or General Authorisation (GA) in the case of watercourses.
- All mitigating measures recommended in this study must be implemented and form part of the conditions for the EMPr.
- The recommended power line route as the 'Preferred Route' is: Route 1.

Fatal flaws

There are no fatal flaws and the project may proceed.

2 AVIFAUNAL ASSESSMENT

An Avifaunal Assessment has been conducted by Flori Scientific Services. Refer to Appendix D2 of the BAR. The report identified the following:

Priority areas

The southern section of the study site is within a NPAES priority area (Mpumalanga Mesic Grasslands). However, this section of the study site is not within mesic grasslands but mountainous bushveld. The study site is not within any important bird areas (IBAs).

Sensitivity analyses

- The site is within the original extent of Sekhukhune Mountain Bushveld, which is not a threatened veldtype / ecosystem.
- According to the DEA Screening Tool and site investigations the animal theme sensitivity is 'medium'.
- There are no Important Bird Areas (IBAs) or Protected Areas in the study area. However, the Kruger National Park and Methethomusha Nature Reserve are 16km and 5,5km east of the site, respectively.
- The site is within any demarcated critical biodiversity area (CBA).
- Much of the study area is transformed, altered and degraded by high levels of mining and related infrastructure and activities. However, there are patches of bushveld, especially on the rocky hills and ridges surrounding the proposed power line route.
- There are two large streams / small rivers (Groot-Dwars and Klein-Dwars) in the area, with a number of small seasonal drainage lines and small streams. There are no wetlands in the area.

The sensitivity map for avifauna is shown below in Figure 14. The sensitivity for birds is based on high-risk areas for negative impacts on birds such as collisions and not necessary simply just on habitat status. The four areas are linked to areas where the power line crosses over watercourses. The placement of Bird Flight Diverters (BFDs) on the earth wire of the power line is recommended across these areas. Sensitive Area number 3 is more to do with birds coming down off the higher mountain peaks across an open fairly barren area down towards the small stream. In other areas the power line runs within bushveld / trees; along roads and power lines; and along built up areas, which drastically reduce the potential for birds to collide with the new power line. Therefore, BFDs are not recommended in these areas.

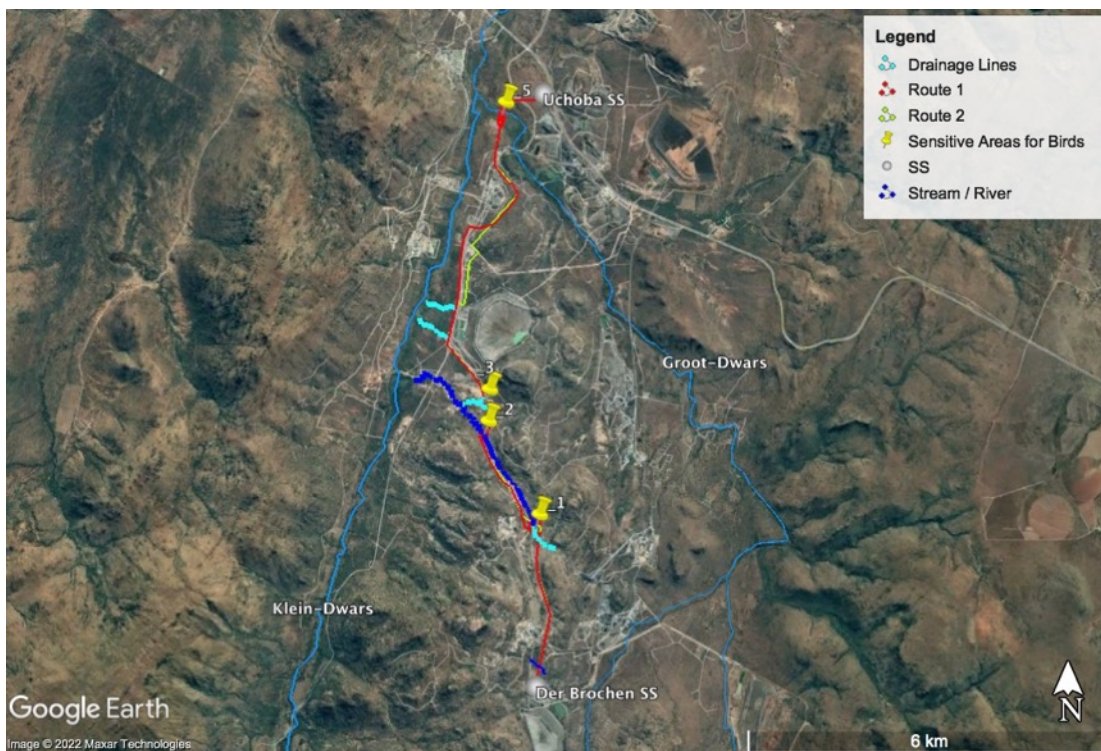


Figure 14: Sensitivity Map Avifauna

The most sensitive areas / high-risk bird areas in the study area are the undeveloped rocky hills, koppies (outcrops) and mountains and koppies (outcrops), and the small watercourses.

Eskom 132kV power line between Maphuta MTS (Uchoba substation) and Der Brochen substation

Below is Table 18, showing the GPS points of the sensitive areas for birds as shown above in Figure 14, across which Bird Flight Diverters (BFDs) need to be attached. The BFDs need to be attached across the section of power lines seen below in Figure 15 to Figure 18.

Table 18: GPS Coordinates for BFDs

ID No	Coordinates	Comments
1	24°59'6.78"S; 30° 6'43.61"E	Watercourse crossings. BFDs must be placed up to 20m past the edge of the stream bank
2	24°58'16.75"S; 30° 6'13.26"E	Watercourse crossings. BFDs must be placed up to 20m past the edge of the stream bank
3	24°57'59.67"S; 30° 6'13.86"E	The open area needs BFDs across the section of open area
5	24°55'24.03"S; 30° 6'23.37"E	Watercourse crossing. BFDs must be placed across the entire river and up to 20m past the edge of the river bank

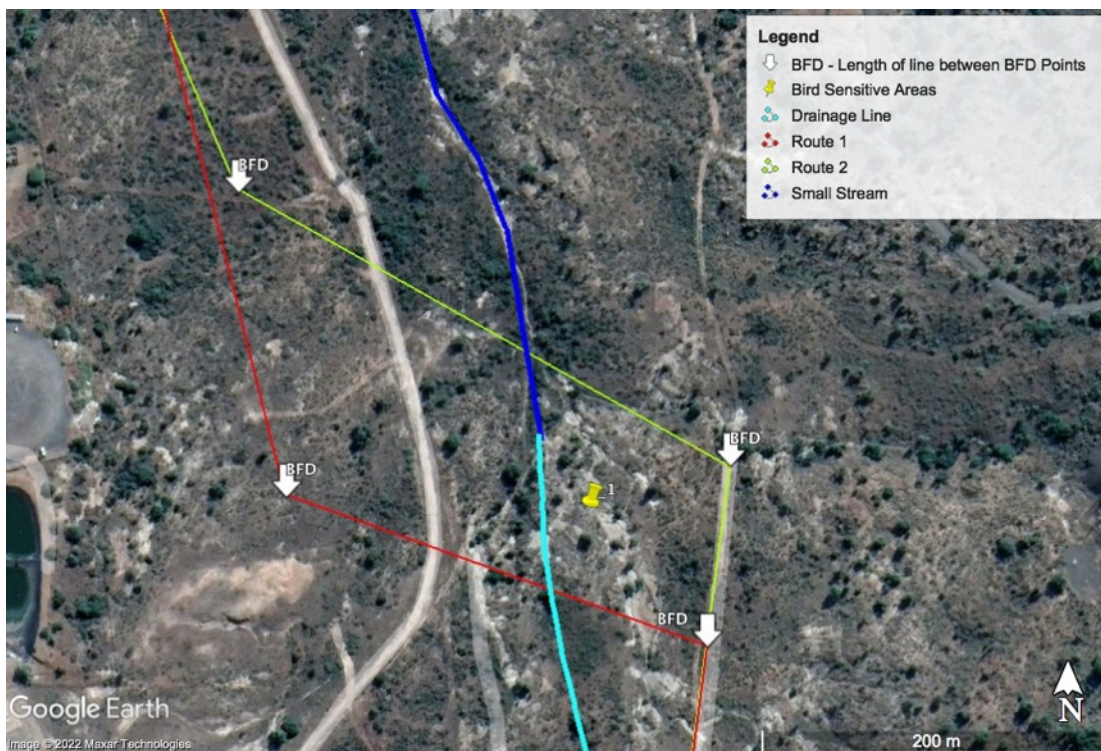


Figure 15: BFDs at Sensitivity area 1

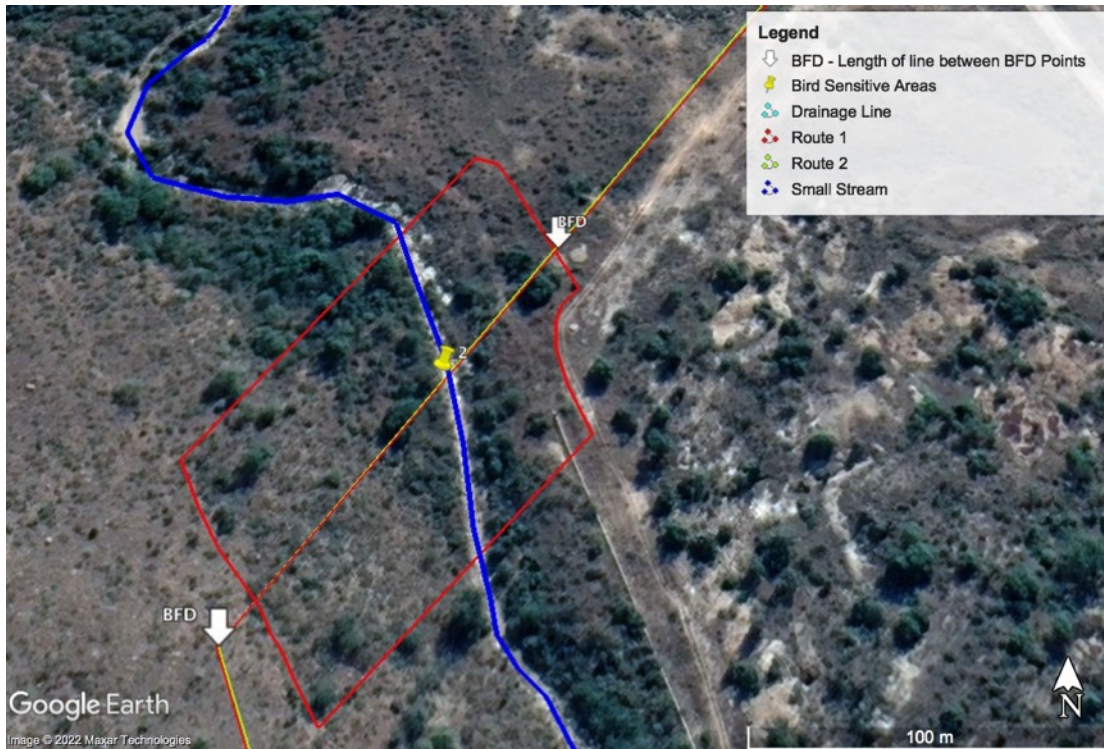


Figure 16: BFDs at Sensitivity area 2



Figure 17: BFDs at Sensitivity area 3

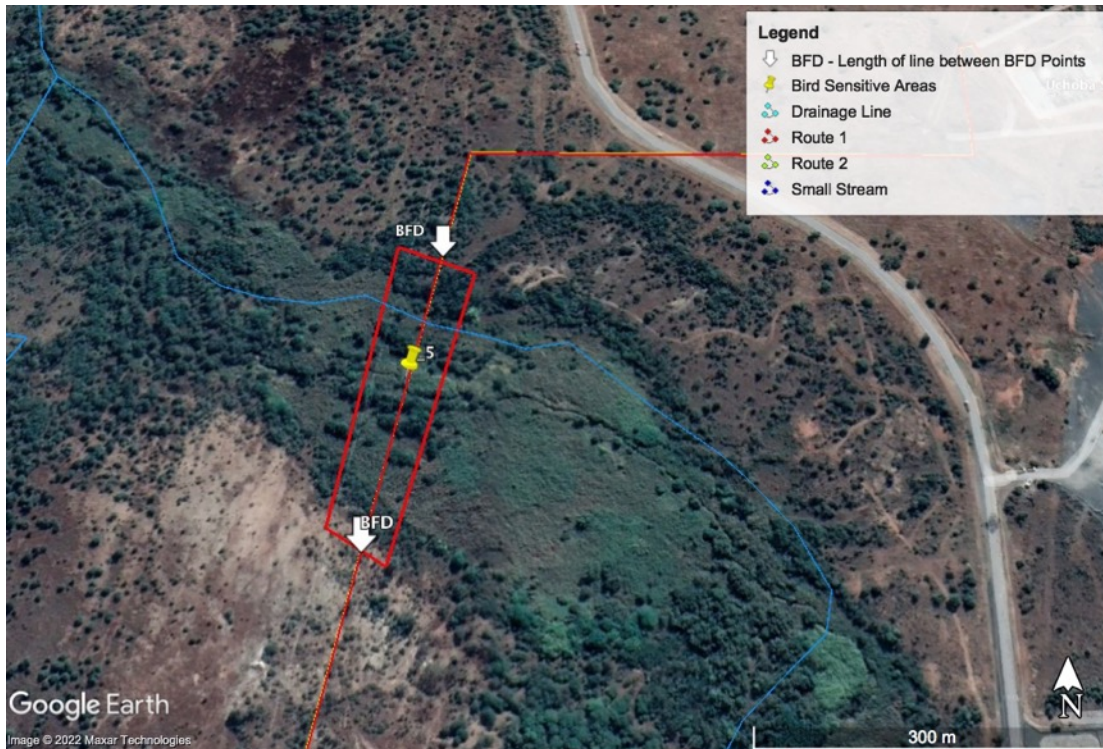


Figure 18: BFDs at Sensitivity point 5 (Groot-Dwars River)

Conclusions

The conclusions of the avifauna study are as follows:

- The study site is within the original extent of Sekhukhune Mountain Bushveld, which is not a threatened veldtype / ecosystem.
- The study site is within the floristic rich and high endemic Sekhukhuneland region of Limpopo Province.
- The study site is not within any important bird areas (IBAs).
- There are no obvious fatal flaws in terms of the bird ecology.

Recommendations

The recommendations of the study are as follows:

- There are no obvious fatal flaws in terms of the avifaunal component and it is the opinion of the specialist that the project should be authorised and allowed to proceed.
- All recommended mitigating measures should be implemented and strictly adhered to.
- A final walk-down is recommended in the sensitive areas to check and finalise the actual pole positions. Any problematic pole positions can then hopefully be moved / re-aligned.
- Bird Flight Diverters (BFDs) must be installed in the areas indicated within the report. These areas include high-risk bird sensitive areas such as watercourse crossings and along with the elevated power line which creates potential collisions / bird-strikes.
- The Bird Flight Diverters (BFDs) must be placed across the demarcated areas of the powerline along the earth wire at 5m intervals, alternating black and white.
- Each monopole must be fitted with bird perches on the top. This helps to draw large birds (eg. Vultures) away from the dangerous / risky insulators that can result in electrocutions.

- All Eskom guidelines must be implemented and adhered to. These include important guidelines such as Bird Collision Guidelines (www.eskom.co.za).
- The power line route that is recommended is: Route 1 (Preferred Route)

3 HERITAGE IMPACT ASSESSMENT

A Heritage Impact Assessment has been conducted by Beyond Heritage. Refer to Appendix D of the BAR. A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon.

A Phase I Heritage Impact Assessment (HIA) study was done and heritage resources as outlined in Section 3 of the National Heritage Resources Act 25 of 1999 were found in the project area.

Two alternatives were assessed, key findings include:

- The study area is altered due to the extensive construction activities associated with the intensive mining activities. During the site visit an Iron Age site was recorded. The impact of the proposed project on heritage resources can be mitigated to an acceptable level and it is recommended that the proposed project can commence on the condition that the following recommendations are implemented as part of the EMPr and based on approval from SAHRA.

The report makes the following observations:

No known features will be directly impacted on apart from Feature 5 that is of medium significance. With no mitigation measures the impact will be medium to high, with the implementation of the correct mitigation measures the impact can be mitigated to an acceptable level.

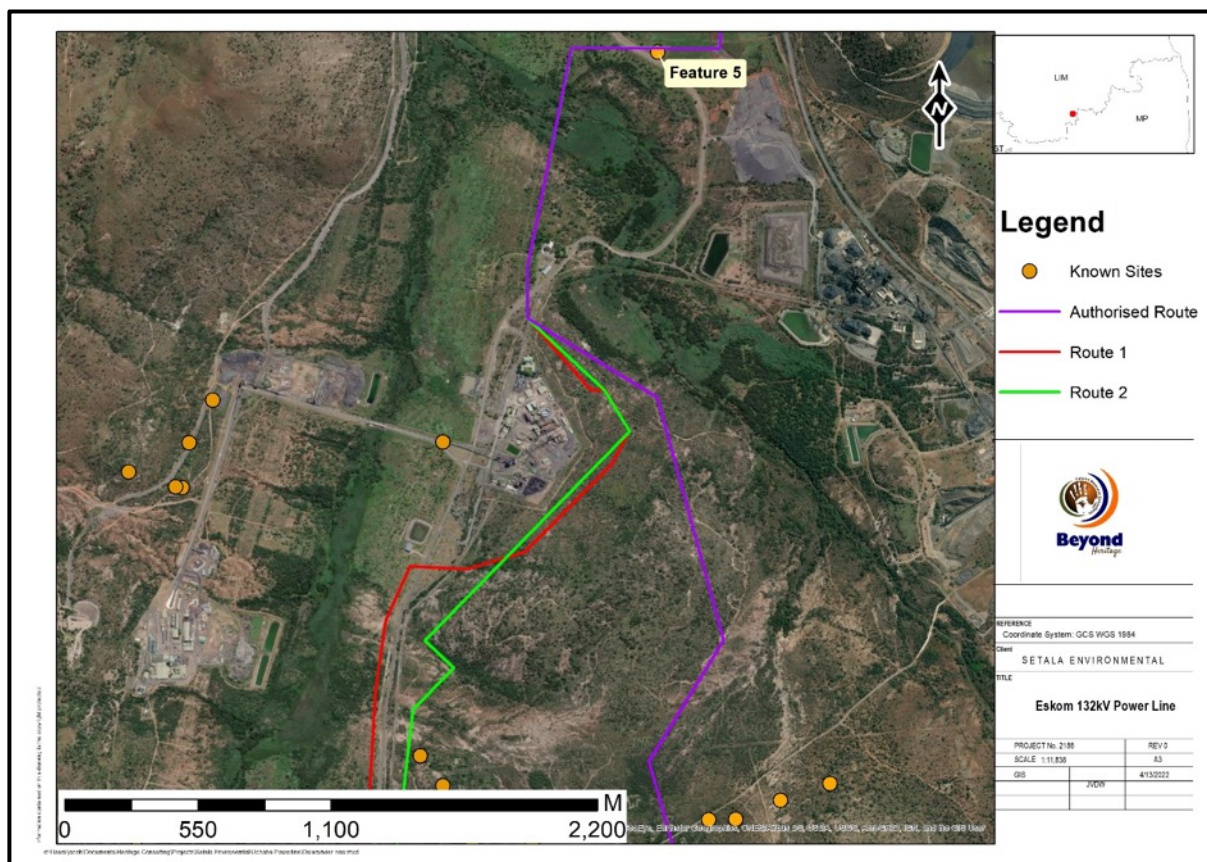


Figure 19: Impact of the proposed power line on recorded features.

Table 19: Heritage features identified

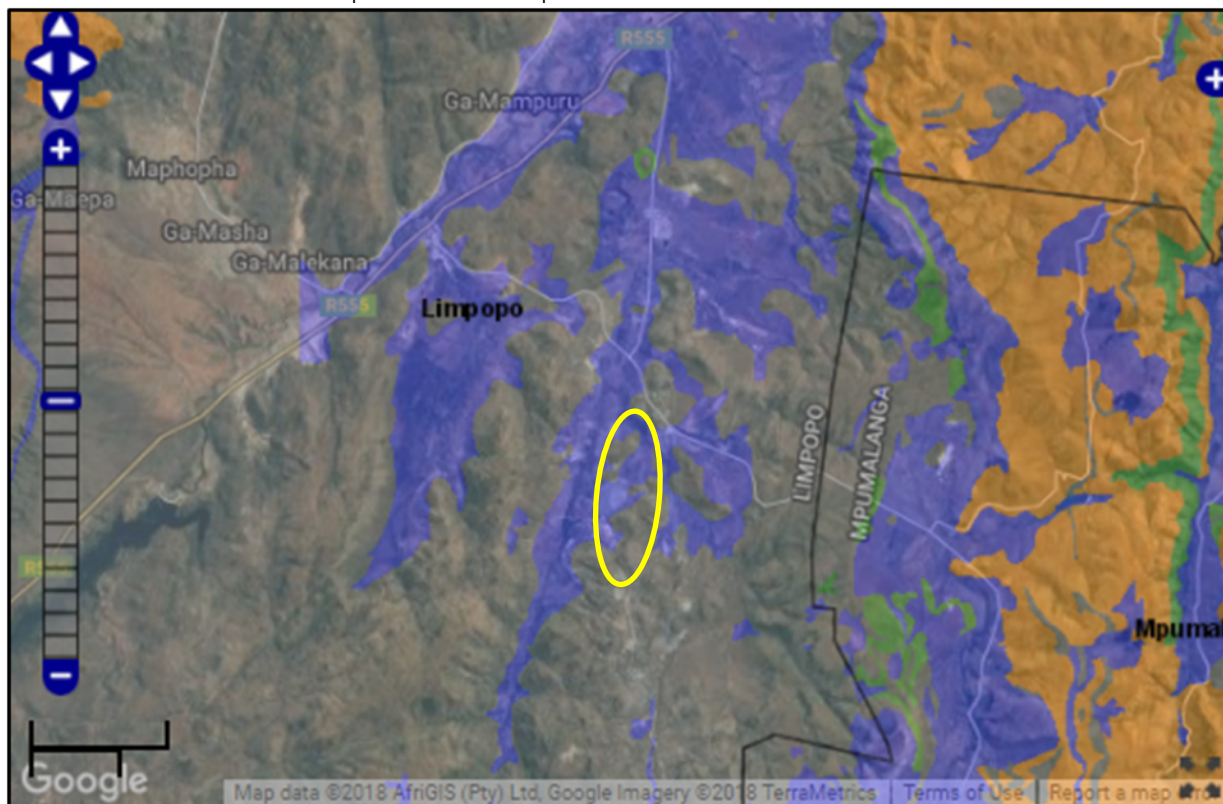
Label	Longitude	Latitude	Description	Significance
Feature 5	30° 06' 36.7524" E	24° 55' 15.8592" S	Area marked by a wide scatter of undiagnostic ceramics. The area used to be ploughed and could attribute to the wide distribution of ceramics and the site boundaries is not clear. No other cultural material or features are evident on the surface. Sites like these could contain subsurface cultural material.	Generally Protected B (GP. B) - Medium significance

Recommendations:

- Archaeological monitoring of pylon excavations at the Iron Age site (Feature 5);
- The final pylon positions should be subjected to a heritage walk down;
- Implementation of a chance find procedure for the project;
- Weekly monitoring of pylon excavation areas during the pre-construction and construction phase by the ECO.

4 PALEONTOLOGICAL SENSITIVITY

Based on the SAHRA Paleontological map the area (Figure 16) is of insignificant paleontological sensitivity and no further studies are required for this aspect.



Colour	Sensitivity	Required Action
RED	VERY HIGH	Field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	Desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	Desktop study is required
BLUE	LOW	No paleontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	No palaeontological studies are required
WHITE/CLEAR	UNKNOWN	These areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

Figure 20: Paleontological Sensitivity of the approximate study area (yellow polygon) is indicated on the SAHRA Palaeontological sensitivity map as insignificant.

Combined Sensitivity



Figure 21: Combined Sensitivity map of the study area

20 SPATIAL DEVELOPMENT TOOLS

Spatial development tools used included ArcGIS v.10.2; Google Earth Professional; SANBI's BGIS MapViewer (www.bgis.sanbi.org) and Garmin Maps.

These tools, along with relevant datasets such as vegetation types, rivers, Limpopo Conservation Plan (Version 2), etc. were used in the desktop assessment as well as the final biodiversity specialist reports. ArcGIS as well as Google Earth Professional were used to produce the detailed maps used in the reports. The outcome is that these spatial development tools give accurate layouts and positions of important data such as Critical Biodiversity Areas. The tools are also used to create accurate and visual maps showing floodlines, watercourses, sensitive areas, etc.

1 NATIONAL PRIORITY AREAS

The Study Site is not within any national priority areas, except in the south where it is within a demarcated NPAES area (Figure 28). This NPAES (National Priority Area Expansion Strategy) area is known as the Mpumalanga Mesic Grasslands NPAES, even though where the study site is not Mesic Grasslands, let alone grassland. It is therefore, felt to be incorrectly demarcated, or alternatively incorrectly named. The

Mpumalanga Mesic Grasslands NPAES extents from the grasslands of the Mpumalanga Province, north into the Limpopo Province grasslands, hence the name.

National priority areas include formal and informal (private) protected areas (nature reserves); important bird areas (IBAs); RAMSAR sites; National fresh water ecosystem priority areas (NFEPA) and National protected areas expansion strategy focus areas (NPAES).

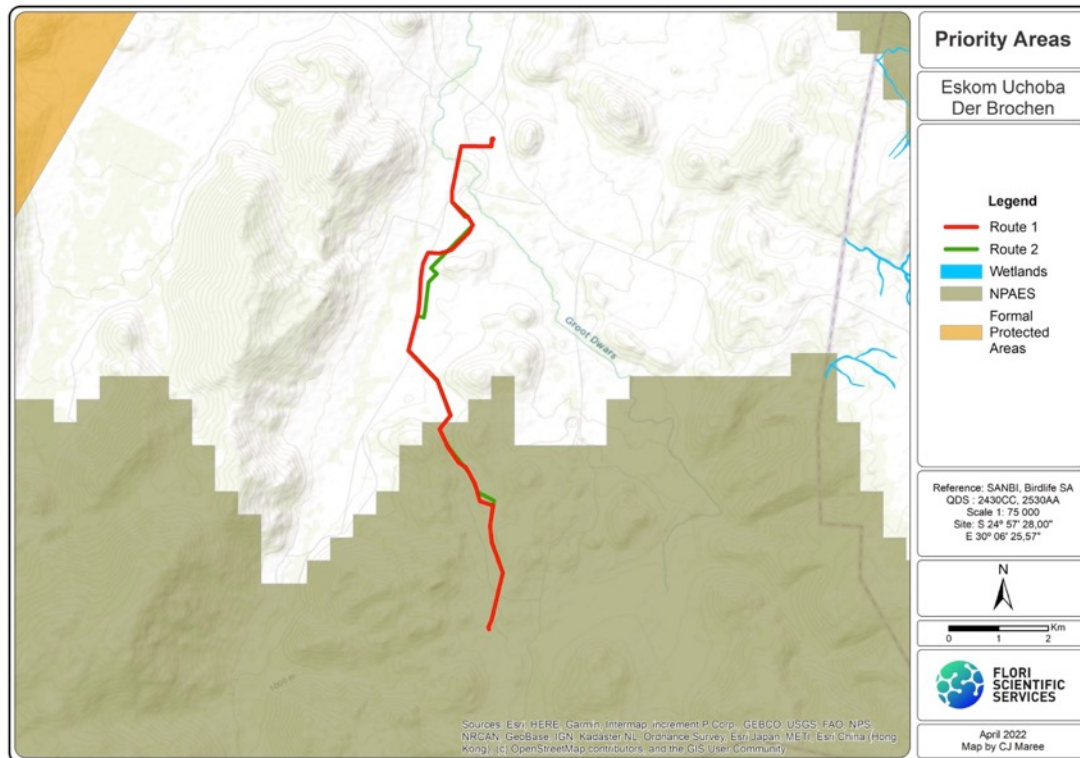


Figure 22: Priority areas

2 LIMPOPO CONSERVATION PLAN

According to the latest Limpopo Conservation Plan (Version 2) the entire study site and surrounding area is within a Critical Biodiversity Area (CBA). The site is not in an Ecological Support Area (ESA) (Figure 18). Critical biodiversity areas (CBAs) are terrestrial and aquatic features in the landscape that are critical for retaining biodiversity and supporting continued ecosystem functioning and services (SANBI, 2007). These form the key outputs of a systematic conservation assessment and are the biodiversity sectors inputs into multi-sectoral planning and decision-making tools. CBAs are areas of the landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services (SANBI).

Ecological Support Areas (ESAs) are areas that are often seen as buffer areas for CBAs as well as corridors and connective areas between CBAs and/or other priority areas. ESAs are also often designated buffer and support areas along rivers and streams.

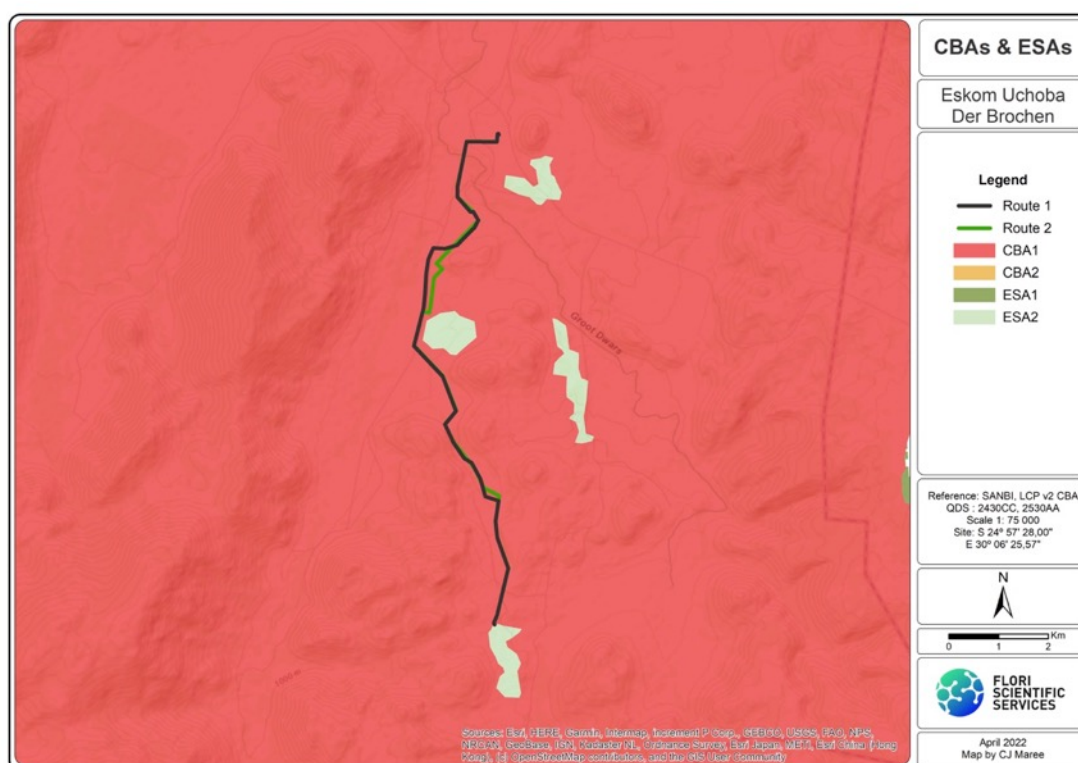


Figure 23: CBAs and ESAs

3 NATIONAL ENVIRONMENTAL SCREENING TOOL

The National Web based Environmental Screening Tool is a geospatial web-enabled application providing for screening of sites for environmental sensitivity and the placement of proposed developments in relation to the impact avoidance hierarchy. It produces the report required in terms of regulation 16(1)(v) of the EIA regulations.

According to the screening tool (accessed January 2022) the various sensitivities for the study site and immediate surroundings are as follows:

- Terrestrial biodiversity combined theme sensitivity: Very High.
- Aquatic biodiversity combined theme sensitivity: Very High.
- Plant species theme sensitivity: Medium.
- Animal species theme sensitivity: Medium.

During site investigations the sensitivities, were assessed and ground-truthed. The site investigations agreed that the Plant and Animal themes have a sensitivity of 'Medium', even though large areas are transformed and altered, but the site is still within a demarcated CBA area.

The aquatic theme was found to have a sensitivity of 'Low'. There are two small rivers in the area (Groot-Dwars and Klein-Dwars) and a few small drainage lines. The area is not an area with an aquatic sensitivity of 'very high'. The overall biodiversity was found to be 'Medium' and in many areas only 'Low' due to high levels of transformation by the existing mine operations. The veld type / ecosystem is also not a threatened one and therefore it is unclear as to why the desktop screening tool would demarcate the area as having a biodiversity sensitivity of 'very high'. The main reason for the demarcated 'very high' for

biodiversity theme is probably because the area is within the larger Sekhukhuneland Floral Endemic Region. However, no major endemic, RDL or ODL plants were observed during site investigations, and the general vegetation of the Sekhukhune Mountain Bushveld ecosystem is not threatened in any case.

21 PUBLIC PARTICIPATION

Setala Environmental has taken cognisance of the requirements for public participation in terms of the 2014 EIA Regulations, as amended and has ensured that the public participation principles are upheld. A successful Public Participation Programme (PPP) is one that is inclusive, actively engages the public and provides ample opportunity for the public to participate in the process. This document provides an overview of the PPP undertaken as part of the BA process for the proposed project.

The purpose of the PPP is to ensure that the issues, inputs and concerns of Interested and Affected Parties (I&APs) are taken into account during the decision-making process. This requires the identification of I&APs (including authorities and the public), communication of the process and findings to these I&APs and the facilitation of their input and comment on the process and environmental impacts, including issues and alternatives that are to be investigated. The steps taken during the execution of the PPP undertaken for this project are detailed in the section that follows.

Refer to Comments and Response Report attached as *Appendix E6*.

1 ADVERTISEMENT AND NOTICE

Site notice positions	Notice displayed at the following locations: <ul style="list-style-type: none"> • On tar road just before Two Rivers Induction Centre • On road in section after Two Rivers where route runs along the road • Where the route leaves the tar and runs south of the tailings dam
Date placed	01/03/2022
Publication name	Beeld
Date published	02/03/2022

(Refer to Appendix E1b: Proof of site notices)

(Refer to Appendix E1a: Proof of newspaper notice)

2 PUBLIC NOTIFICATION

A consultation process was undertaken with the intent of informing key community stakeholders, comprising the Municipal structures and the local communities about the proposed development and the Basic Assessment process underway.

Identification of Interested and Affected Parties

The PPP for the project was initiated with the development of a comprehensive I&AP database. The list of I&APs was updated on a regular basis during the course of the project. Key stakeholders were identified at the beginning of the PPP, these included: Key stakeholders, commenting authorities and landowners/land users. Refer to Appendix E4a: Register of Interested and Affected Parties for a complete list.

- Limpopo Dept of Economic Development, Environment & Tourism (LEDET)
- Department of Water and Sanitation, Olifants Water Management Area (WMA2) QDA B41G
- SA Heritage Resources Agency
- Dept of Sports, Art and Culture, Limpopo Heritage Authority
- Department of Mineral Resources and Energy

- Department of Agriculture, Land Reform and Rural Development (DALRRD): Commission on Restitution of Land Rights, Regional Land Claims Commissioner
- Department of Agriculture, Land Reform & Rural Development: Land and Soil Management
- Fetakgomo Tubatse Local Municipality
- Sekhukhune District Municipality
- Wildlife and Environmental Society of SA
- Endangered Wildlife Trust
- Sasol Gas Limited
- Eskom Transmission, Property Rights Assets Management (PRAM)
- Eskom Distribution, Limpopo Operating Unit
- Affected landowners

Background Information Document

- A comprehensive background information document (BID) was compiled with the main aim to identify issues, and potential impacts associated with this project. It included a description of the status quo of all relevant environmental components as well as the proceedings of the PPP and communication with registered Interested & Affected Parties (I&APs). BID attached as Appendix E2a.
- On 02/03/2022 the documentation was submitted for comment to all I&APs.
- The due date for comment was 04/04/2022. This allowed for a comment period of 30 days.
- Copies of the notification to I&APs are included as Appendix E2b.

Landowner notification

The landowners throughout a project area in general play an important roll in assisting with the identification of issues and project alternatives. The landowners/ land users affected by the proposed power line were notified of the project. They are provided the chance to provide comment to the proposed project.

The affected landowners are as per below:

Item	Farm Name	No	Reg Dev	Ptn	Owner	Contact
1	Dwarsrivier	372	KT	0	Dwarsrivier Chrome Mine	Pieter Schoeman
2	Dwarsrivier	372	KT	6	Two Rivers Platinum Mine	Roy van Rooyen
3	Dwarsrivier	372	KT	7	Two Rivers Platinum Mine	Roy van Rooyen
4	Dwarsrivier	372	KT	1	Dwarsrivier Chrome Mine	Pieter Schoeman
5	Dwarsrivier	372	KT	7	Two Rivers Platinum Mine	Roy van Rooyen
6	Thornccliffe	374	KT	3	Glencore Operations South Africa Pty Ltd	Japie van der Berg

3 MEETINGS AND SITE VISITS

Site visits with key stakeholders

- 01/03/2022 - Eskom Distribution, Limpopo Operating Unit

Public meeting/ Open day

- The COVID-19 Epidemic has a significant impact on the undertaking of EIA processes and in specific the Public Participation Processes.
- In order to comply with social distancing policies, the opportunity to partake in the Public Participation Process, without face-to-face contact, is provided.
- The I&APs are provided with various options to provide comment / request more information. In writing, via fax or email, and verbally, via telephone calls, text messages, WhatsApp, zoom or teams sessions.
- Engagements to be held virtual via teams/zoom, telephone conversations, text messages etc.
- The purpose of engagement was to furnish all interested parties with information regarding the extent of the project, the proposed alternatives, and the extent of the Environmental Impact Assessment Process.
- Copies of the invitations to comment, included as Appendix E2c of the final BAR.

4 DISTRIBUTION OF DRAFT BASIC ASSESSMENT REPORT FOR COMMENT

On 19/04/2022 notification of the availability of the Draft Basic Assessment Report (DBAR) was submitted to all I&APs. (Proof in Appendix E2c of the final BAR).

The DBAR was available for comment on the Setala website using a given link. The comment period was for 30 days until 23/05/2022.

Hard copies and/or electronic copies of the DBAR were submitted to the following key stakeholders:

- Limpopo Dept of Economic Development, Environment & Tourism (LEDET), Environmental Impact Management
- Fetakgomo Tubatse Local Municipality , Environmental Management Services
- Department of Water and Sanitation, Olifants Water Management Area (WMA2) QDA B41G
- SA Heritage Resources Agency (via Sahrís)

5 COMMENTS AND RESPONSE REPORT

The Public Participation Programme allowed for informed and responsible decision-making by all interested and affected parties. A summary of I&AP comments and the consultant's responses to these comments are provided below. (The original I&AP comments are included in *Appendix E3*). Refer to Comments and Response Report attached as *Appendix E6 for detailed information*.

List of authorities from whom comments have been received:

- None

Key stakeholders from whom comments have been received:

- Dwarsrivier Chrome Mine
- Glencore
- Sasol Gas Limited

6 SUMMARY OF ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

No	Date	Stakeholder	Comment	Response from EAP
1	03-03-2022	Dwarsrivier Chrome Mine	Registered as I&AP.	Registered
2	03-03-2022	Glencore	Farm Thorncliffe Portion 1. Registered as I&AP.	Registered

3	09-03-2022	Sasol Gas Limited	Sasol Gas notified that they will not be affected by the proposed development.	Noted
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7 CONCLUSION OF PUBLIC PARTICIPATION PROGRAMME

In short, the study approach followed by the Consultants, entailed the following steps:

Activity	Description and Purpose
Pre-Application	
Preparation of a preliminary stakeholder database	A preliminary database has been compiled of authorities (local and provincial), Non-Governmental Organisations, land users and other key stakeholders (refer to Appendix E4). This database of registered I&APs will be maintained and updated during the ongoing BA process.
Preparation and Distribution of a Background Information Document (BID)	On 02/03/2022 BIDs and registration forms were distributed via email to all I&APs on the database. See Appendix E2b for proof of written submissions. The BID provides an introduction to the Project and the BA process. Due date for comment was 04/04/2022. See Appendix E2a for the BID and Registration form.
Advertisement of the Project and Erection of Site Notices	The Project was advertised on 02/03/2022 in the provincial newspaper, Beeld. See proof of notice in Appendix E1a. A Site notice has been placed at various locations on 01/03/2022. See proof of placement in Appendix E1b.
Development of an Initial Comments and Response Report	All comments received during the initial consultation period were recorded in a Comments and Responses Report. See included in Appendix E6.
BA Phase	
Release of draft Basic Assessment Report for Public Comment	The draft BA Report was released for the required 30-day public comment period: Dates of 19/04/2022 to 23/05/2022. (This constitutes more than 30 days). Notifications were submitted to all stakeholders on the database and included details of how to engage in providing comment. The DBAR was available for comment on the Setala website using a given link. Proof attached as Appendix E2c of the FBAR.
Development of a Comments and Response Report	All comments received were recorded into a Comments and Response Report. See attached as Appendix E6.
Public review	The COVID-19 Epidemic has a significant impact on the undertaking of EIA processes and in specific the Public Participation Processes. In order to comply with social distancing policies, the opportunity to partake in the Public Participation Process, without face-to-face contact, is provided. The I&APs are provided with various options to provide comment / request more information. In writing, via fax or email, and verbally, via telephone calls, text messages, WhatsApp, zoom or teams sessions. All comments received, along with responses, to be included in the final BAR as Appendix E7.
Submission of final Basic Assessment Report to Environmental Authority	Subsequently the final BAR to be submitted to DFFE. The final BAR will include all concerns raised to the DBAR, and the responses thereto.
Environmental Decision	
Notification of Environmental Decision	I&APs will be notified of the Environmental Decision and the statutory appeal period.

22 IMPACT ASSESSMENT

The impacts that may result from the planning and design, construction, operational, decommissioning and closure phases as well as proposed management of identified impacts and proposed mitigation measures have been addressed in this Basic Assessment Report.

The assessment of impacts adheres to the minimum requirements in the EIA Regulations, 2014, and took applicable official guidelines into account. The issues raised by interested and affected parties were also addressed in the assessment of impacts, as well as the impacts of not implementing the activity.

The potential impacts of the proposed development were identified through a desktop study, a site visit, specialist studies and comments received during the public participation process. It is evident that the biggest impact of the project on the environment is expected to occur during the construction phase. It is expected that with the proposed mitigation of impacts and the implementation of the Environmental Management Programme, the expected negative impact could be mitigated to acceptable measures.

METHODOLOGY UTILISED IN THE RATING OF SIGNIFICANCE OF IMPACTS

The potential environmental impacts associated with the project will be evaluated according to its nature, extent, duration, intensity, probability and significance of the impacts, whereby:

- (a) Nature: A brief written statement of the environmental aspect being impacted upon by a particular action or activity.
- (b) Extent: The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact. For example, high at a local scale, but low at a regional scale.
- (c) Duration: Indicates what the lifetime of the impact will be.
- (d) Intensity: Describes whether an impact is destructive or benign.
- (e) Probability: Describes the likelihood of an impact actually occurring; and
- (f) Cumulative: In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Table 20: Criteria to be used for rating of impacts

Criteria	Description			
Extent	National (4) The whole of South Africa	Regional (3) Provincial and parts of neighbouring provinces	Local (2) Within a radius of 2 km of the construction site	Site (1) Within the construction site
Duration	Permanent (4) Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient	Long-term (3) The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory	Medium-term (2) The impact will last for the period of the construction phase, where after it will be entirely negated	Short-term (1) The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase
Intensity	Very High (4) Natural, cultural and social functions and processes are altered to extent that they permanently cease	High (3) Natural, cultural and social functions and processes are altered to extent that they temporarily cease	Moderate (2) Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way	Low (1) Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected

Probability of occurrence	Definite (4) Impact will certainly occur	Highly Probable (3) Most likely that the impact will occur	Possible (2) The impact may occur	Improbable (1) Likelihood of the impact materialising is very low
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Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

Table 21: Criteria for the rating of classified impacts

Low impact (4 - 6 points)	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
Medium impact (7 - 9 points)	Mitigation is possible with additional design and construction inputs.
High impact (10 - 12 points)	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.
Very high impact (13 - 20 points)	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a "very high impact" is likely to be a fatal flaw.
Status	Denotes the perceived effect of the impact on the affected area.
Positive (+)	Beneficial impact.
Negative (-)	Deleterious or adverse impact.
Neutral (/)	Impact is neither beneficial nor adverse.

It is important to note that the status of an impact is assigned based on the status quo – i.e. should the project not proceed. Therefore not all negative impacts are equally significant.

1 PLANNING AND DESIGN PHASE

The potential impacts, significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the planning phase for the various alternatives of the proposed development.

Uchoba – Der Brochen Route 1 (PROPOSAL)				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
Impact on the Natural Habitat Design Insensitive design of the power line routes can cause a negative impact on the natural habitat of not only the site itself, but also on the surrounding natural environment. The context of the development site/route corridor within the macro area in terms of conservation areas also plays a major role when suitable areas for development are being	NEGATIVE MEDIUM	<ul style="list-style-type: none"> Site-specific measures in terms of biodiversity as identified by Johannes Maree (Tel 082 564 1211), must be included in the contract with the Contractor and implemented by the Contractor during the construction phase. The proposed Powerline Route is Route 1, due to slightly lower impacts. 	NEGATIVE LOW	LOW

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<p>considered. The development site/route corridor (or parts thereof) could form part of important ecological corridors and such corridors could be destroyed if the functioning thereof is not being supported by the development proposal.</p> <p><u>The development site</u> The current negative impacts on the study area are large, mining operations and related infrastructure, and anthropogenic negative impacts, such as increased vehicles and people in the area, large, dumps etc.</p> <p>The ecological impacts of the two power line route alternatives are similar in terms of potential impacts on watercourses and other habitats, except rocky outcrops. Route 1 has less turns resulting in less corner poles and stay wires, resulting in less potential impacts on birds. Route 1 also crosses over the small stream (Crossing Point 1) at a shorter distance and therefore is more likely to be able to stay further outside of the watercourse and riparian zone.</p>				
INDIRECT IMPACTS				
No indirect impacts were identified during the planning and design phase.				
CUMULATIVE IMPACTS				
The impacts of Route Alternatives 1 and 2 are similar, however those of Alternative 2 are still slightly higher and each impact, however slight, still results in an increase in the cumulative negative impacts.				

Uchoba – Der Brochen Route Alternative 2				
DIRECT IMPACTS				
<p>Impact on the Natural Habitat Impacts as described under Proposal above are applicable to Alternative. Insensitive design of the power line route can cause a negative impact on the natural habitat of not only the site itself, but also on the surrounding natural environment.</p> <p><u>The development site</u> As mentioned, Route 2 crosses over more rocky outcrops. There is an isolated rocky outcrop just south of Two</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> Site-specific measures in terms of biodiversity as identified by Johannes Maree (Tel 082 564 1211), must be included in the contract with the Contractor and implemented by the Contractor during the construction phase. 	<p>NEGATIVE MEDIUM</p>	<p>MEDIUM</p>

Rivers mine that Route 2 will need to cross over along the lower foothills. However, this outcrop is sensitive, compared to Route 1 where it will be running on flat ground next to existing parallel disturbances of a pipeline with another pipeline to be added in the same area. Therefore, across this area Route 1 is within less sensitive environments. Therefore, although the impacts are similar, those of Alternative 2 are still slightly higher.				
INDIRECT IMPACTS				
No indirect impacts were identified during the planning and design phase.				
CUMULATIVE IMPACTS				
The impacts of Route Alternatives 1 and 2 are similar, however those of Alternative 2 are still slightly higher and each impact, however slight, still results in an increase in the cumulative negative impacts..				

NO GO ALTERNATIVE				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
No direct impacts were identified during the planning and design phase.				
INDIRECT IMPACTS				
No indirect impacts were identified during the planning and design phase.				
CUMULATIVE IMPACTS				
No cumulative impacts were identified during the planning and design phase.				

2 CONSTRUCTION PHASE

Uchoba – Der Brochen Route 1 (PROPOSAL)				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
Impact on the vegetation This impact is associated with disturbance to and/or destruction of the flora component.	NEGATIVE MEDIUM	<ul style="list-style-type: none"> Detail mitigation measures are stipulated in the EMPr and include the following: 	NEGATIVE MEDIUM	LOW

<p>During construction the activities could cause a negative impact where insensitive clearing for construction and access purposes, etc. is required. Insensitive clearing can cause the destruction of habitat. Not only does vegetation removal represent a loss of seed and organic matter, but it is also a loss of protection to plants and small animals. Insensitive vegetation clearance can also cause erosion.</p> <p>Pressure on the natural environment will occur as a result of an influx of labourers into the area that could involve the collection of firewood and medicinal plants, as well as uncontrolled veld fires.</p> <p><u>The development site</u> There are no highly sensitive habitats, or no-go zones present with the proposed power line servitude itself, with the exception of watercourses. There are protected trees in the study area, some of which will most likely need to be removed. A tree permit will need to be obtained.</p>		<ul style="list-style-type: none"> • Ensure as small a footprint as possible during the construction phase. • All hazardous materials inter alia paints, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the natural environment and especially the water environment. • All excess materials brought onto site for construction to be removed after construction, but as part of the construction phase. • Proper rubbish/waste bins to be provided. These to be emptied weekly and the waste to be removed to an official waste disposal site. • Rehabilitation plan for disturbed temporary set up areas to be compiled and implemented as part of the construction phase. • Special attention must be given to the rehabilitation of temporary construction and set up areas. • Re-seeding of bare areas with local indigenous grasses to be part of the rehabilitation plan. No exotic species to be used for rehabilitation. • Only existing gravel / sand roads to be used by heavy vehicles during the construction phase. • Access roads to be maintained at all times. • There are protected trees within the study area. All efforts must be made to avoid these trees, along with other large, well-established trees. However, most of the power line will not impact at all on any of these large trees or protected trees scattered in some areas of the proposed power line servitude. • Most of the project footprint is within disturbed and altered areas. In areas where there is bushveld the footprint of the power line is small and there will not be significant, lasting impacts on vegetation. • The likelihood is very low that any RDL or ODL plants will be impacted. None appear to be directly within the power line servitude. However, should any be noticed during construction then the ECO and/or Specialist must first be contacted for advice on how to move forward. If any suspicious plants are found that need to be moved or destroyed then once again the ECO and/or specialist must first be contacted. • Any priority species encountered must be identified and rescue prior to any excavation or construction activities. 		
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<p>Impacts on avifauna</p> <p>Disturbance Collisions Electrocutions</p> <p><u>The development site</u> The study site is not within any priority areas, including Important Birds Areas (IBAs). However, there are a few small drainage lines and seasonal streams.</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> • A steel mono-pole (structure) to be used for the new 132kV line, that reduces bird collisions and electrocutions. • Bird Flight Diverters (BFDs) must be installed in the areas indicated within the report. These areas include high-risk bird sensitive areas such as watercourse crossings along with the elevated power line which creates potential collisions / bird-strikes. • The Bird Flight Diverters (BFDs) must be placed across the demarcated areas of the powerline along the earth wire at 5m intervals, alternating black and white. • Each monopole must be fitted with bird perches on the top. This helps to draw large birds (eg. Vultures) away from the dangerous / risky insulators that can result in electrocutions. • Eskom will use the latest structure designs that further help reduce bird collisions and electrocutions. • No interaction is allowed with any birds, even common species. • Should a nest be found during the construction phase, work in that particular spot must be halted and a bird specialist consulted. Any nesting sites found should be cordoned off with tape and signs and declared a 'no-go' zone. • If the nest is within the actual servitude it might be able to be relocated, depending on the species and the advice from the bird specialist. 	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p>Impacts on fauna</p> <ul style="list-style-type: none"> • Noise and vibration during construction • Loss of habitat <p><u>The Development site</u> No priority faunal species (which includes red data species) were encountered during field investigations</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> • All operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No. 85 of 1993). • No poaching of wildlife or selling of firewood will be allowed. • No animals or birds may be fed, disturbed, hunted or trapped. 	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p>Impact on Water Sources</p> <p>During construction, the risk of pollution of surface and groundwater can generally be related to diesel, oil and concrete spills that may result in a change in water quality with the associated negative impact on humans and the natural habitat. Groundwater pollution during the construction phase is also associated with poor construction techniques. Diesel, oil and lubricant spills are the main concern in respect of water pollution during construction together</p>	<p>NEGATIVE HIGH</p>	<ul style="list-style-type: none"> • Mitigation measures in the Environmental Management Programme include measures to ensure acceptable construction practices to minimise or avoid the risk of contamination of water sources. These include: <u>Construction Site</u> • No heavy vehicles are allowed to drive through watercourses, unless on existing gravel and farm roads. • 32m Buffer zones, from the edge of the banks of all watercourses need to be implemented. These are 'No-Go' zones in terms of construction. No pylons may be placed / erected within these buffer zones of 32m. 	<p>NEGATIVE MEDIUM</p>	<p>LOW</p>

<p>with organic pollution caused by inadequately managed facilities at the work sites.</p> <p><u>The development site</u> There is one major river crossing and a few small stream / drainage line crossings. Route 1 crosses over the small stream (Crossing Point 1) at a shorter distance and therefore is more likely to be able to stay further outside of the watercourse and riparian zone.</p>		<ul style="list-style-type: none"> • No temporary facilities or portable toilets to be setup within 100m of any watercourse and associated riparian zone and floodplains, including streams, drainage lines and wetlands. • No temporary accommodation or temporary storage facilities may be setup within 100m of the any watercourse. • No excess excavated soils may be stockpiled within natural grassland areas. • Ensure as small a footprint as possible during the construction phase. • All hazardous materials inter alia paints, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the natural environment and especially the water environment. • During and after construction, stormwater control measures should be implemented especially around stockpiled soil, excavated areas, trenches etc. so that export of soil into any watercourse is avoided. <p><u>Diesel, hydraulic fluid and lubricants</u></p> <ul style="list-style-type: none"> • Minimise on-site storage of petroleum products; • Ensure measures to contain spills readily available on site (spill kits). • All petrochemical leaks and spills must be appropriately contained and disposed of at a licensed waste disposal site. <p><u>Construction Vehicles</u></p> <ul style="list-style-type: none"> • All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. No repairs may be undertaken beyond the contractor laydown area. • Should any transfer of vehicle fuel take place on site, it is important to demarcate a specific area for this purpose. This area should be covered with an impermeable layer to prevent any penetration of fuel and oil spillage into the soil. The area could also be sloped towards an oil trap or sump to ease collection of spilled substances. • All construction vehicles should be serviced on a regular basis to minimise the risk of oil spillage on site. • Servicing of vehicles or equipment must take place off-site at appropriate workshop facilities. • When not in use, construction vehicles must be parked at the hardpark, with 'impermeable layers', at the workshops to prevent leaks and spills from penetrating the substrate. <p><u>Construction site domestic waste and sewage</u></p>		
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		<ul style="list-style-type: none"> • Deposit solid waste in containers and dispose at authorised waste disposal sites regularly or as per the Waste Management Plan. • Dispose of liquid waste (grey water) with sewerage. • Temporary install appropriate ablution facilities. • Preferably utilise onsite ablution facilities or chemical toilets. • <u>Construction site inert waste (waste concrete, reinforcing rods, waste bags, wire, timber etc)</u> • Ensure compliance with stringent daily clean up requirements on site. • Dispose at authorised waste disposal sites. <p><u>Construction site hazardous waste</u></p> <ul style="list-style-type: none"> • All hazardous substances must be stored on an impervious surface in a designated bunded area, able to contain 110% of the total volume of materials stored at any given time. • Material safety data sheets (MSDSs) are to be clearly displayed for all hazardous materials. • The integrity of the impervious surface and bunded area must be inspected regularly and any maintenance work conducted must be recorded in a maintenance report. • Employees should be provided with absorbent spill kits and disposal containers to handle spillages. • Train employees and contractors on the correct handling of spillages and precautionary measures that need to be implemented to minimise potential spillages. • Employees should record and report any spillages to the responsible person. • An Emergency Preparedness and Response Plan will be developed and implemented as part of the existing emergency response plan, should and incident occur. • Access to storage areas on site must be restricted to authorised employees only. • Contractors will be held liable for any environmental damages caused by spillages. 		
<p>Topographical Impacts</p> <p>Alteration of topography due to stockpiling of soil, building material and debris and waste material on site.</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> • All stockpiles must be restricted to designated areas and are not to exceed a height of 2 metres. • Stockpiles created during the construction phase are not to remain during the operational phase. • The contractor must be limited to clearly defined access routes to ensure that sensitive and undisturbed areas are not disturbed. 	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p>Impact of erosion</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> • A combination of erosion prevention principles is discussed in detail in the EMP. These include the use of mulch 	<p>NEGATIVE LOW</p>	<p>LOW</p>

<p>Unnecessary clearing of vegetation can result in exposed soil prone to erosive conditions. Insufficient soil coverage after placing of topsoil especially during construction where large surface areas are applicable could also cause erosion. To cause the loss of soil by erosion is an offence under the law.</p> <p><u>The development site</u> The gradient of the study site varies considerably across the length of the study site with the average slope between 4% and 3%. The lowest point along the power line servitude is in the area where the line crosses the Groot-Dwars River, while the highest point is just north of the Der Brochen Substation in the south of the study site. The general downward slope across the study site is from Der Brochen Substation in the south to Uchoba Substation (Maphuta MTS) in the north.</p>		<p>/ fertiliser, matting, vegetation, retaining walls, topsoil coverage, diversion channels and berms, etc.</p> <ul style="list-style-type: none"> • Other factors which should be taken into account during the construction phase are the following: • Unnecessary clearing of flora resulting in exposed soil prone to erosive conditions should be avoided. • Land disturbance must be minimized in order to prevent erosion and run-off - this includes leaving exposed soils open for a prolonged period of time. As soon as vegetation is cleared (including alien) the area must be re-vegetated. • Large exposed areas during the construction phases should be limited. Where possible areas earmarked for construction during later phases should remain covered with vegetation coverage until the actual construction phase. This will prevent unnecessary erosion and siltation in these areas. • The total area of exposed soil must be reduced during the rainy season. • Specifications for topsoil storage and replacement to ensure sufficient soil coverage as soon as possible after construction must be implemented. • Rehabilitation plan for disturbed temporary set up areas to be compiled and implemented as part of the construction phase. • Special attention must be given to the rehabilitation of temporary construction and set up areas. • Re-seeding of bare areas with local indigenous grasses to be part of the rehabilitation plan. No exotic species to be used for rehabilitation. 		
<p>Soils Impacts Removal and compaction of soil during construction activities. Erosion, degradation and loss of topsoil due to construction activities as well as surface and stormwater run-off.</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> • Strip topsoil prior to any construction activities. • Reuse topsoil to rehabilitate disturbed areas. • Topsoil must be kept separate from overburden and must not be used for building purposes or maintenance or access roads. • Minimise the clearance of vegetation to avoid exposure of soil. • Protect areas susceptible to erosion with mulch or a suitable alternative. • Implement the appropriate topsoil and stormwater runoff control management measures as per the EMPr to prevent the loss of topsoil. • Topsoil should only be exposed for minimal periods of time and adequately stockpiled to prevent the topsoil loss and run-off. 	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p>Air Quality Impacts</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> • Dust must be suppressed on the construction site and during the transportation of material during dry 	<p>NEGATIVE LOW</p>	<p>LOW</p>

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<p>Dust and emissions during construction generated by debris handling and debris piles, truck transport, bulldozing, general construction.</p>		<p>periods by the regular application of water. Water used for this purpose must be used in quantities that will not result in the generation of run-off.</p> <ul style="list-style-type: none"> • Loads could be covered to avoid loss of material in transport, especially if material is transported off site. • Dust and mud should be controlled at vehicle exit and entry points to prevent the dispersion of dust and mud beyond the site boundary. • A speed limit of 40 km/hr should be set for all vehicles travelling over exposed areas. • During the transfer of materials, drop heights should be minimised to control the dispersion of mater being transferred. • The height of all stockpiles on site should be a maximum of 2m. • Use of dust retardant road surfacing if required due to the exceedance of Air Quality Guidelines. 		
<p>Impacts associated with construction activities such as noise, and safety</p> <p>The negative impact of noise, generally associated with construction activities, are temporary, occurring mostly during the construction phase. In terms of safety, it should be noted that the project involves deep excavations and open trenches. Excavations and open trenches can act as a trap for snakes, small mammals and lizards.</p>	<p>NEGATIVE MEDIUM</p>	<p><u>Noise mitigation measures</u></p> <ul style="list-style-type: none"> • All construction activities should be undertaken according to daylight working hours between the hours of 07:00 – 17:00 on weekdays and 7:00 – 17:00 on Saturdays. • Construction activities may be undertaken on Sundays in cases of emergencies. • Provide all equipment with standard silencers. • Maintain silencer units in vehicles and equipment in good working order. • All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. • Construction staff working in area where the 8-hour ambient noise levels exceed 85 dBA must have the appropriate Personal Protective Equipment (PPE). • All operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No. 85 of 1993). <p><u>Safety mitigation measures</u></p> <ul style="list-style-type: none"> • The area affected by construction must be fenced prior to any activities taking place. • All excavated areas must be clearly marked and barrier tape must be placed around them for safety purposes. • A Fire Management Plan has to be identified during the pre-construction phase and must be implemented throughout the construction and operation phases of the development. 	<p>NEGATIVE MEDIUM</p>	<p>LOW</p>
<p>Traffic (construction vehicles)</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> • The heavy construction vehicles should avoid the local roads during peak traffic times and large deliveries should also 	<p>NEGATIVE MEDIUM</p>	<p>LOW</p>

Eskom 132kV power line between Maphuta MTS (Uchoba substation) and Der Brochen substation

<p>The construction phase is likely to generate additional traffic in terms of construction vehicles and heavy vehicles delivering materials to the site. However, the number of vehicles will be minimal.</p>		<p>be scheduled outside the peak traffic times.</p> <ul style="list-style-type: none"> • Signs should be erected in the vicinity of the site. • Construction vehicles are to avoid main roads during peak traffic hours. • All vehicles entering the Site are to be roadworthy. • When using heavy or large vehicles / equipment, “spotters” are to be present to assist the driver with his blind spots. • Any incident or damage to a vehicle must be reported immediately. 		
<p>Impact of Labourers</p> <p>An uncontrolled influx of labourers with resulting increase in crime and squatting would place pressure on the natural environment (placement of snares, removal of trees for firewood, careless waste disposal, etc.). This could be severe, resulting in permanent damage to the environment if not mitigated properly.</p> <p><u>The development site</u></p> <p>A small number of construction workers will be on site. A large workforce is thus not expected. Even if all the required labourers (highly skilled to unskilled) are sourced from outside the study area (worst case scenario) it is not anticipated that the relatively small construction workforce will have an impact on the population size and density of the local communities within the study area.</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> • Mitigation measures to counter impact on the natural environment and limit potential for crime during the construction phase should include specifications in terms of control of construction workers (i.e. provision of toilet and cooking facilities, provision of either accommodation facilities or transport facilities, implementation of Environmental Educational Programmes, etc.). • Accommodation for labourers must either be limited to guarding personnel on the construction site (with labourers transported to and from existing neighbouring towns) or a separate fenced and controlled area where proper accommodation and relevant facilities are provided. • No temporary accommodation or temporary storage facilities may be setup within 100m of the any watercourse. • Part of the adjudication process for the successful contractor to undertake the civil works must be the use of casual and unskilled labour to stimulate local job creation through the use of labour intensive methods where possible. • If possible all labour should be sourced locally. • Contractors and their families may not stay on site. • No informal settlements will be allowed. 	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p>Safety</p> <p>Public safety during construction.</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> • Members of the public adjacent to the construction site should be notified of construction activities in order to limit unnecessary disturbance or interference. • Construction activities will be undertaken during daylight hours and only on Sundays in cases of emergency. 	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p>Safety</p> <p>Construction staff safety during construction.</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> • Ensure the appointment of a Safety Officer to continuously monitor the safety conditions during construction. • All construction staff must have the appropriate PPE. • The construction staff handling chemicals or hazardous materials must 	<p>NEGATIVE MEDIUM</p>	<p>LOW</p>

		<p>be trained in the use of the substances and the environmental, health and safety consequences of incidents.</p> <ul style="list-style-type: none"> Report and record any environmental, health and safety incidents to the responsible person. 		
<p>Impact on Cultural Heritage Resources</p> <p>No known features will be directly impacted on apart from Feature 5 (Iron Age site) at 30° 06' 36.7524" E 24° 55' 15.8592" S, that is of medium significance. With no mitigation measures the impact will be medium to high, with the implementation of the correct mitigation measures the impact can be mitigated to an acceptable level. This feature is close to Uchaba sub and on the alignment of Route 1 and 2.</p> <p>There is always a probability that additional archaeological resources might be identified during excavations.</p>	<p>NEGATIVE LOW</p>	<ul style="list-style-type: none"> Archaeological monitoring of pylon excavations at the Iron Age site (Feature 5); The final pylon positions should be subjected to a heritage walk down; Implementation of a chance find procedure for the project s outlined; Weekly monitoring of pylon excavation areas during the pre-construction and construction phase by the ECO. A 'Chance find Procedure' should be followed: <ul style="list-style-type: none"> If there are any new heritages resources are discovered during construction and operation phases of the proposed development, then a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the findings at the expense of the developer. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required at the expense of the developer. Mitigation will only be carried out after the archaeologist or palaeontologist obtains a permit in terms of section 35 of the NHRA (Act 25 of 1999). The applicant/ ECO may contact SAHRA APM Unit for further details: (Nokukhanya Khumalo/ Phillip Hine 021 202 8654). If any unmarked human burials are uncovered and the archaeologist called in to inspect the finds and/or the police find them to be heritage graves, then mitigation may be necessary and the SAHRA Burial Grounds and Graves (BGG) Unit must be contacted for processes to follow (Thingahangwi Tshivase/Mimi Seetelo 072 802 1251). 	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p>Impact on Palaeontological Resources</p> <p>The palaeontological sensitivity of the area is insignificant/ grey on the SAHRIS palaeomap, there is no requirements for an assessment of</p>	<p>NEGATIVE LOW</p>	<ul style="list-style-type: none"> In the unlikely event that fossils are uncovered during construction then construction must cease within the immediate vicinity, a buffer of 30 m must be established, and a palaeontologist called in to inspect the finds. The palaeontologist must obtain a section 35(4) permit in terms of NHRA 	<p>NEGATIVE LOW</p>	<p>LOW</p>

Eskom 132kV power line between Maphuta MTS (Uchoba substation) and Der Brochen substation

impacts to palaeontological resources.		<p>and Chapter IV NHRA Regulations, before any fossils are collected.</p> <ul style="list-style-type: none"> • If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required at the expense of the developer. Mitigation will only be carried out after the archaeologist or palaeontologist obtains a permit in terms of section 35 of the NHRA (Act 25 of 1999). • The applicant/ ECO may contact SAHRA APM Unit for further details: (Nokukhanya Khumalo/ Phillip Hine 021 202 8654). 		
<p>Existing services and infrastructure</p> <p>Damage to the existing services and infrastructure during the construction phase and disruptions in services (i.e. Telkom lines, electricity) during the construction phase.</p>	NEGATIVE LOW	<ul style="list-style-type: none"> • Discuss possible disruptions with affected parties to determine most convenient times for service disruptions and warn affected parties well in advance of dates that service disruptions will take place. 	NEGATIVE LOW	LOW
<p>Waste Management</p> <p><u>Builder's and domestic waste</u> The construction phase will create small quantities of contractor's and domestic waste to be accommodated by local legal landfill sites.</p>	NEGATIVE MEDIUM	<ul style="list-style-type: none"> • Develop a central waste temporary holding site to be used during construction. This site should comply with the following: • Skips for the containment and disposal of waste that could cause soil and water pollution, i.e. paint, lubricants, etc.; • Small lightweight waste items should be contained in skips with lids to prevent wind littering; • Bunded areas for containment and holding of dry building waste. • These areas shall be predetermined and located in areas that is already disturbed. • These areas shall not be in close proximity of any watercourse. 	NEGATIVE LOW	LOW
<p><u>Sewage waste</u> Generation and disposal of sewage waste of temporary construction toilets.</p>	NEGATIVE MEDIUM	<ul style="list-style-type: none"> • On-site chemical toilets will be provided for domestic purposes during construction phase. • The contractors will be responsible for the maintenance of the chemical toilets. • No temporary facilities or portable toilets to be setup within 50m of any watercourse. • No French drain systems may be installed. • Should any spills or incidents occur; the material will be cleaned up immediately and disposed off appropriately. • All incidents must be reported to the responsible site officer as soon as it occurs. 	NEGATIVE LOW	LOW

Eskom 132kV power line between Maphuta MTS (Uchoba substation) and Der Brochen substation

<p>Economic impacts</p> <p>Positive economic impacts are anticipated. The impact on employment would be positive, and although the impact is expected to be small; any contribution to more employment is an achievement in South Africa.</p>	<p>POSITIVE HIGH</p>	<ul style="list-style-type: none"> • Employment opportunities will be generated. • All labour (skilled and unskilled) and contractors should be sourced locally where possible. • A labour and recruitment policy must be developed, displayed and implemented by the contractor. • Recruitment at the construction site will not be allowed. • Where possible, labour intensive practices (as opposed to mechanised) should be practiced. • The principles of equality, BEE, gender equality and non-discrimination will be implemented. 		
INDIRECT IMPACTS				
<p>No indirect impacts were identified during the construction phase.</p>				
CUMULATIVE IMPACTS				
<p>Visual Impact</p> <p>The development of the site would contribute to the cumulative effects of the gradual transformation of the area from an area with part rural landscape components to an area dominated by infrastructure.</p> <p><u>Development site</u></p> <p>It is also important to take into consideration that, the landcover or landuse of the study site is that of large, commercial open cast mines. The proposed power line route (servitude) will literally need to weave between open mining areas, overburden dumps, mine buildings, roads, and across some open bushveld. Sections of the power line route runs along existing roads and an existing as well as to be constructed water pipeline. In other words, the power line servitude will be mostly within or next to disturbed areas.</p>		<p>Project should adhere to the stipulated mitigation measures to limit impact to the natural habitat, to surface water, erosion etc.</p>		

Uchoba – Der Brochen Route Alternative 2				
DIRECT IMPACTS				
<p>Potential Impacts</p>	<p>Significance Rating</p>	<p>Mitigation Measures</p>	<p>Significance rating of impacts after mitigation</p>	<p>Risk of the impact and mitigation not being implemented</p>
<p>Impacts as described under Proposal above are applicable to Alternative 2.</p>				
<p>Impact on watercourses</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> • 32m buffer zones (no-go) zones must be implemented around all and any watercourses that need to be 	<p>NEGATIVE LOW</p>	<p>LOW</p>

Eskom 132kV power line between Maphuta MTS (Uchoba substation) and Der Brochen substation

Route 1 also crosses over the small stream (Crossing Point 1) at a shorter distance and therefore is more likely to be able to stay further outside of the watercourse and riparian zone than Route 2.		crossed. No poles / pylons may be planted within these buffer zones. <ul style="list-style-type: none"> No watercourses (streams, drainage lines, rivers) may be impeded or impounded during the construction phase or at any stage of the project at all. Erosion and potential siltation of watercourses must be monitored at all times during the construction phase of the project. 		
INDIRECT IMPACTS				
No indirect impacts were identified during the construction phase.				
CUMULATIVE IMPACTS				
No cumulative impacts were identified during the construction phase.				

NO GO ALTERNATIVE				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
All the impacts outlined above will not apply to the No-Go alternative as the status quo will apply and the environment will remain as it is currently. However, it is important to note that the benefits associated with the development will also not materialise, and it must be noted that the majority of the impacts identified for the development were mitigated to a negative low or positive impact once the measures for mitigation were applied, indicating that maintaining the status quo is to lose the opportunity of a beneficial development with negligible environmental impacts.				
INDIRECT IMPACTS				
No indirect impacts were identified during the construction phase.				
CUMULATIVE IMPACTS				
No cumulative impacts were identified during the construction phase.				

3 OPERATIONAL PHASE

Uchoca – Der Brochen Route 1 (PROPOSAL)				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
Impact on the natural habitat The removal of any alien invasive plants, coupled with indigenous re-vegetation in the area of the substation site and the laydown area, as proposed will have a positive effect on the biodiversity of not only the site itself, but also its surrounds.	POSITIVE HIGH	Vegetation guidelines as stipulated in the EMPr must be followed during the operational phase of the project.		
Impact of alien vegetation	POSITIVE HIGH	Removal of alien invasive species or other vegetation and follow-up procedures must be in accordance with the Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983). Mechanical control of alien species to be implemented within three (3) months of completion of construction of the power line. Thereafter ever six months. No chemical control (herbicides) to be used in the control of alien plants. All control of weeds to be mechanical in nature. Cleared alien vegetation must not be dumped on adjacent intact vegetation during clearing, but should be temporarily stored in a demarcated area.		
Impact on avifauna	NEGATIVE MEDIUM	<ul style="list-style-type: none"> Maintenance access roads to be limited to car tracks or small gravel roads under the power lines (This does not include existing mine roads or public gravel roads in the area that can be used to access the power line). Access roads to be maintained and any erosion gullies to be rehabilitated as part of the maintenance programme on the power lines. Any dead birds found in the power line servitude to be photographed, position recorded and reported to Eskom. 	NEGATIVE LOW	LOW
Socio-Economic Impact The impact on employment would be positive, and although the impact is expected to be small; any contribution to more employment is an achievement in South Africa. POSITIVE IMPACT	POSITIVE LOW			
INDIRECT IMPACTS				
No indirect impacts were identified during the operational phase.				
CUMULATIVE IMPACTS				

Eskom 132kV power line between Maphuta MTS (Uchoba substation) and Der Brochen substation

No cumulative impacts were identified during the operational phase.				
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Uchoba – Der Brochen Route Alternative 2				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
Impacts described under Alternative Proposal above are applicable to Alternative 2.				
INDIRECT IMPACTS				
Impacts described under Alternative Proposal above are applicable to Alternative 2.				
CUMULATIVE IMPACTS				
Impacts described under Alternative Proposal above are applicable to Alternative 2.				

NO GO ALTERNATIVE				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
All the impacts outlined above will not apply to the No-Go alternative as the status quo will apply and the environment will remain as it is currently. However, it is important to note that the benefits associated with the electrical infrastructure development will also not materialise, and it must be noted that the majority of the impacts identified for the infrastructure development were mitigated to a negative low or positive impact once the measures for mitigation were applied, indicating that maintaining the status quo is to lose the opportunity of a beneficial infrastructure development with negligible environmental impacts.				
DIRECT IMPACTS				
No indirect impacts were identified during the operational phase.				
CUMULATIVE IMPACTS				
No cumulative impacts were identified during the operational phase.				

4 IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING AND CLOSURE PHASE

Due to the permanent nature of this development proposal, decommissioning is highly unlikely and decommissioning therefore does not form part of this project proposal.

5 ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, an environmental impact statement will be completed. This will sum up the impact and its alternatives may have on the environment (after the management and mitigation of impacts have been taken into account - with specific reference to types of impact, duration of impacts, likelihood of potential impacts and the significance of impact).

PLANNING & DESIGN PHASE (PROPOSAL)

Impact Description	Intensity	Extent	Duration	Probability it would occur	Significance rating After Mitigation
Impact on Natural Habitat and watercourses	1	2	2	1	Low

CONSTRUCTION PHASE (PROPOSAL)

Impact Description	Intensity	Extent	Duration	Probability it would occur	Significance rating After Mitigation
Impact on Natural Habitat	1	1	2	2	Low
Impact on Water Resources	1	2	2	2	Low
Impact on Avifauna	1	2	1	2	Low
Geology: Stability of structures, stability of excavations	1	1	3	1	Low
Impact on Erosion	2	1	1	2	Low
Impact of Noise, Safety and Dust	2	2	1	1	Low
Traffic Impact	2	2	1	1	Low
Impact of Labourers	2	2	1	1	Low
Impact on Cultural Heritage Resources	2	1	2	2	Low
Existing Services and Infrastructure	1	1	2	1	Low
Waste Management	2	1	1	2	Low
Economic Impacts This will be a POSITIVE impact	3	2	2	3	High

OPERATIONAL PHASE (PROPOSAL)

Impact Description	Intensity	Extent	Duration	Probability Probability it would occur	Significance rating After Mitigation
Impact on Natural Habitat This will be a POSITIVE impact	2	2	3	3	High
Impact on Avifauna	1	2	1	2	Low
Impact on Alien vegetation This will be a POSITIVE impact	2	2	3	3	High

Economic Impacts This will be a POSITIVE impact	3	2	2	3	High
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NO-GO (Compulsory)

All the impacts outlined above will not apply to the No-Go alternative as the status quo will apply and the environment will remain as it is currently. However, it is important to note that the benefits associated with the development will also not materialise, and it must be noted that the majority of the impacts identified for the development were mitigated to a negative low or positive impact once the measures for mitigation were applied, indicating that maintaining the status quo is to lose the opportunity of a beneficial development with negligible environmental impacts.

6 IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

The significance of impacts of the proposal and alternative(s), and reasons for selecting the proposal or preferred alternative are as follows:

Uchoba – Der Brochen Overhead Power line

The project and related activities will have limited potentially negative impacts on the natural environment. The impacts will be at a very localised level (Study Site). The nature of the project is also known to have low levels of negative impacts on the natural environment. The overall footprint is small with poles/pylons every few hundred metres and bush clearing of approximately 8 wide under the wires. With the implementation of mitigating measures and general standards and procedures for power line construction, the potential impacts can be reduced slightly and contained to the specific study site. Most of the negative impacts will be short-term (during the construction phase), with the only measurable long-term potential impacts being those of potential bird electrocutions and collisions.

Route alternative recommendations: Ecological

Two power line route / servitude alternatives were investigated. Due to the spatial constraints for the servitude the alternatives follow the same corridor in certain areas. The ecological impacts of the two routes are similar in terms of potential impacts on watercourses and other habitats, except rocky outcrops. However, Route 1 has less turns resulting in less corner pylons and stay wires, resulting in less potential impacts on birds. Route 1 also crosses over the small stream (Crossing Point 1) at a shorter distance and therefore is more likely to be able to stay further outside of the watercourse and riparian zone.

Route 2 also crosses over more rocky outcrops. There is a isolated rocky outcrop just south of Two Rivers mine that Route 2 will need to cross over along the lower foothills. However, this outcrop is sensitive, compared to Route 1 where it will be running on flat ground next to existing parallel disturbances of a pipeline with another pipeline to be added in the same area. Therefore, across this area Route 1 is within less sensitive environments. Route 1 also runs closer to the existing road disturbance over a longer distance than Route 2. These small but meaningful differences show that Route 1 will overall have less negative impact on sensitive environments.

Therefore recommended / preferred route is: **Route 1.**

Route alternative recommendations: Avifauna

Route Alternative 1 is less sensitive in terms of Avifaunal Impacts. The two power line route alternatives are very similar in most aspects, but Alternative 2 does traverse more rocky outcrops. Alternative 1 runs for longer along and parallel to existing roads. Erecting a power line along an existing road lowers the potential for bird impacts and collisions, when compared to the same power line in open grassland or bushveld. The road is also already a disturbance within the natural environment and it is always preferable to keep disturbances within the same area. For these reasons the recommended route is **Route 1.**

Route alternative recommendations: Heritage

During the site visit an Iron Age site was recorded close to Uchoba Substation on a section where the two routes follow the same corridor. The impact of the proposed project on heritage resources can be mitigated to an acceptable level and it is recommended that the proposed project can commence.

The impact of the proposed project on heritage resources is low and either option is acceptable from a heritage perspective.

In summary, taking the ecological, avifauna and heritage sensitivities into account, the recommended route is **Route 1.**

Proposal for authorisation

1 Uchoba – Der Brochen Overhead power line Route 1

23 RECOMMENDATION OF PRACTITIONER

The majority of the negative environmental impacts will be experienced during the construction phase. The majority of these impacts will have a LOW significance. It is envisaged that these impacts can be easily mitigated and satisfactorily managed. The management of the impacts identified in the BAR for the construction and operational phases, are outlined in the technical specialist report recommendations and the EMPr.

It is the opinion of Setala Environmental that there are presently no environmental impacts emanating from the proposed activity that cannot be adequately managed. The management of the negative impacts will require the implementation of the necessary mitigatory measures detailed in the Environmental Management Programme (EMPr, refer to Appendix F) of this report.

Based on the assumption that the mitigation measures will be effectively implemented for the proposed project and its associated infrastructure and that no fatal flaws have been identified to date, it is the opinion of the EAP that this activity should be authorised to proceed to the final stages of decision making.

24 ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)

An Environmental Management Programme was prepared to detail a plan of action to ensure that recommendations for preventing the negative environmental impacts (and where possible improving the environment) are implemented during the life-cycle of the project. The applicant has to sign and implement a Generic EMPr approved by the DFFE for the overhead lines. The Generic EMPr template are available in soft copy and in Appendix F. In addition, refer to Part C: Site Specific Environmental Attributes of the EMPr.

25 THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

As per the Appendix 1(3)(1)(q) of the NEMA EIA Regulations 2014, as amended, the period for which the environmental authorisation is required, is five (5) years and the activity is expected to be concluded within 2 years from the date of authorisation.

26 CONCLUSION

In summary the following is recommended for authorisation:

This EIA investigated a 100m corridor to accommodate any future deviation of the power lines. The EIA will seek to authorise the total corridor. The wider area that was investigated will allow future potential amendments to the EA should it be necessary (at a later stage).

Should small changes be done to the route alignment after authorisation it will not be considered crucial and will not warrant a new application.

The EIA recommends the following for construction.

1 Uchoba – Der Brochen Overhead power line Route 1

