MYEZO ENVIRONMENTAL MANAGEMENT SERVICES

Environmental Stewardship

ESKOM - GILEAD - BASIC ASSESSMENT

BASIC ASSESMENT REPORT IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NO. 107 OF 1998), AS AMENDED, FOR THE PROPOSED DEVIATION OF APPROXIMATELY ONE (1) KM OF AN EXISTING GILEAD POWERLINE AT GILEAD SUBSTATION LOCATED WITHIN MOGALAKWENA LOCAL MUNICIPALITY, WATERBERG DISTRICT MUNICIPALITY IN LIMPOPO PROVINCE.

DOCUMENT NAME: EGB - REPORT- BAR

DATE: 25 June 2021

DOCUMENT STATUS: Ver 1

Volume 1 of 4

MYEZO REF: EGB 2020/12/BAR

Tel: 012 998 7642 | Fax: 102 998 7641 | C: 082 772 2418 | email: babalwa@myezo.co.za
Postnet Suite B165, Private Bag X18, Lynnwood Ridge, 0040, Pretoria, South Africa, 1250

Table of Contents

LIST OF FIGURES

List of Tables

List of Photographs

List of Appendices

ESKOM - GILEAD - BASIC ASSESSMENT

BASIC ASSESMENT REPORT IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NO. 107 OF 1998), AS AMENDED, FOR THE PROPOSED DEVIATION OF APPROXIMATELY ONE (1) KM OF AN EXISTING GILEAD POWERLINE AT GILEAD SUBSTATION LOCATED WITHIN MOGALAKWENA LOCAL MUNICIPALITY, WATERBERG DISTRICT MUNICIPALITY IN LIMPOPO PROVINCE DOCUMENT NAME: EGB - REPORT- BAR

DATE: 25 June 2021

DOCUMENT STATUS: Ver 1

Volume 1 of 4

MYEZO REF: EGB 2020/12/BAR

MYEZO ENVIRONMENTAL MANAGEMENT SERVICES
Environmental Stewardship

DOCUMENT REVIEW AND APPOVAL

Prepared by	**Babalwa Fatyi and Lynn Madziwanzira**		
Reviewed by	**Faith Masango**		
Document Authorisation	***Name***	***Signature***	***Date***
Approved by	**Babalwa Fatyi**		***25 June 2021***

BASIC ASSESMENT REPORT IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NO. 107 OF 1998), AS AMENDED, FOR THE PROPOSED DEVIATION OF APPROXIMATELY ONE (1) KM OF AN EXISTING GILEAD POWERLINE AT GILEAD SUBSTATION LOCATED WITHIN MOGALAKWENA LOCAL MUNICIPALITY, WATERBERG DISTRICT MUNICIPALITY IN LIMPOPO PROVINCE

DOCUMENT NAME: EGB - REPORT- BAR

DATE: 25 June 2021

DOCUMENT STATUS: Ver 1

Volume 1 of 4

MYEZO REF: EGB 2020/12/BAR

MYEZO ENVIRONMENTAL MANAGEMENT SERVICES
Environmental Stewardship

DISCLAIMER

This report has been prepared by Myezo Environmental Management Services (Pty) Ltd with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating all contractual agreements and taking account of the resources devoted to it by agreement with the client. We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

OWNERSHIP OF REPORTS AND COPYRIGHTS

BASIC ASSESMENT REPORT IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NO. 107 OF 1998), AS AMENDED, FOR THE PROPOSED DEVIATION OF APPROXIMATELY ONE (1) KM OF AN EXISTING GILEAD POWERLINE AT GILEAD SUBSTATION LOCATED WITHIN MOGALAKWENA LOCAL MUNICIPALITY, WATERBERG DISTRICT MUNICIPALITY IN LIMPOPO PROVINCE. DOCUMENT NAME: EGB - REPORT- BAR

DATE: 25 June 2021

DOCUMENT STATUS: Ver 1

Volume 1 of 4

MYEZO REF: EGB 2020/12/BAR

MYEZO ENVIRONMENTAL MANAGEMENT SERVICES
Environmental Stewardship

DOCUMENT CONTROL AND REVISION LIST

Revision	Nature of amendment	Compiled by	Approved by	Date of amendment
This document (Ver 1)	No amendments to date	Babalwa Fatyi	Babalwa Fatyi	June 2021

ACKNOWLEDGEMENTS

This report has been compiled with the insights and input from the project team members outlined below:

- Ms Prudence Khosa: Project Manager – Eskom Holdings (SOC) Limited

Environmental Assessment Practitioners: Myezo Environmental Management Services (Pty) Ltd

- Babalwa Fatyi: Environmental Assessment Practitioner
- Lynn Madziwanzira: Public Participation Practitioner
- Faith Masango: Project Administrator

Project Specialists

- Biodiversity (Ecological and Avifauna)
  - Bio-Assets: Dr Wynand Vlok; and
  - PRISM EMS: AE van Wyk
- Heritage Impact Assessment and Palaeontological Impact Assessment
  - Tsimba Archaeological Footprints (Pty) Ltd: Mr Roy Muroyi

REPORT STRUCTURE

Part A

i. Basic Assessment Report (Volume 1 of 4) – which include the project introduction with a detailed legislative framework, environmental setting, public involvement which has been undertaken and identified impacts.

Part B

ii. Environmental Management Programme (Volume 2 of 4) – which provides the mitigation measures for the identified impacts and aspects pertaining to implementation support structures and tools.

iii. Public Participation Report (Volume 3 of 4) – which provide details of the public participation processes.

iv. Specialist Studies (Volume 4 of 4) – providing all specialist studies undertaken in support of the EA application process.

LIST OF ABBREVIATIONS

BAR	Basic Assessment Report
BID	Background Information Document
BA	Basic Assessment
CARA	Conservation of Agricultural Resources Act, 1983 (Act No.43 of 1983)
Covid-19	Corona Virus
CoGTA	Cooperative Governance and Traditional Affairs
CV	Curriculum Vitae
CBD	Central Business District
Dr	Doctor
DHSW&S	Department of Human Settlements, Water and Sanitation
DFFE	Department of Forestry, Fisheries and Environment
DALRRD	Department of Agriculture, Land Reform and Rural Development
DEAT	Department of Environmental Affairs and Tourism
DEA	Department of Environmental Affairs
EAPs	Environmental Assessment Practitioners
EIA	Environmental Impact Assessment
EA	Environmental Authorisation
EMPr	Environmental Management Programme
ES	Ecological Sensitivity
EI	Ecological Importance
EC	Ecological Class
Eskom	Eskom Holdings SOC Limited
EGSS	Eskom Gilead Substation
FET	Further Education and Training
GDP	Gross Domestic Product
GN	Government Notice
HIV	Human Immunodeficiency Virus:
I&Aps	Interested and Affected Parties
IDP	Integrated Development Plan

IEM	Integrated Environmental Management
Km	Kilometres
LM	Local Municipality
Myezo	Myezo Environmental Management Services (Pty) Ltd
MLM	Mogalakwena Local Municipality
MSc	Master of Science
N	National
NNHR	No Natural Habitat Remaining
NWA	National Water Act, 1998 (Act No. 36 of 1998)
NEMA	National Environmental Management Act, 1998 (Act No.107 of 1998)
NEM: AQA	National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)
NEMWA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
PPP	Public Participation Process
Pty	Property
PES	Present Ecological Sensitivity
PPE	Personal Protective Equipment
RBCT	Richards Bay Coal Terminal
SHEQ	Safety, Health, Environment and Quality
SABS	South African Bureau of Standards
SANS	South African National Standards
SAHRA	South African Heritage Resource Authority
SDF	Spatial Development Framework
SMME	Small, Medium and Micro Enterprises
SACNASP	South African Council for Natural Scientific Professions
SOC	State Owned Company
STI	Sexually Transmitted Infections
Stats SA	Statistics South Africa

TB	Tuberculosis
UK	United Kingdom
Wits	University of Witwatersrand

GLOSSARY OF TERMS

Atmosphere – means air that is not enclosed by a building, machine, chimney or other similar structure.

Atmospheric emission or emission – means any emission or entrainment process emanating from a point, non-point or mobile source that results in air pollution.

Best practicable environmental option – means the option that provides the most benefit, or causes the least damage to the environment as a whole, at a cost acceptable to society in the long term as well as in the short term.

Clean water system –includes any dam, other form of impoundment, canal, works, pipeline and any other structure or facility constructed for the retention or conveyance of unpolluted water.

Dirty area – is any area or activity which causes, has caused or is likely to cause pollution of water resources.

Dirty water system–includes any dam, other form of impoundment, canal, works, pipeline, residue deposit and any other structure or facility constructed for the retention or conveyance of water containing waste.

Drainage installation–means an installation vested in the owner of a site and which is situated on such site and which is intended for the reception, conveyance storage or treatment of sewage and may include sanitary fixtures, discharge pipes, drains, ventilating pipes, septic tanks, conservancy tanks, sewage treatment works, or mechanical appliances associated.

Ephemeral drainage system-a stream or reach of a stream that flows only in direct response to precipitation or to the melting of snow or ice in the immediate watershed."

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, plant and animal life; (c) any part or combination of (a) and (b) 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 well-being.

Existing lawful use –means the use of water authorised by or under any law that took place at any time for a period of two years before the commencement of the NWA.

General authorisation –is an authorisation to use water without a licence, provided that the water use is within certain limits and complies with conditions set out in the Gazetted General

Authorisation. This authorisation requires a registration with the Department prior to exercising the water use(s).

Habitat - the physical environment that is home to the plants and animals in an area, and where they live, feed and reproduce.

Hazardous waste – waste, even in small amounts, that can pollute, contaminate or cause damage to plants, animals, their habitat and the well-being of human beings, e.g. waste from factories, detergents, pesticides, hydrocarbons, paint containers, shutter oil, glaze, bitumen, glue containers, electronic waste etc.

Hazardous sate storage facility – means a storage facility that stores 80 $m^3$of hazardous waste continuously.

Health care waste–means waste generated by a hospital, clinic, nursing home, doctor's rooms, medical laboratory, research facility, dental practitioner, medical practitioner, traditional healer, traditional surgeon, veterinarian or any other place where health care waste which is infectious or potentially infectious is generated, and includes but is not limited to—

(b) Human blood and blood products, including but not limited to serum, plasma and other blood components; or

(e) Isolation waste associated with human beings or animals known to be infected with highly communicable diseases.

Heritage resource– means any place or object of cultural significance; (xi) (xvii) Heritage resources authority" means the South African Heritage Resources Agency, established in terms of section 11, or, insofar as this Act is applicable in or in respect of a province, a provincial heritage resources authority.

Indigenous species – plants and animals that are usually located in a specific region as a result of only natural processes, with no human intervention.

Infrastructure – the network of facilities and services that are needed for economic activities, e.g. roads, electricity, water, sewerage.

Land Use – the use of land for human activities, e.g. residential, commercial, industrial use.

Lagoon–means the containment of waste in excavations and includes evaporation dams, earth cells, sewage treatment facilities and sludge farms.

Mitigation – measures designed to avoid, reduce or remedy adverse impacts on the environment due to activities undertaken.

Municipality– means Mogalakwena and Waterberg Municipalities,

Natural environment – our physical surroundings, including plants and animals, when they are unspoiled by human activities.

Open burning- means the combustion of material by burning without a chimney to vent the emitted products of combustion to the atmosphere, and "burning in the open" and "burning of material" has a corresponding meaning;

Pollution – according to NEMA, **pollution can be defined as, "any change in the environment** caused by (i) substances; (ii) radioactive or other waves; or (iii) noise, odours, dust or heat emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials **useful to people, or will have such an effect in future."**

Polychlorinated biphenyls– any of a family of industrial compounds produced by chlorination of biphenyl, used as insulating materials in electrical equipment, including transformers and capacitors, and in various other industrial applications. The SABS Code 0228 classifies polychlorinated biphenyls as a Class 1 toxic hazard.

Public place means– (a) a public road; (b) a public parking space; or (c) any square, park, recreation ground, sports ground, beach, shopping centre, municipal cemetery, open space, or vacant municipal land which is vested in the Municipality, or in respect of which the public has the right of use, or which is shown on a general plan of a township filed in the deeds registry or a Surveyor General's office as having been provided for the use of the public or the owners of even in such township;

Process– development usually happens through a process of a number of planned steps or stages.

Rehabilitation– rehabilitation is the process of returning a disturbed area, feature or structure to a natural state meaning to the state that it was before disruption (where possible), or to an improved state.

Sewage– means wastewater, soil water, industrial effluent and other liquid waste, either separately or in combination, but shall not include storm water;

Sewage disposal system– means a pipe, conduit or fixture which is used or intended to be used for the reception and conveyance of sewage.

Solid waste– any solid undesirable or superfluous by-product or remainder of any process or activity. This includes construction debris, chemical waste, cement/concrete remains, wrapping materials, timber, tins and cans, drums, wire, nails, food and domestic waste (e.g. foodstuffs, clothing, packaging materials such as glass, paper and cardboard, plastics, and in certain cases, ash).

Smoke– means the gases, particulate matter and products of combustion emitted into the atmosphere when material is burned or subjected to heat and includes the soot, grit and gritty particles emitted in smoke.

Spill water– means any spillage of water from a water carrying device.

Stockpile– includes any heap, pile, slurry pond and accumulation of any substance where such substance is stored as a product or stored for the use at any mine or activity.

Waste–"waste" means any substance, whether or not that substance can be reduced, re-used, recycled and recovered— (a) that is surplus, unwanted, rejected, discarded, abandoned or disposed of; (b) which the generator has no further use of for (the purposes of production; (c) that must be treated or disposed of; or (d) that is identified as a waste by the Minister by notice in the Gazette, and includes waste generated by the mining, medical or other sector, but— (i) a by-product is not considered waste; and 35 (ii) any portion of waste, once re-used, recycled and recovered, ceases to be waste.

Waste generator – means any person who, or entity which, generates or produces waste and includes– (a) the occupier of any premises on which waste is generated; and (b) in the case of premises which are occupied by more than one person, the owner of that premises.

Waste removal service - means the collection and removal of domestic, garden, industrial and business waste as provided for in this By-law.

Waste management – categorization, classifying, recycling, treatment and disposal of waste generated during construction and decommissioning activities.

Zoning – the control of land use by only allowing specific type development in fixed areas or zones.

1 in 50-year flood level– means that level reached by flood waters resulting from a storm of a frequency of one in 50 years.

EXECUTIVE SUMMARY

Electricity in Mogalakwena Local Municipality is supplied and serviced by Eskom in conjunction with the local municipality. However, the majority of the rural areas receive their electricity supply directly from Eskom. Eskom is divided into several operating units and the unit that manages and supplies within Mogalakwena Local Municipality is the Limlanga Cluster (LC). LC has identified a need to upgrade the electricity distribution infrastructure between the existing Chloe and Gilead substations in order to improve the reliability of the existing electricity supply and also where possible provide new supply for any additional customers. For the pole structures, Eskom will make use of wooden material which is currently being used on site. However, it has been observed that the wooden poles that are currently being utilised do not have a long lifetime span due to wood material's susceptibility to environmental effects that can lead to overall deterioration of the wood structure through decay. This has therefore necessitated the use of steel monopole structures which a stronger and cheaper option in terms of cost per year. Thus, the use of steel monopoles is considered as an alternative option to wooden poles which are considered as the preferred option.

Using information collected by specialist during the site visits and experience from past projects of the same nature, potential impacts were compiled and assessed in this EMPr and management and mitigation measures suggested. The significant impacts that are expected are soil erosion due to land clearing and movement of both workers and machinery. These, amongst other impacts, will be minimised or avoided by use of effective and easy to implement methods such as mechanically stabilising the soil or avoiding unnecessary vegetation clearing. Public and stakeholder consultations were also done to identify how the development would impact the local communities. It is expected that if there is need for casual labour, it will be sourced from the local communities.

This proposed development is triggering some of the listed activities in terms of National Environmental Management Act (Act No.107 0f 1998) (NEMA) regulations, as amended.

In terms of NEMA and associated EIA Regulations published in 2014, an EA must be obtained from the relevant decision-making competent Authority, Department of Fisheries, Forestry and Environment (DFFE), prior to the commencement of certain listed activities that may result in potential negative impacts on the environment.

Therefore, Myezo Environmental Management Services (Pty) Ltd (Myezo), was commissioned to act as Environmental Assessment Practitioners (EAPs) and undertake environmental studies for the EA applications.

Stakeholder engagement was undertaken, which included issuing notices to interested and affected parties (IAPs)in terms of Sections 41(2), (a), (b), (c), (d), (e) and (3) of the NEMA: Environmental Impact Assessment (EIA) Regulations, 2014, published in Government Notice (GN) R982 and Government Gazette No. 3822, as amended in 2017, under GNR326. These regulations were promulgated in terms of Sections 24 (5) and 44 of the NEMA.

Section I: Basic Assessment Process

The objective of the basic assessment process is to ensure that the environmental features surrounding the proposed development and associated activities are protected from potential negative developmental impacts presented by the proposed deviation of an existing Eskom's Chloe-Gilead powerline deviation project. The process also seeks, through a stakeholder consultative process, to achieve aspects outlined below:

- Determine the policy and legislative context within which the proposed activities are located and how the activity complies with and responds to the policy and legislative context;
- Identify the alternatives considered, including the activity, location, and technology alternatives;
- Describe the need and desirability of the proposed alternatives;
- Undertake an impact and risk assessment process, inclusive of cumulative impacts, which focus on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites as well as the risk of impact of the proposed activity and technology alternatives.
- Assess the risk of the impact to determine:
  - The nature, significance, consequence, extent, duration, and probability of the impacts occurring to;
  - The degree to which these impacts can either be reversed; may cause irreplaceable loss of resources; and can be managed, avoided or mitigated;
- The impact process also seeks to rank the site sensitivities and possible impacts the activity and technology alternatives might impose on the sites and location identified. This is done to:
  - Identify and motivate a preferred site, activity and technology alternative,
  - Identify suitable measures to manage, avoid or mitigate identified impacts, and
  - Identify residual risks that need to be managed and monitored.
- Compile an Environmental Management Programme (EMPr) to ensure that all the potential identified impacts are mitigated, audited and monitored to protect the environment and human health.

The Basic Assessment exercises described in this Report, are both based on the Environmental Impact Assessment Regulations of 2014 as amended on 07 April 2017. The report is structured in accordance with the guidelines provided in Table 1 of Appendix 1 - Checklist of the NEMA EIA Regulations 2014, published in Government Notice (GN) R982 and Government Gazette No. 3822, as amended in 2017, under GNR326. As such, the alphabetical and roman numeral values, which are provided in Table 1 below, have been given numerical values. For example, Section I has been changed to Section 1 and Chapter (a) has been changed to Chapter 1. It must be noted, however, that the descriptions of the different sections and associated subsections of the report structure, are not different from the guidelines provided in Appendix 1 - Checklist. The report maintains the required structure, as per the guidelines and the table below provides those details.

Table 1.1-1: Section 3 of the Appendix Checklist as Presented in This Basic Assessment Report.

Appendix 1 Checklist Sections	**Description of Appendix 1 for BAR report**	**Sections where this is addressed in the BAR**
	Basic assessment process	Section I: Details of the BAA and how it was compiled and reporting structure
2.	Objectives of the Basic Assessment Process	Section II: See the Report Outline for Details.
3.	Scope of Basic Assessment and Respective Content	Section III The content of the BAR as indicated in Section II and respective contributors into the report (Project Engineers, Myezo team, Specialists and Stakeholders). The Scope of the Report contains the following sections.
	Details of –	Section 1: Report Preparation
	The EAP who prepared the report	1.1: The Environmental Assessment Practitioner
	The expertise of the EAP, including a curriculum vitae	1.2: Environmental Assessment Practitioner Expertise and CV.
b)	The location of the activity, including:	Section 2: Project Activity Location
	i). The 21digit Surveyor General code of each cadastral land parcel;	2.1: Cadastral Land Parcel
	ii). Where available, the physical address and farm name;	2.2.: Project Location Details
	iii). Where the required information in items(i) and (ii) is not available, the co-	2.3. Project Coordinates and Maps

Appendix 1 Checklist Sections	Description of Appendix 1 for BAR report	Sections where this is addressed in the BAR
	ordinates of the boundary of the property or properties;	
c)	A plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale.	Section 3: Infrastructural Plans and Designs
	or, if it is—	
	i). A linear activity, a description, and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or	3.1. Location of Activity Corridor
	ii). On land where the property has not been defined, the coordinates within which the activity is to be undertaken;	3.2. Coordinates of Undefined Locations within Project Area.
d)	A description of the scope of the proposed activity, including—	Section 4: Scope of Proposed Project Activities
	i). All listed and specified activities triggered and being applied for; and	4.1. List of Specified Activities Triggered
	ii). A description of the activities to be undertaken including associated structures and infrastructure	4.2. Description of Activities and Associated Structures and Infrastructure
e)	A description of the policy and legislative context within which the development is proposed including—	Section 5: Policy and Legislative Framework Applicable to the Development
	i). An identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and	5.1. Policy and Legislative Framework Applicable to Development
	ii). How the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments	5.2. Project response to legislative framework and Project Development Justification.
f)	A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location.	Section 6: Motivation for Preferred Site Location and Alternatives
g)	A motivation for the preferred site, activity, and technology alternative;	Section 7: Motivation for preferred Site, Activity and Technology

Appendix 1 Checklist Sections	Description of Appendix 1 for BAR report	Sections where this is addressed in the BAR
h)	A full description of the process followed to reach the proposed preferred alternative within the site, including —	Section 8: Description of the Process of Choosing Preferred Alternative
	i). Details of all the alternatives considered;	8.1. Project Alternatives
	ii). Details of the public participation process undertaken in terms of Regulation 41 of the Regulations, including copies of the supporting documents and inputs;	8.2. Public Participation Process
	iii). A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	8.3. Issues Raised by Interested and Affected Parties
	iv). The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	8.4. Environmental Attributes
		8.4-1. Geographical
		8.4-2. Physical
		8.4-3. Biological
		8.4-4. Social
		8.4-5. Economic
		8.4-6. Heritage
		8.4-7. Cultural Aspects
	v). The impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which these impacts—	8.5. Impacts and Risks Identified for Alternatives
	(aa) Can be reversed;	8.5-1. Extent of Reversal of Impacts
	(bb) May cause irreplaceable loss of resources; and	8.5-2. Extent of Irreplaceable Resource Loss
	(cc) Can be avoided, managed, or mitigated;	8.5-3. Mitigation, Avoidance and Management of Impacts and Risks.
	vi). The methodology used in determining and ranking the nature, significance, consequences, extent, duration, and probability of potential environmental	8.6. Methodology for Impact Assessment and Analysis

Appendix 1 Checklist Sections	Description of Appendix 1 for BAR report	Sections where this is addressed in the BAR
	impacts and risks associated with the alternatives;	
	vii). Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	8.7. Nature of Impacts
	viii). The possible mitigation measures that could be applied and level of residual risk;	8.8. Mitigation Measures and Residual Risk
	ix). The outcome of the site selection matrix;	8.9. Outcomes of Site Selection Matrix
	x). If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and	8.10. Motivation for no Alternative Locations for Activity
	xi). A concluding statement indicating	8.11. Concluding Statement
i)	A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including—	Section 9: Identification and Environmental Impact Statement
	i). A description of all environmental issues and risks that were identified during the environmental impact assessment process; and	9.1. Environmental Impacts and Risks Identified
	ii). An assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;	9.2. Environmental Impact Significance, Extent and Mitigation Measures.
j)	An assessment of each identified potentially significant impact and risk, including—	Section 10: Assessment of Identified Impacts and Risks
	i). Cumulative impacts;	10.1. Cumulative Impacts
	ii). The nature, significance and consequences of the impact and risk;	10.2. Nature, Significance and Consequence Impacts and Risks
	iii). The extent and duration of the impact and risk;	10.3. Extent and Duration of Impacts and Risks
	iv). The probability of the impact and risk occurring;	10.4. Probability of Impacts and Risks Occurring
	v). The degree to which the impact and risk can be reversed;	10.5. Extent of Reversal of Impacts and Risks

Appendix 1 Checklist Sections	Description of Appendix 1 for BAR report	Sections where this is addressed in the BAR
	vi). The degree to which the impact and risk may cause irreplaceable loss of resources; and	10.6. Extent of Loss Associated with Risks and Impacts
	vii). The degree to which the impact and risk can be avoided, managed, or mitigated;	10.7. Mitigation, Avoidance and Management of Impacts and Risks
k)	Where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;	Section 11: Summary of Findings and Impact Management Measures
l)	An environmental impact statement which contains—	Section 12: Environmental Impact Statement
	i). A summary of the key findings of the environmental impact assessment;	12.1. Summary of Key Findings of the Environmental Impacts Assessment.
	ii). A map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and	12.2. Map Showing Project Development and Measures on Sensitive Areas
	iii). A summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	12.3. Summary of Impacts and Risks
m)	Based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management outcomes for the development for inclusion in the EMPr	Section 13: Impact Management Measures from Specialists Reports
		13.1. Record of Proposed Impact Management Outcomes for Development
n)	Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation.	Section 14: Any Aspects Conditional to Assessment Findings.
o)	Any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Section 15: Assumptions, Uncertainties and Knowledge Gaps

Appendix 1 Checklist Sections	Description of Appendix 1 for BAR report	Sections where this is addressed in the BAR
p)	A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	Section 16: Expert Opinion on Project Development or Authorisation
q)	Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalized.	Section 17: Project Duration and Environmental Authorisation Required
r)	An undertaking under oath or affirmation by the EAP in relation to — i). The correctness of the information provided in the reports. ii). The inclusion of comments and inputs from stakeholders and I&APs iii). The inclusion of inputs and recommendations from the specialist reports where relevant; and iv). any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties; and	Section 18: Environmental Assessment Practitioner (EAP) Oath Undertaking
s)	Where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	Section 19: Financial Provision for Rehabilitation and Closure
t)	Any specific information that may be required by the competent authority; and	Section 20: Specific Information Required by the Competent Authority
u)	Any other matters required in terms of Section 24(4) (a) and (b) of the Act.	Section 21: Any Other Matters in Terms of Section 24 of the Act

Section II: Objectives of the Basic Assessment Process
The objective of the basic assessment process are provided in Section 1 above.

Environmental Management Programme

The EMPr (Volume 2 of 3) has been compiled under expert advice and input of a qualified environmentalist and to provide recommendations along with guidelines to achieve sustainable development. The EMPr provides norms and standards, to which compliance and monitoring should be done during the development stages of the proposed project, with particular reference to the prevention and mitigation of anticipated potential environmental impacts. All stakeholders should note that obligations imposed by the EMPr are legally binding in terms of the NEMA.

The EMPr is an implementation tool that will be continuously be updated to promote the principles of sustainable development and continual improvement.

- Identify a range of mitigation measures which could reduce and mitigate the potential impacts to minimal or insignificant levels.
- Detail specific actions deemed necessary to assist in mitigating the environmental impact of the proposed project.
- To create management structures that addresses the concerns and complaints of IAPs with regards to the development.
- To establish a method of monitoring and auditing environmental management practices during all phases of the activity.
- Ensure that the construction and operational phases of the project continues with the principles of Integrated Environmental Management (IEM).
- Ensure compliance to applicable environmental legislation such as NWA.
- Be alert of the periods within which the measures contemplated in the EMP will be implemented, where applicable.

Section III: The BAR Content

1 REPORT PREPAREDNESS

1.1 The Environmental Assessment Practitioner

The details of the EAP who compiled this document are provided in Table 1.1-1 below.

Table 1.1-1: Details of the EAP

Environmental Assessment Practitioner (EAP):	Myezo Environmental Management Services (Pty) Ltd	
Contact Person:	Babalwa Fatyi	
Profession:	Managing Director and EAP	
Physical Address:	Boardwalk Lakeside Suites, Phase 2, Block G Unit No. 8, 107 Haymeadow Street, Faerie Glen, 0080 Pretoria	
Postal Address:	Postnet Suite B165, Private Bag X18, Lynnwood Ridge	
Telephone:	012 998 7642	
Fax:	012 998 7641	
Cell:	082 772 2418	
E-mail:	babalwa@myezo.co.za	
EAP Qualifications:	Master of Science (*cum laude*): Ecology	
EAP Registrations/Associations:	The South African Council for Natural Scientific Professions (SACNASP)	Institute of Environmental Management and Assessment (IEMA), Lincoln, UK
Registration Number	400123/01	(0025153)

Company name of EAP:	Myezo Environmental Management Services (Pty) Ltd		
EAP name and surname:	Mrs Babalwa Fatyi		
Postal address:	Postnet Suite B165 Private Bag X18 Lynnwood Ridge		
Postal code:	0040	Cell:	082 772 2418
Telephone:	012 998 7642	Fax:	086 543 1689
E-mail:	babalwa@myezo.co.za		

Qualifications & relevant experience	MSc in Zoology and Botany (Cum Laude) – 1999. Relevant experience: Basic Assessment Reports; Environmental Impact Assessment Reports; Environmental Management Plans (EMPs) and Programmes (EMPr); Waste Management Plans; Water Use and Management Plans; Rehabilitation Plans; and Environmental Audits. Has attended short courses: Waste Management for Environmental Managers: Presented by Centre for Environmental Management –Potchefstroom University 2003. Environmental Management Tools in the Workplace: Presented by Centre for Environmental management – Potchefstroom University.2003. Environmental Auditors Course: Presented by Crystal Clear Consulting and Merchants (Pty) Ltd, United Kingdom – Accredited by IEMA 2004. Implementing Integrated Management Systems: ISO 9001, ISO 14001 and OHSAS 18001– Potchefstroom University 2006. Implementing Environmental Management Systems (SABS/ISO 14001): Presented by Centre for Environmental Management – Potchefstroom University 2002.
Professional affiliation(s) (if any)	Professional Natural Scientist- Registered Environmental Auditor: (IEMA), Lincoln, UK – Registration No. 0025153; and Associate Member: Land Rehabilitation Society of Southern Africa (LaRSSA) – Registration No. 91430

1.2 Environmental Assessment Practitioner Experience

Babalwa Fatyi, the Environmental Assessment Practitioner (EAP), who is the founder of Myezo, is a Registered Professional Natural Scientist (400123/01). She is also registered with the Institute of Environmental Management and Assessment, Lincoln, UK. In her career, which spans over 20 years in the sustainability field, she has been part of environmental teams within an engineering consulting company, after which she also drove environmental compliance within a mining company, including overseeing the company's compliance with its environmental commitments and obligations. She has academic qualifications to back-up her experience, having obtained Master of Science (cum laude) from University of Witwatersrand (WITS) and receiving 'SA Association for Advancement of Science Award' for an outstanding MSc Degree in the Faculty of Science, across South African Universities, in 1999. Babalwa has undertaken several environmental management and public consultation projects in terms of the NEMA in her career in the sustainability field which included her playing advisory role during execution of World Bank or International Finance Corporation funded projects. Her input into the industry, spanning over a 20-year period, has allowed her an insight with respect to sector specific environmental requirements ranging from authorizations, implementation and monitoring. She is thus still active in promoting environmental stewardship, through utilization of a series of integrated environmental management tools, for attainment of long lasting a meaningful economic prosperity.

Babalwa Fatyi has experience directing and managing environmental sustainability projects current across various industries and sectors, including: environmental management programmes and associated stakeholder engagements and impact evaluation and development of environmental management plan in support of environmental authorisation applications. She has a broad range of experience in leading the implementation of environmental management plans on sites through development of implementation plans with clear set objectives and structures, roles and responsibilities, design of performance monitoring plans and designing communication and risk management plans throughout the project implementation phases. She is also experienced in conducting Performance assessment audits as well as developing and maintaining integrated Safety, Health and Quality management systems.

She has compiled more than 70 EMPrs, within the various sectors and industries. Should it be required, a comprehensive illustration of her qualifications is included in her the CV attached as Appendix 1.2-1. Myezo's profile is also available on www.myezo.co.za.

2 PROJECT ACTIVITY LOCATION

2.1 Cadastral Land Parcel

The proposed project will be undertaken on Portion R/2 of Farm Gillimberg 861LR and the area was historically used for agricultural activities; however, it is currently being utilised as an electricity substation, operated as Eskom Gilead Substation (EGSS). The local setting map showing the 21-digit codes for the site is shown in Figure 2.1-1. A Regional setting map showing the location of the proposed site within the region is shown as Figure 2.1-2. In addition, a CSGIS indicating the farm name as well as the Surveyor General 21-digit codes is attached as Figure 2.1-3 and attached as Appendix 2.1-1.

2.2 Project Location Details

The proposed construction of a powerline will be undertaken at EGSS located on Portion R/2 of Farm Gillimberg 861LR, under the jurisdiction of Mogalakwena Local Municipality within Waterberg District Municipality, Limpopo Province. The Surveyor-general 21-digit codes for the site are TOLR00000000086100002. The site is approximately 3.5 km south of Ham No. 1 village, 3.3 km southeast of Lefanyane, approximately 4 km northwest of Hwibi Village; 7,15 km southeast of Bellevue Nature Reserve. The site can be accessed via the N11 road.

The area associated with the substation falls into the Limpopo River Water Management area and the streams from the site drains into the Matlala River to the north. This river is a tributary of the Mogalakwena River (Sub Water Management Area) that is an important tributary of the Limpopo River.

The nearest town is Mokopane, situated approximately 64 km North of the study area with Polokwane at approximately 63 km to the northeast and Louis Trichardt at about 128 km northwest of the of the proposed site. Regional and local and settings are indicated in Figure 2.2-1 and Figure 2.2-2, and also attached as Appendix 2.2-1 and 2.2-2 respectively.

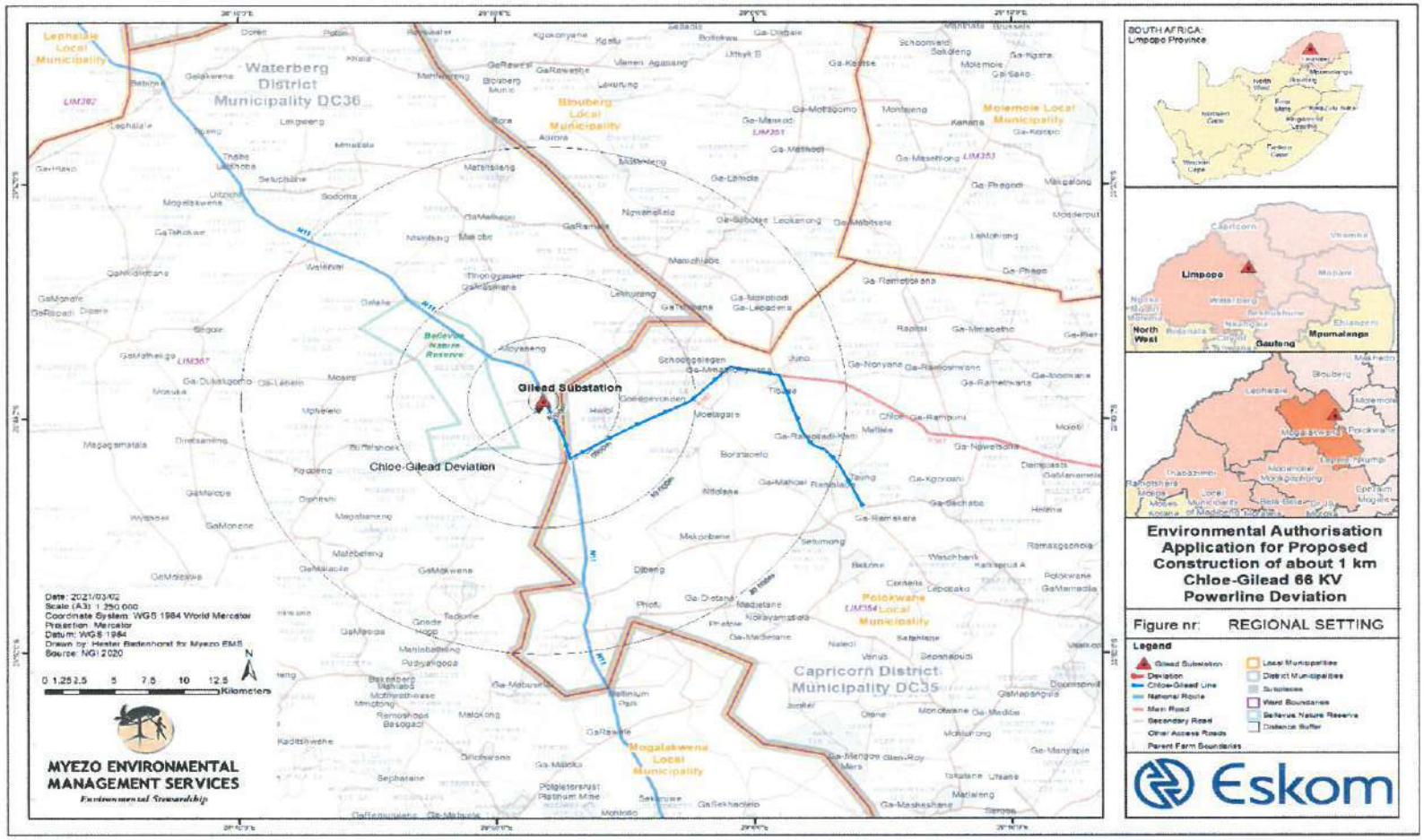


Figure 2.2-1: Regional Setting Map

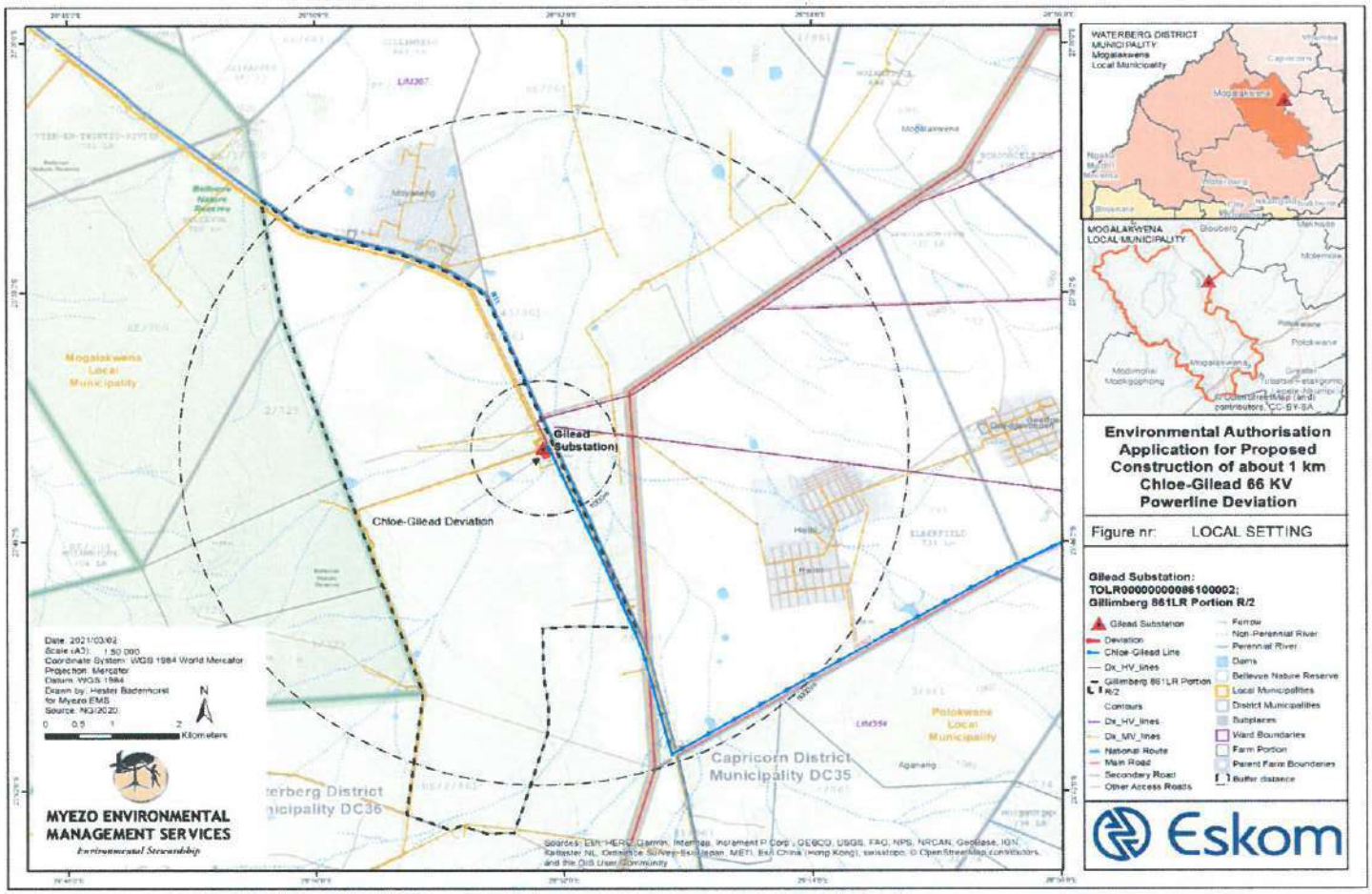


Figure 2.2-2: Local Setting Map

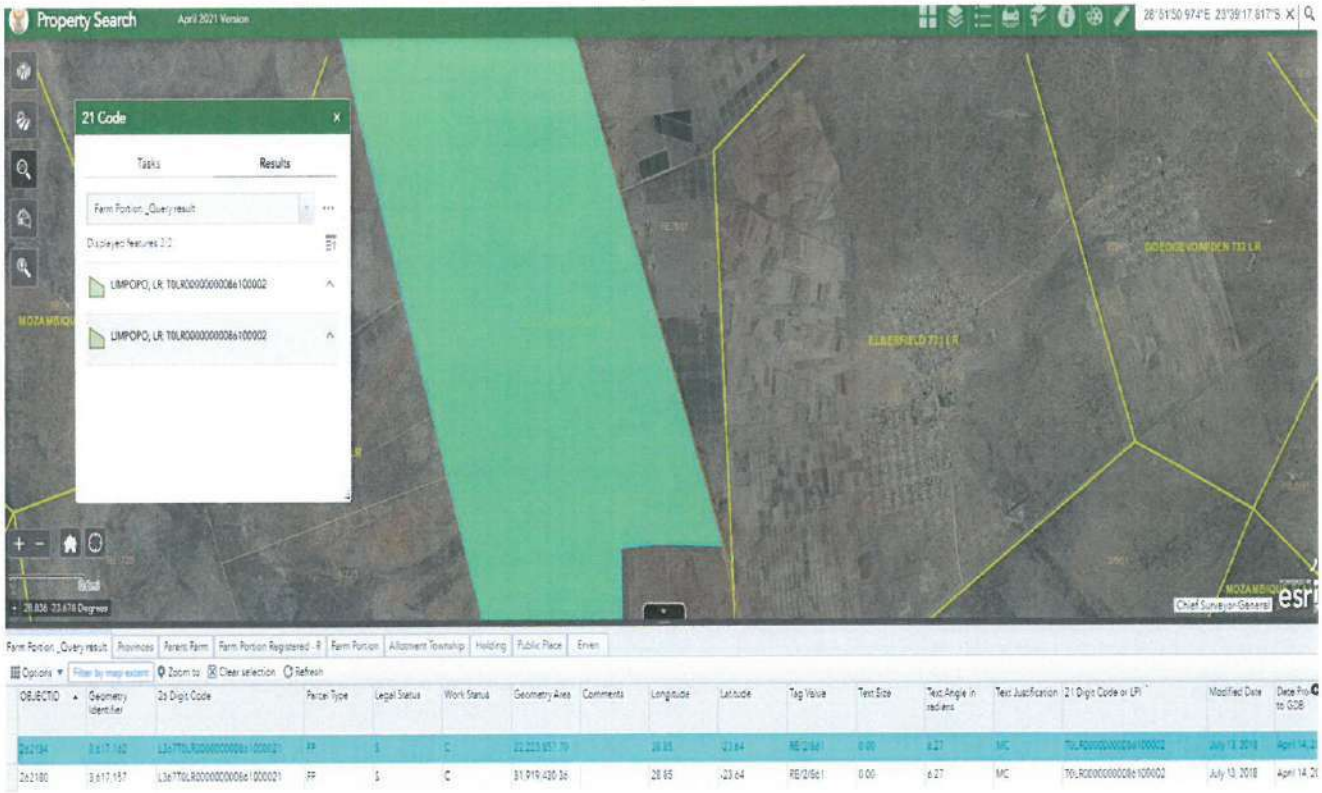


Figure 2.2-3: CSGIS Search Certificate

2.3 Project Co-ordinates and Maps

The geographical site centre coordinates are 23⁰ 39' 19,119" S 28⁰ 51' 50,192" E and the site boundary coordinates are shown on Table 2.3-1. In addition, an aerial view of the site is provided as Figure 2.3-1.

Table 2.3-1: Geographical Site Co-ordinates

Point	Label	Latitude (S)	Longitude (E)
A	Endpoint	23⁰ 39' 15,721"	28⁰ 51' 49,742"
B	Bend point	23⁰ 39' 16,275"	28⁰ 51' 48,575"
C	Bend point	23⁰ 39' 19,845"	28⁰ 51' 50,607"
D	Endpoint	23⁰ 39' 18,483"	28⁰ 51' 54,237"
E	Line centre point	23⁰ 39' 19,119"	28⁰ 51' 50,192"
F	Geographic Centre Point	23⁰ 39' 17,776"	28⁰ 51' 51,415"

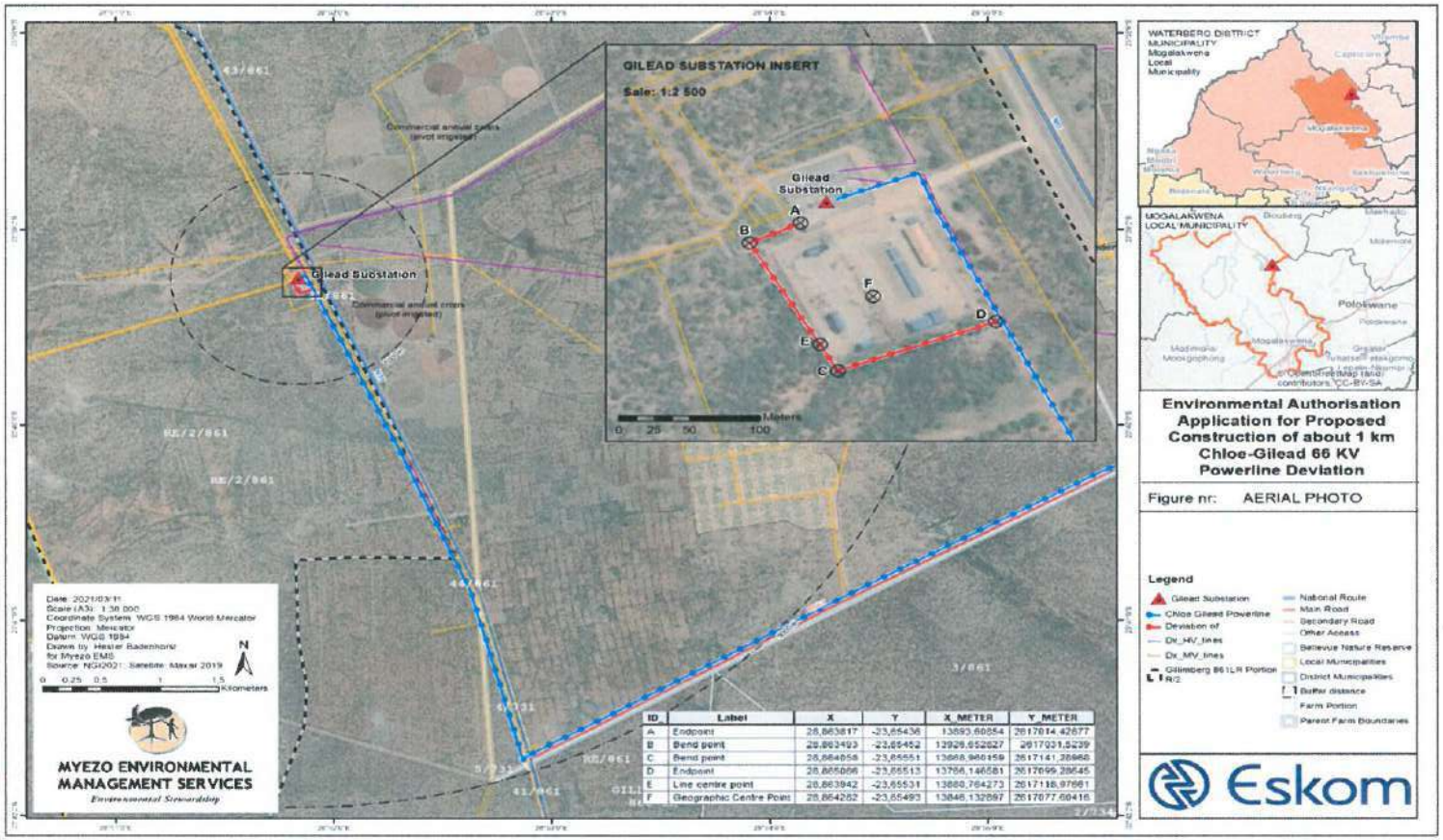


Figure 2.3-1: Aerial View

3 INFRASTRUCTURAL PLANS AND DESIGNS

This section outlines the project location and proposed designs. The project is still in the design phase, as such detailed structural designs are still being finalised. Eskom will utilise their Standard High Voltage (HV) network which will operate on 66 kV, built with H-pole wooden structures, currently being utilised on site.

3.1 Location of Activity Corridor

Durban provincial website (durban.gov.za) defines an activity corridor as, "An area of higher intensity urban use or land suitable for intensification, parallel to and on both sides of an activity spine and includes any associated higher order transportation routes such as railway lines and through roads." Mogalakwena Local Municipality (MLM) (2020) state that future settlement and economic development opportunities should be channelled into activity corridors that are adjacent to or linked to the main growth centres in the country and infrastructure investment should primarily support localities that will become major growth nodes in South Africa.

The proposed pole infrastructure will include wooden pole structures presented as Figure 3.1-1 and also attached as Appendix 3.1-1.

3.2 Coordinates of undefined locations within project area

There are no undefined locations for the proposed project, therefore, this is not applicable.

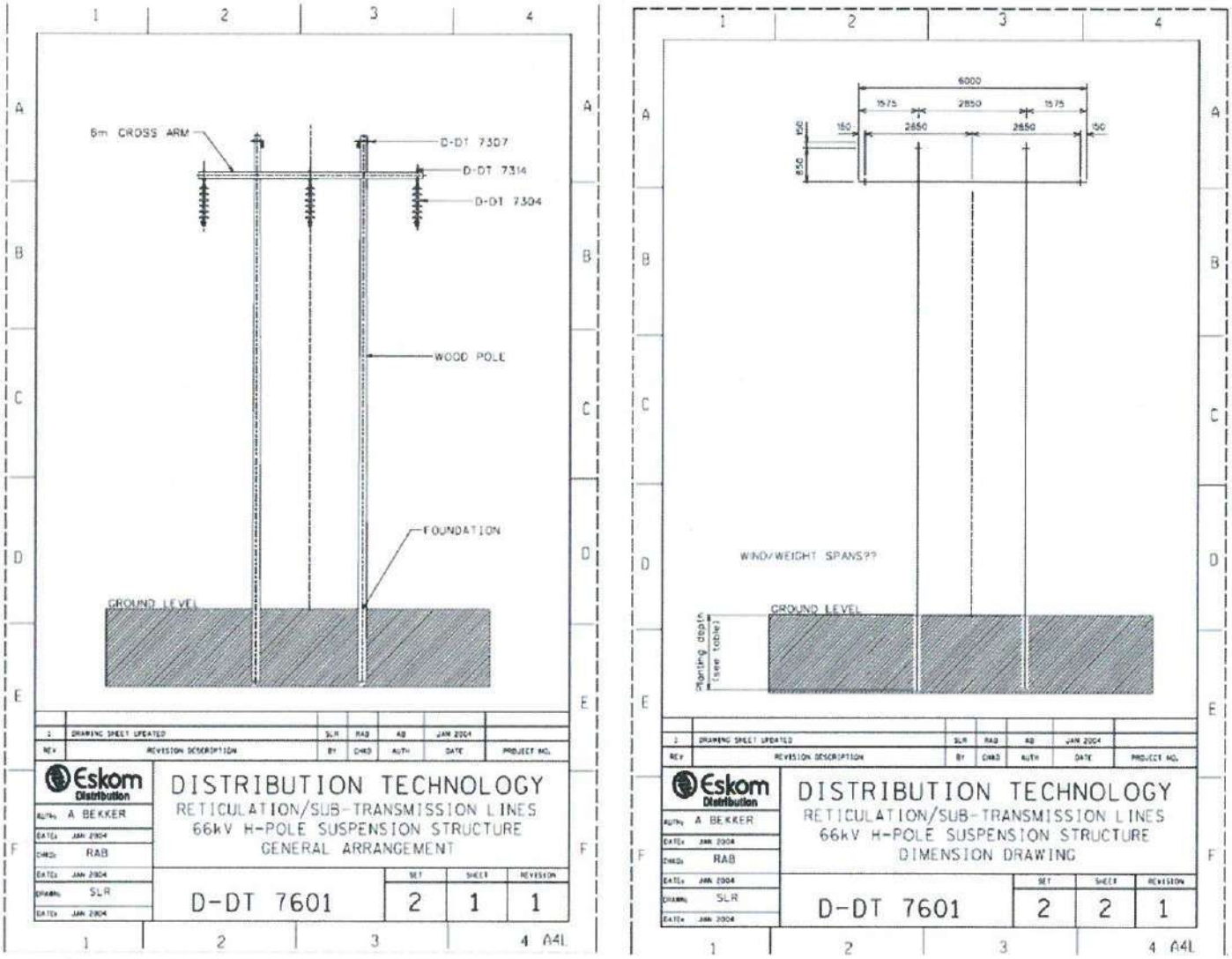


Figure 3.1-1: Proposed Structural designs for wooden poles

4 SCOPE OF PROPOSED PROJECT ACTIVITIES

The scope of the proposed activities relates to the deviation of approximately one (1) km of the existing 66kV overhead Chloe-Gilead powerline and have it looped-into the new 66kV feeder as well as the dismantling of the existing 66kV Chloe-Gilead powerline, approximately 400 metres in length, including associated infrastructure such as poles (about 3-4 poles).

The Chloe-Gilead powerline connects two substations which are Chloe substation and Gilead substation located within the previously Aganang Local Municipality (which has been dissolved) and Mogalakwena Local Municipality, in Limpopo Province respectively. Eskom Holdings (SOC) Limited identified the need to upgrade the infrastructure between the two substations in order to improve the reliability of the existing electricity supply and also where possible provide new supply for any additional customers. Eskom Holdings SOC Limited was granted an environmental authorisation (EA) for the proposed upgrade of the Chloe-Gilead powerline, nonetheless, the activities for which an authorisation was issued are yet to be undertaken. For proposed activities. Eskom will deviate part of the existing Chloe-Gilead powerline as outlined in the paragraph above.

The proposed project form part of a broader vision of Eskom's LC which has identified a need to upgrade the electricity distribution infrastructure in order to improve the reliability of the existing electricity supply and also where possible provide new supply for any additional customers. In addition, the project will allow the MLM to meet its mandate to provide electricity to residents and businesses without disruptions.

4.1 Listed and Specified Activities Triggered

An assessment of the triggered activities was undertaken through the assessment of the activities that are proposed as indicated in Section 4 and the specific activities that would be undertaken during the execution of the project as outlined below. As part of the project planning and decision on position, various considerations were undertaken such as determination of the most feasible site. These considerations entailed, the provision of architectural and civil design in compliance with the required legislation documents. This information is indicated under the project description section and assessment of alternatives under Section 8.1.

The various activities which will be undertaken, which have an influence on the establishment of whether or not certain listed activities would be triggered or not, are outlined below. The description of the applicability of these activities are discussed under each specified listing

notice activity to ascertain if what is being planned and the associate thresholds do trigger the listed activities. A list of specified triggered activities is provided in Table 4.1-1.

A detailed description of these activities and possible alternatives per activity are outlined in Section 4.2.

Table 4.1-1: Listed and Specified Activities Triggered

Government Notice R983 Activity No.	**Basic Assessment Activity as per Listing Notice 1 (GN No. R983)**	**The portion of the development as per the project description that relates to the applicable listed activity**
11	The development of facilities or infrastructure for the transmission and distribution of electricity— (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts	The proposed activities involve the construction of a 66 kV powerline, infrastructure for the transmission and distribution of electricity outside an urban area.
31	The decommissioning of existing facilities, structures or infrastructure for— (i) any development and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014 (v) any activity regardless the time the activity was commenced with, where such activity: (a) is similarly listed to an activity in (i) or (ii) above; and (b) is still in operation or development is still in progress;	The proposed activities will involve the dismantling of an already existing and operational 66 kV powerline previously listed in Listing Notice 1 of 2014
Government Notice R985 Activity No:	**Basic Assessment Activity in writing as per Listing Notice 3 (GN No. R985)**	**Portion of the development as per the project description that relates to the applicable listed activity**
12	The clearance of an area of 300 square metres or more of indigenous vegetation e. Limpopo ii. Within critical biodiversity areas identified in bioregional plans;	The project will involve the clearance of indigenous vegetation, including trees and shrubs, during the construction of the powerline.
Government Notice R984 Activity No:	**Relevant Scoping and EIA Activity in writing as per Listing Notice 2 (GN No. R984)**	**Portion of the development as per the project description that relates to the applicable listed activity**
There are no Listing No. 2 triggered activities.		

The proposed activities will be undertaken at an existing and operational substation, thus, a water use authorisation will not be needed since no water use activities listed under Section 21 of the National Water Act (Act No 36 of 1998) (NWA) will be triggered.

4.2 Description of Activities Associated Structures and Infrastructure

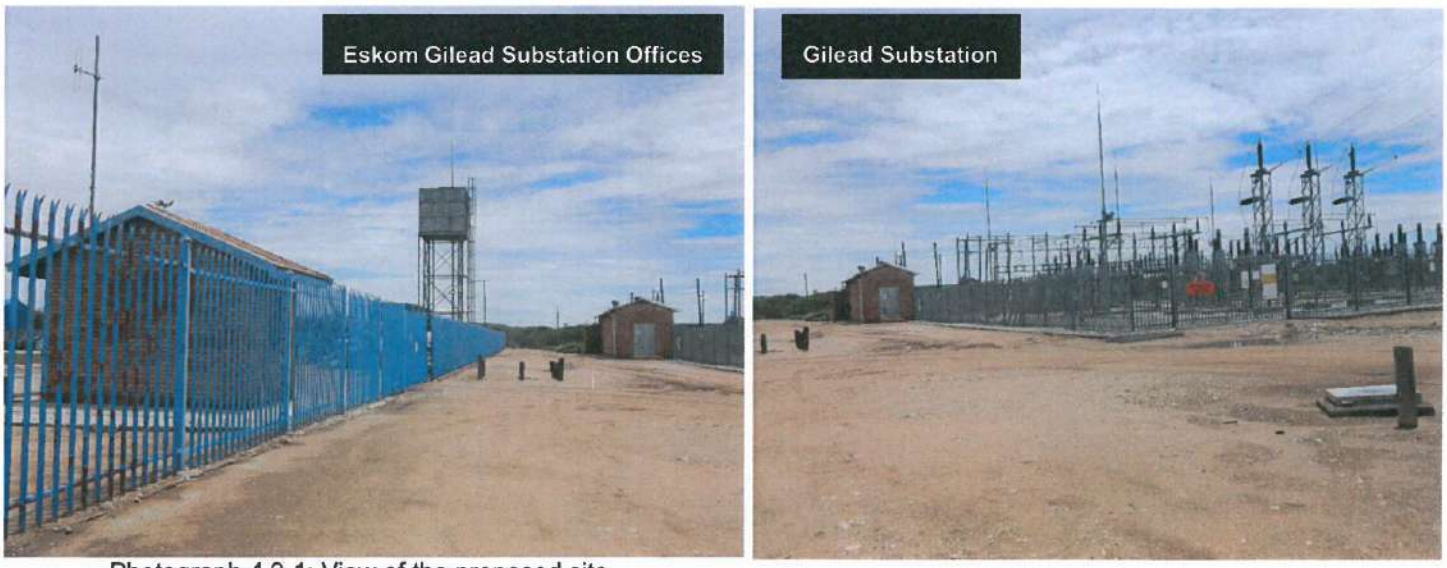
This section gives a description of the specific activities that will be taking with the aim of deviating the Chloe-Gilead powerline (approximately one (1) kilometre). Technological, site, operational and service provision alternatives are discussed in Section 8.

4.2.1 Proposed Activities

The planned activities to be undertaken on will comprise:

- The erection of poles and lines for a length of about 1 km
- A servitude of about 36 meters, 18 meters 18 metres to both sides from the centre of the structure.
- Clearance of vegetation on the servitude and the construction laydown area.
- There are no access roads to be constructed since the proposed powerline is situated along existing routes.
- No established of a temporary laydown area is envisaged, however, the need to establish a site cannot be eliminated totally.

The proposed activities will be undertaken at EGSS and Photograph 4.2-1 presents the proposed site's pictorial record.



Photograph 4.2-1: View of the proposed site

In addition, Photograph 4.2-2 presents the powerline segment to be dismantled and Photograph 4.2-3 shows the proposed deviation pathway.

Photograph 4.2-2: Powerline Segment to be Dismantled.

Photograph 4.2-3: Proposed deviation pathway

4.2.2 Proposed Infrastructure

Eskom will utilise their Standard HV network which will operate on 66 kV, built with H-pole wooden structures as shown on Figure 3.1-1. Due to the size of the proposed activities as well as the fact that the activities will be undertaken at an existing and operations substation, not much infrastructure will be needed on site. In addition to the erection of wooden poles, the following might be erected: infrastructure that will be on site is outlined below.

- Ablution facilities;
- Temporary laydown area; and

- Powerlines

4.2.3 Site Access

The development site is expected to have an access on the dust road directly linking the substation to the N11. During construction, any other existing cleared areas will be used for access to avoid vegetation clearing during the development of access roads. Photograph 4.2-4 shows access to the site.

Photograph 4.2-4: Site Access

4.3 Study Corridor

For the proposed activities, the methodology applied include undertaking desktop studies as well as field or site surveys. Initial desktop studies undertaken include generation of a screening report making use of the Department of Forestry, Fisheries and Environment (DFFE) (2021) screening tool where a 500-metre buffer zone was employed. The DFFE Screening Tool Report is attached as Appendix 4.3.1. The results of the screening tool were also reinforced by a field assessment that was undertaken. Subsequent to the desktop study and site survey, Biodiversity (Ecological and Avifaunal) Specialists and Heritage and Paleontological Specialists were commissioned. The specialists also utilised desktop studies and field assessments during their studies and a study corridor of about 500 metres was utilised during field studies. However, due to the nature of the studies, for Biodiversity (Ecological and Avifaunal) Studies, aspects such as drainage of the ephemeral channel; the

Ecological Support Areas; vegetation classification; and Bird Areas were mapped beyond the 500 metres buffer zone used during field assessments.

4.4 Socio-economic Value of the Activity

The social benefits for the proposed development include improved supply of electricity to the network/grid. An increase in electricity supply will allow businesses that rely on electricity for operations to function effectively resulting in a positive contribution the local and or regional economies. In addition, an increase in electricity supply will also benefit communities through electrification process as well as improved supply for existing customers. The socio-economic profile is indicated under the environmental setting section.

5 POLICY AND LEGISLATIVE FRAMEWORK

Eskom will continuously assess any new envisaged planned developments or expansions to ensure that any triggered environmental listed activities, should there be any, are addressed.

The NEMA provides an overarching framework for the majority of issues relating to environmental management at EGSS. This framework includes the following key pieces of inter-related legislation:

- The National Environmental Management: Biodiversity Act (Act No. 10 of 2004);
- The National Environmental Management: Protected Areas Act (Act No. 57 of 2003);
- The National Environmental Management: Air Quality Act (Act No. 39 of 2004); and
- The National Environmental Management: Waste Act (Act No. 59 of 2008).
- The NEMA seeks to uphold the Constitutional Right which gives a right to an environment that is not harmful to the health and well-being of South African citizens; to the equitable distribution of natural resources; to sustainable development; environmental protection and to the formulation of environmental management frameworks (EMFs).

NEMA's primary objective is to provide for co-operative governance by establishing principles for decision making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state and to provide for matters connected therewith. Further to the above, the NEMA introduced a number of guiding principles into environmental legislation such as the

life-cycle approach to waste management, producer responsibility, the precautionary principle, and the polluter pays principle, as well as 'duty of care' which places the onus on any person who causes significant pollution/degradation to the environment to institute measures to prevent pollution from occurring and to minimize and rectify the pollution or degradation where unavoidable. An additional principle, contained within the NEMA, is that of "Sustainable Development" which states that waste generation is to be avoided, or where it cannot be altogether avoided, minimized and re-used or recycled where possible and otherwise disposed of in a responsible manner (the "Waste Hierarchy").

5.1 Policy and Legislative Framework Applicable to Development

Within the above contact, the legal framework which will govern the proposed upgrade and operation of this siding is outlined in Table 5.1-1. The specific triggered listed activities in terms of NEMA are provided in Table 4.1-1.

The legal compliance to be observed pertain to management of the aspects such as:

- Conditions for Construction and Operation
- General waste management;
- Handling of hazardous substances;
- Evaluation of compliance;
- Natural resource management;
- Pollution prevention through management and monitoring of atmospheric emissions; and
- Access Control

Table 5.1-1: Applicable Legislation

Title of legislation, policy or guideline	Administering Authority	Requirements	Applicability to the Project
Constitution of the Republic of South Africa (Act No 108 of 1996, Section 24)	National & Provincial Department of Justice and Constitutional Development	No licence but general respect for the environment and people's rights to a healthy and clean environment during construction and operation of the site.	Every employer and employee has a right to a healthy and clean environment. The management and employees of the project have a responsibility to protect the environment and their own health by keeping their workplace and surrounding environment healthy, safe and clean.
National Environmental Management Act, (Act No 107 of 1998)	National and Provincial Department of Fisheries Forestry Environment and (DFFE)	Upliftment of integrated environmental management and duty of care principles prescribed under Section 2 and Section 28 of the Act, respectively) The requirements are that the developer must establish measures to avoid environmental degradation or where avoidance is not possible, to take reasonable steps to mitigate and restore the initial environmental status or better. The NEMA enables the Minister to identify activities which may not commence without prior authorisation from the Minister or Member of Executive Council (MEC) and may also identify geographical areas in which specified activities may not commence without prior	The development will affect various environmental aspects such as the soil, air and water and noise. There should be consideration for the lithosphere and the biosphere as well as the atmosphere in the way the activities are undertaken such as clearing of vegetation must consider any biodiversity impact which include alien invasive control and associated dust generation. It must be noted that the current listed activities EIA regulations of 2014 which were amended in 2017, requires for environmental authorisation for commencement with activities which trigger a requirement for a licence and an environmental authorisation is being sought for the proposed activities.

Title of legislation, policy or guideline	Administering Authority	Requirements	Applicability to the Project
		environmental authorisation (EA). The Minister thus published GNR 983, 984 and 985 (2014) which indicates listed activities that may not commence prior to receipt of authorisation. Should the intended activity trigger a listed activity, the prospector will need to undertake one of the following three processes: • GNR 983 listed activity trigger – undertake a Basic Assessment (BA) process; • GNR 984 listed activity trigger – undertake a Scoping and Environmental impact Reporting (S&EIR) process; and • GNR 985 listed activity trigger – undertake a BA process.	
National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)	DFFE	No licence is required	The proposed activities does not trigger any listed activities in terms of Government Notice No. 893 of 22 November 2013 which was promulgated in terms of National Environmental Management: Air Quality Act, 2004 (Act No 39 of 2004). Thus, no Atmospheric Emissions Licence is required. However, the operations must comply with activities Eskom pollution prevention Procedures.

Title of legislation, policy or guideline	Administering Authority	Requirements	Applicability to the Project
National Environment Management Waste: (NEM:WA) Act, 2008 (Act No 59 of 2008)	National and Provincial DFFE	The focus is to reform the law regulating waste management in order to protect health and environment by providing reasonable measures for the prevention of pollution, ecological degradation and for securing ecologically sustainable development.	There is not a requirement for a waste licence. Improper waste management and disposal behaviour or lack of proper waste management processes and systems will be mitigated in the EMPr. The dismantling of the existing powerline will result in the generation of waste. This together with the proposed construction activities will generate waste and the management of waste should be done according to Eskom waste management Procedures as well as ensuring compliance with NEM:WA.
List of Waste Management Activities that have, or are likely to have a detrimental effect on the environment (Government Notice No. 921 of 2013)		Gives activities that may result in negative impacts on the environment or its resources. These activities would have to be carried out with measures in place to minimize or mitigate possible impacts.	All waste must be managed in accordance with the general duties in respect of waste management, as provided for in Section 16 of NEMWA as well as the general requirements for the storage of waste as provided for at Section 21 of NEMWA
National Environmental Management Waste Classification and Management Regulations (Government Notice No. 634 of 2013)			Various waste streams must be handled according to their respective classification
National Norms and Standards of for storage of waste, Government Gazette No. 37088 (Government Notice No. 926 of 2013) Section 10, 11, 14,15,16			Storage of waste to follow the Norms and Standards requirements.

Title of legislation, policy or guideline	Administering Authority	Requirements	Applicability to the Project
National Environmental Management: Biodiversity Act, 2004 (Act No 10 of 2004.)	National and Provincial DFFE	Provides for the provision of protection of South African flora and fauna. During clearing and construction, all indigenous flora and fauna must be identified and not disturbed. Permission for removal or relocation must be sought from relevant authority.	There is a need to develop mitigation measures to deal with biodiversity management at the applicable level as per the site environment.
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	Department of Agriculture, Land Reform and Rural Development (DALRRD)	Conservation of Agricultural Resources Act 43 of 1983: Section 5 of the Act prohibits spreading of weeds. Controls the utilisation and protection of wetlands, soil conservation, control and prevention of veld fires, control of weeds and invasive plants.	Implementation of control measures for alien and invasive plant species.
Alien and Invasive Species Regulations (Government Notice No. 598 of 2014		Invasive species are now deemed to be a legal liability of the property owner and it is up to the landowner to ensure that all invasive species are safely removed from their land in accordance with the regulations and permitting requirements.	Where project activities are being done, measures will be taken to minimize the spread of the alien invasive species.
National Forest Act, 1998 (Act No. of 84 of 1998)	National and Provincial DFFE	Tree cutting permit should be sought there be listed trees identified for removal.	The activities are being undertaken on an area that has already been cleared as part of the existing operations. The project is also being undertaken within an area characterised with shrubs and a few trees. Nevertheless, since this might have happened many years ago,

Title of legislation, policy or guideline	Administering Authority	Requirements	Applicability to the Project
			the clearing of current indigenous vegetation will trigger listed activities. In addition, a license should be acquired if any indigenous trees are too be removed.
NWA	Regional DHW&S.	Dirty water containment facilities as well as selection of areas for placement of infrastructure to be designed to comply with the NWA requirements and associated regulations and general authorisation prescriptions.	No application required to be submitted to the DHW&S for a water use authorisation in terms of the General Notice 509, Government Gazette 40229, dated 26 August 2016. There should be reasonable measures to prevent any pollution of water resources. EMPr is compiled to ensure overall protection of the environment and water resources, including development of a monitoring plan for the site operations.
Water uses		Chapter 4 of the NWA (Sections 21 to 55) focuses on water use. Generally, a water use must be licensed. Water uses that need to be licensed (Section 21) include: Taking of water from a water resource Storing of water; Impeding or diverting the flow in a watercourse; Engaging in a stream flow reduction activity contemplated in section 36; Controlled activities (includes irrigation with wastewater and	No application is required to be submitted to the DHW&S for a water use authorisation in terms of the General Notice 509, Government Gazette 40229, dated 26 August 2016.

Title of legislation, policy or guideline	Administering Authority	Requirements	Applicability to the Project
		intentional recharging of aquifers with wastewater); Discharging of waste in a manner which may detrimentally impact on a water resource, Disposing of waste in a manner which may detrimentally impact on a water resource disposal of wastewater from industrial processes; Removing and/ or discharging of underground water if it is necessary for the efficient continuation of an activity or for the safety of people Licenses are not required (Section 22) where: Altering the bed, banks. course or characteristics of a watercourse	
The National Environmental Management Act, 2004 Air Quality Act (NEM: AQA) (Act No. 39 of 2004) Schedule 2: The Act includes margins of tolerance, compliance time frames and permissible frequencies by which the standards may be exceeded.	DFFE and Local Municipalities	The approach to air quality management has progressed from source-based control to receptor-based control.	The proposed activities does not trigger any listed activities in terms of Government Notice No. 893 of 22 November 2013 which was promulgated in terms of National Environmental Management: Air Quality Act, 2004 (Act No 39 of 2004). Thus, no Atmospheric Emissions Licence is required. However,the operations must comply with the developers pollution prevention Procedures.

Title of legislation, policy or guideline	Administering Authority	Requirements	Applicability to the Project
NEM: AQA 39 of 2004 Listed Activities Government Notice No. 893 of 22 November 2013		The National Environmental Management: Air Quality Act 39 of 2004 has shifted the approach of air quality management from source-based control to receptor-based control. The Minister signed into law the list of activities which result in atmospheric emissions which have or may have a significant detrimental effect on environment including health, social conditions, economic conditions, ecological conditions or cultural heritage. As a result, their impact should be monitored, and an Atmospheric Emission License be applied should the air quality standards be triggered by the proposed or existing operation. There are licence requirements for the Siding, based on the handling capacity of the site, being less than 100 000 tons.	The proposed activities does not trigger any listed activities in terms of Government Notice No. 893 of 22 November 2013 which was promulgated in terms of National Environmental Management: Air Quality Act, 2004 (Act No 39 of 2004). Thus, no Atmospheric Emissions Licence is required. However, the operations must comply with **developer's** pollution prevention Procedures.
South African National Standard 1929 of 2011, Ambient Air Quality – Limits for Common Pollutants.		The South African National Standards (SANS) were established in order to assist the then Department of Environmental Affairs and Tourism (DEAT), now DFFE, to develop ambient air quality standards for seven pollutants of concern. These include sulphur dioxide, nitrogen dioxide, carbon monoxide,	Ambient air Quality determination, Dust Management Plan and Dust monitoring according to the prescribed regulations and guidelines is a requirement.

Title of legislation, policy or guideline	Administering Authority	Requirements	Applicability to the Project
		particulate matter (PM10), ozone, lead and benzene (DEAT, 2006) emission standards, pertaining to inter alia construction and operation activities. Ambient air quality standards for gravimetric dust fallout were established by The South African Bureau of Standards (SABS), in collaboration with the then DEA (now DFFE).	
National Environmental Management: Air Quality Act, 2004 (Act No. 39 Of 2004) - National Dust Control Regulations (Government Gazette No. 36794 - No. R 827)	DFFE	National Dust Control Regulations on 1 November 2013, in terms of the National Environmental Management Air Quality Act, which prescribes general measures for the control of dust.	Dust monitoring will be done in accordance with the established regulations and guidelines.
Hazardous Substances Act, 1973 (Act No 15 of 1973).		Regulates transportation, use and storage of substances classified as hazardous such as fuel storage on site	Handling of hazardous substances to be done according to the requirements of the regulations promulgated in terms of this Act
National Heritage Resources Act, 1999 (Act No. 25 of 1999) Section 5, Subsection	South African Heritage Resources Agency (SAHRA)	It governs the integration of heritage resources conservation in economic developmental projects. It states that when any paleontological resources are discovered during developmental work, works must cease, and a report done to the SAHRA. Controls for the protection of natural and cultural heritage resources. No person may, without a permit issued	Considerations for the preservation and avoidance of possible paleontological resources. All identified archaeological sites must be registered with the South African Heritage Resources Agency (SAHRA).

Title of legislation, policy or guideline	Administering Authority	Requirements	Applicability to the Project
		by SAHRA or a provincial heritage resources authority— (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves; (b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority	

5.2 Project response to legislative framework and Project Development Justification

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 largescale 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 and support the mining industry. 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 Chloe-Gilead powerline connects two substations which are Chloe substation and Gilead substation located within the previously Aganang Local Municipality (which has been dissolved) and Mogalakwena Local Municipality, in Limpopo Province respectively. Eskom Holdings (SOC) Limited identified the need to upgrade the infrastructure between the two substations in order to improve the reliability of the existing electricity supply and also where possible provide new supply for any additional customers. Eskom Holdings SOC Limited was granted an environmental authorisation (EA) for the proposed upgrade of the Chloe-Gilead

powerline, nonetheless, the activities for which an authorisation was issued are yet to be undertaken.

After some considerations, a decision was made to deviate part of the existing Chloe-Gilead powerline, hence this proposed project. For the proposed project, Eskom intends to deviate approximately one (1) km of the existing 66 kV Chloe-Gilead powerline and have it connected to the new 66 kV feeder. Figure 1.2-1 illustrate the proposed powerline deviation. The project also involves the dismantling of the existing 66 kV Chloe-Gilead powerline, approximately 400 metres in length, including associated infrastructure such as poles (about 3-4 poles).

For the pole structures, Eskom will make use of wooden material which is currently being used on site. However, it has been observed that the wooden poles that are currently being utilized do not have a long lifespan due to wood material's susceptibility to environmental effects which can lead to overall deterioration of the wood structure through decay. This has therefore necessitated the use of steel monopole structures which are a stronger and cheaper option in terms of cost per year. Thus, the use of steel monopoles is considered as an alternative option to wooden poles which are considered as the preferred option.

The key themes that are provided by various environmental standards at local and international level were used as a benchmark to rigorously assess impacts and identify risk exposure.

Table 5.2-1: Environmental Standard Themes

Environmental Standard themes	How it was (or will be) applied
1. Assessment and Management of Environmental and Social Risks and Impacts	Effective community engagement through disclosure of project-related information Proper management of environmental and social impacts through the EMPr The proponent is capable of financing the costs of environmental and social risks. The Applicant has a number of existing procedures and policies addressing environmental and social risks indicating that there is environmental consciousness in the manner in which the activities within the organisation are executed and managed.
2. Labour and Working Conditions.	The planning phase is being conducted with communication with relevant authorities and the construction phase impact assessment takes cognisance of the employment and labour factors. The construction phase will be done following the relevant labour laws and ethical practices. For casual labour, preference shall be given to locals
3. Resource Efficiency and Pollution Prevention	Through the effective implementation of the EMPr, measures will be put in place to avoid and reduce pollution during the construction phase. The construction phase will be for homesteads and as such will not make use of heavy machinery over extended periods of time. Dust regulations will be observed
4. Community Health, Safety, and Security	The site is fenced and signs. will be erected to protect the public from occupational risks. The planning and construction phases will be done with authorisations from competent authorities. Recommendation of the biodiversity studies will be implemented (Volume 4).
5. Land Acquisition and Involuntary Resettlement	Land use agreement are upheld and the operators of the railway siding will abide by the contractual lease agreements
6. Biodiversity Conservation and Sustainable Management of Living Natural Resources	Project activities will be done with the knowledge and recommendations of the biodiversity specialist study outputs (Vlok & van Wyk, 2021) Recommendations have been done for the project to limit use of any non-renewable or scarce natural resources.

Environmental Standard themes	How it was (or will be) applied
7. Indigenous Peoples 8. Cultural Heritage	Recommendations have been made for the project to limit use of natural resources and protect heritage and paleontological artefacts. A Heritage Report by Muroyi (2021) will be used as baseline information for the management and preservation of national heritage artefacts. Enterprise development will be promoted through procuring of services from the locals, where applicable

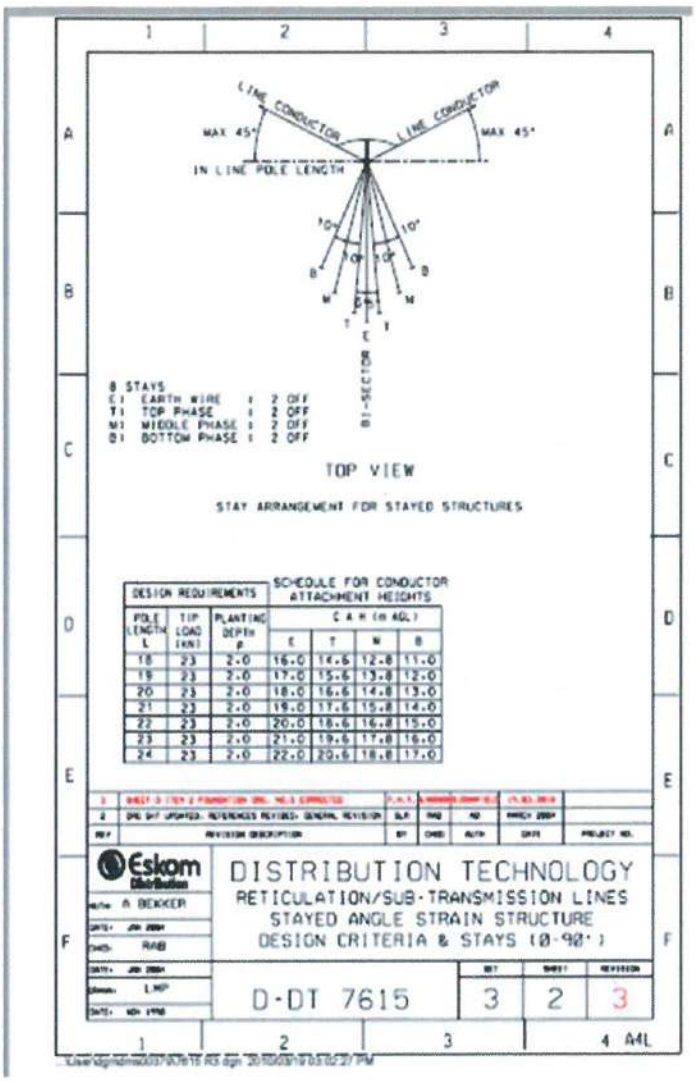
6 MOTIVATION FOR PREFERRED SITE LOCATION AND ALTERNATIVES

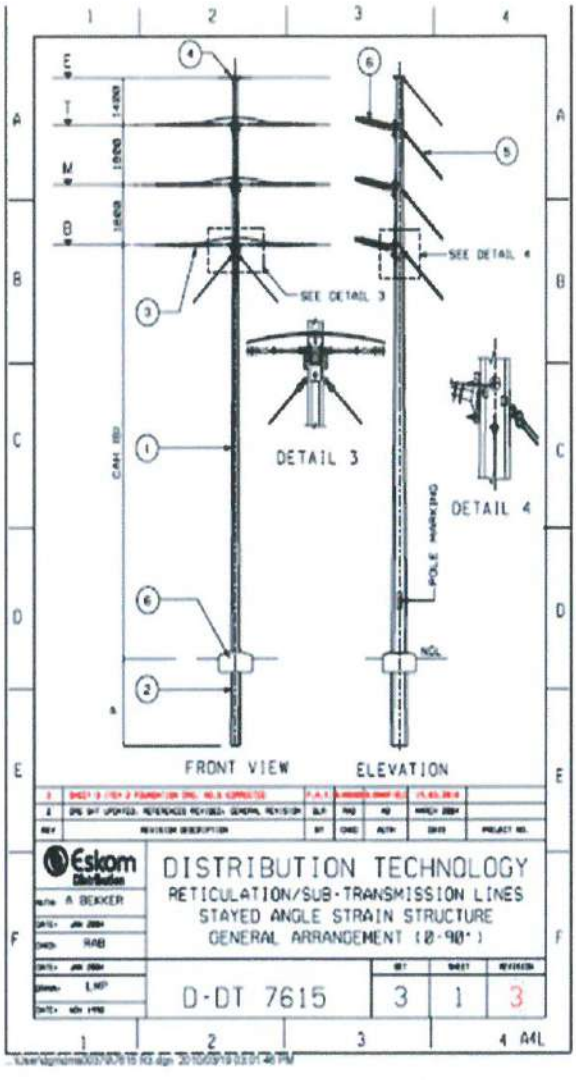
There are no proposed deviation alternatives being considered due lack of space. A 66 kV powerline should have a minimum servitude of about 36 metres, 18 metres to both sides from the centre of the structure. Due to limitations in development space, any alternatives to be considered will still fall within the 36-metre servitude and based on the analysis, it was determined there are no site alternatives.

7 MOTIVATION FOR PREFERRED SITE, ACTIVITY AND TECHNOLOGY

7.1 Pole Structure Alternatives

It has been observed that wooden poles currently being utilised do not have a long lifetime span due to the material's susceptibility to environmental effects, which can lead to negative effects such as decay of the wood. Thus, the use of steel monopole structures is being considered. Figure 7.1-1 present the steel monopole design structures being considered.


LINE CONDUCTOR
LINE CONDUCTOR
MAX 45°
MAX 45°
IN LINE POLE LENGTH
10°
10°
B STAYS
E1 EARTH WIRE : 2 OFF
T1 TOP PHASE : 2 OFF
M1 MIDDLE PHASE : 2 OFF
B1 BOTTOM PHASE : 2 OFF
TOP VIEW
STAY ARRANGEMENT FOR STAYED STRUCTURES
DESIGN REQUIREMENTS
SCHEDULE FOR CONDUCTOR ATTACHMENT HEIGHTS
POLE LENGTH L
TIP LOAD (kN)
PLANTING DEPTH P
C A H (m AGL)
E
T
M
B
18 23 2.0 16.0 14.6 12.8 11.0
19 23 2.0 17.0 15.6 13.8 12.0
20 23 2.0 18.0 16.6 14.8 13.0
21 23 2.0 19.0 17.6 15.8 14.0
22 23 2.0 20.0 18.6 16.8 15.0
23 23 2.0 21.0 19.6 17.8 16.0
24 23 2.0 22.0 20.6 18.8 17.0
Eskom
DISTRIBUTION TECHNOLOGY
RETICULATION/SUB-TRANSMISSION LINES
STAYED ANGLE STRAIN STRUCTURE
DESIGN CRITERIA & STAYS (0-90°)
A BEKKER
RAB
LMP
D-DT 7615
3
2
3
A4L


E
T
M
B
1400
1800
1800
SEE DETAIL 4
SEE DETAIL 3
DETAIL 3
DETAIL 4
POLE MARKING
NGL
FRONT VIEW
ELEVATION
Eskom
DISTRIBUTION TECHNOLOGY
RETICULATION/SUB-TRANSMISSION LINES
STAYED ANGLE STRAIN STRUCTURE
GENERAL ARRANGEMENT (0-90°)
A BEKKER
RAB
LMP
D-DT 7615
3
1
3
A4L

ITEM NO.	DESCRIPTION	D-DT NO.
	STRUCTURE	
	TYPE 2590	D-DT 7615
	MANUFACTURER: STRUCTATECH	
	TYPE 2610	D-DT 7615
	MANUFACTURER: CIS	
1	POLE LENGTH (BODY)	
	18m STEEL	D-DT 7104
	19m STEEL	D-DT 7104
	20m STEEL	D-DT 7104
	21m STEEL	D-DT 7104
	22m STEEL	D-DT 7104
	23m STEEL	D-DT 7104
	24m STEEL	D-DT 7104
2	FOUNDATION	
	TYPE 1 (300kPa)	D-DT 7851 SHT 2
	TYPE 2 (150kPa)	D-DT 7851 SHT 3
	TYPE 3 (100kPa)	D-DT 7851 SHT 4
	TYPE 4 (50kPa)	D-DT 7851 SHT 5
	ROCK & SOFT ROCK	D-DT 7851 SHT 1
3	INSULATOR ASSEMBLY	
	STRAIN ASSEMBLY	D-DT 7311
4	EARTH WIRE ASSEMBLIES	
	STRAIN NON INSULATED	D-DT 7323
	STRAIN INSULATED	D-DT 7324
5	STAY ASSEMBLY/LOCATION	D-DT 7325/7346
6	JUMPER ASSEMBLY	D-DT 7321
7	CONCRETE CAP AND EARTHING	D-DT 7857

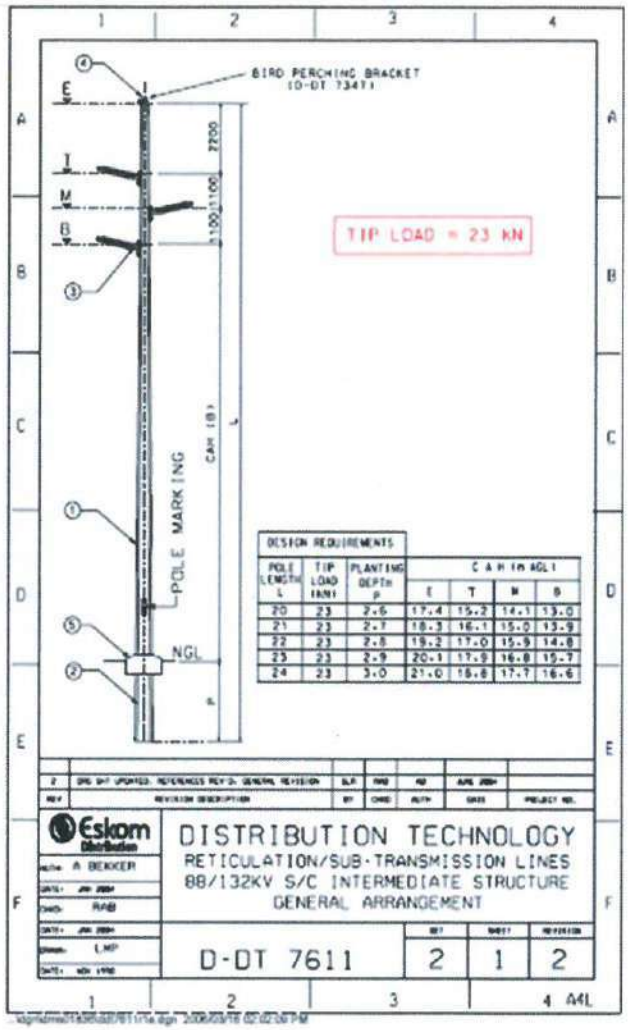
Eskom Distribution

DISTRIBUTION TECHNOLOGY
RETICULATION/SUB-TRANSMISSION LINES
STAYED ANGLE STRAIN STRUCTURE
REFERENCE TABLE (0-90°)

A BEKKER
RAB
LMP

D-DT 7615 | 3 | 3 | 3

A4L



DESIGN REQUIREMENTS

POLE LENGTH L	TIP LOAD (kN)	PLANTING DEPTH P	CAH (m AGL) E	T	M	B
20	23	2.6	17.4	15.2	14.1	13.0
21	23	2.7	18.3	16.1	15.0	13.9
22	23	2.8	19.2	17.0	15.9	14.8
23	23	2.9	20.1	17.9	16.8	15.7
24	23	3.0	21.0	18.8	17.7	16.6

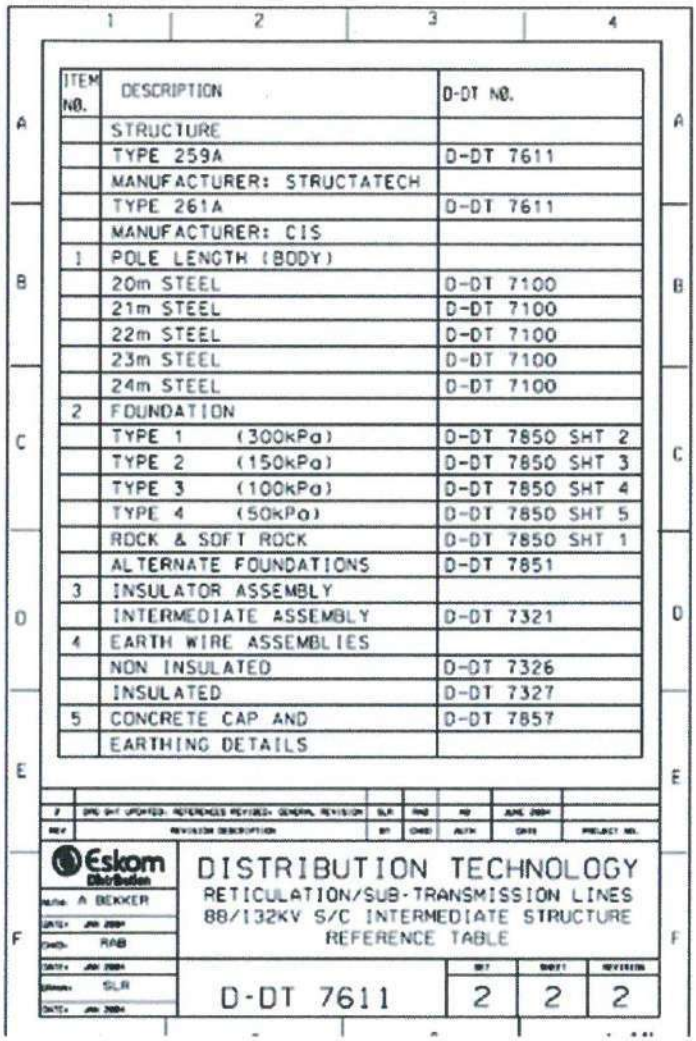
Eskom Distribution

DISTRIBUTION TECHNOLOGY
RETICULATION/SUB-TRANSMISSION LINES
88/132KV S/C INTERMEDIATE STRUCTURE
GENERAL ARRANGEMENT

A BEKKER
RAB
LMP

D-DT 7611 | 2 | 1 | 2

A4L



ITEM NO.	DESCRIPTION	D-DT NO.
	STRUCTURE	
	TYPE 259A	D-DT 7611
	MANUFACTURER: STRUCTATECH	
	TYPE 261A	D-DT 7611
	MANUFACTURER: CIS	
1	POLE LENGTH (BODY)	
	20m STEEL	D-DT 7100
	21m STEEL	D-DT 7100
	22m STEEL	D-DT 7100
	23m STEEL	D-DT 7100
	24m STEEL	D-DT 7100
2	FOUNDATION	
	TYPE 1 (300kPa)	D-DT 7850 SHT 2
	TYPE 2 (150kPa)	D-DT 7850 SHT 3
	TYPE 3 (100kPa)	D-DT 7850 SHT 4
	TYPE 4 (50kPa)	D-DT 7850 SHT 5
	ROCK & SOFT ROCK	D-DT 7850 SHT 1
	ALTERNATE FOUNDATIONS	D-DT 7851
3	INSULATOR ASSEMBLY	
	INTERMEDIATE ASSEMBLY	D-DT 7321
4	EARTH WIRE ASSEMBLIES	
	NON INSULATED	D-DT 7326
	INSULATED	D-DT 7327
5	CONCRETE CAP AND EARTHING DETAILS	D-DT 7857

Eskom Distribution
DRN: A BEKKER
CHKD: RAB
DES: SLR

DISTRIBUTION TECHNOLOGY
RETICULATION/SUB-TRANSMISSION LINES
88/132KV S/C INTERMEDIATE STRUCTURE
REFERENCE TABLE

D-DT 7611 | 2 | 2 | 2

Figure 7.1-1: Steel monopole design structures being considered as alternatives

8 DESCRIPTION OF PROCESS OF CHOOSING PREFERRED ALTERNATIVES

8.1 Project Alternatives

The alternatives were selected by ensuring that the selected options were feasible and they would not pose an environmental risk or would pose the least risk when mitigated.

Key criteria that was considered when identifying alternatives was that they should be "practicable", "feasible", "relevant", "reasonable" and "viable". The different categories of alternatives that were identified included:

- Activity alternatives;
- Location alternatives;

- Process alternatives;
- Demand alternatives;
- Scheduling alternatives;
- Input alternatives;
- Routing alternatives;
- Site layout alternatives;
- Scale alternatives;
- Design alternatives.

Even though effort was taken to consider the above criteria, it was not always possible to consider all of them, for example for categories such as the location alternatives, the substation already exists hence location alternatives could not be considered. Nevertheless, options for infrastructural alternatives were considered.

Assessment of alternatives included a comparison of most of the potential impacts, both direct and indirect and cumulative, on the environment. The intention of assessing the alternatives was to find the most effective way of meeting the need and purpose of the development, either through enhancing the environmental benefits of the proposed development, or through reducing or avoiding potentially significant negative impacts.

The assessment of alternatives as a minimum, included the following:

- The consideration of the no-go alternatives as a baseline scenario (even in case where the no-go alternative is not a realistic alternative)
- A comparison of the selected alternatives.

The comparative assessment considered the following aspects:

- Capital and operating costs;
- Direct, indirect and cumulative impacts;
- Degree to which the impacts could be reversed by application of mitigation measures;
- Physical, legal or institutional constraints; and

- A no-go option, which remained as the default option and was included to provide the baseline for assessment of the impacts of other alternatives and also to illustrate the implications of not authorizing the activity.

8.2 Public Participation Process

Volume 2 of this report details the public participation process that has been followed, together with the Appendices supporting or showing proof of engagement.

8.2.1 Stakeholder Engagement Approach

The Public Participation Process (PPP) forms an integral part of the EIA process. It is a mechanism that aids to identify potential impacts of proposed projects on the biophysical and the human environments. Identified Interested and Affected Parties (I&AP's) are given an opportunity to comment on the proposed project and make recommendations on mitigation requirements.

The PPP was intended to identify stakeholder issues and concerns, from which the potential impacts of the above-mentioned project, could be then identified, so that the mitigation measures to alleviate those impacts could be designed/developed. To achieve this desired goal, the views of the stakeholders were as such solicited. This document is a report on the proceedings of the PPP, along with the outcomes of the communication with registered Interested & Affected Parties (I&APs).

The PPP approach adopted in this process is in line with the processes stipulated in Regulation 40 to 44 of the NEMA: Environmental Impact Assessment Regulations, 2014 (as amended in 2017 under Government Notice (GN) R326) and Regulation 17 to 19 of the NWA: Regulations Regarding Procedural Requirements for Water Use Licence Applications and Appeals, 2017: GN R267.

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, technical specialists 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.

On 15 March 2020, a National State of Disaster was declared and regulations related to the manner in which the public participation process should be conducted, to comply with COVID-

19 regulations and guidelines were promulgated by the DFFE. On 5 June 2020 the Minister of Forestry, Fisheries and the Environment (the Minister) published Directions in terms of Regulation 4(10) of the Regulations issued by the Minister of Cooperative Governance and Traditional Affairs (Minister of COGTA) in terms of Section 27(2) of the Disaster Management Act, 2002 (Act No. 57 of 2002) as published on 29 April 2020 in Government Notice No. R. 480 (the Directions). The Directions published on 5 June 2020 replaced the previous Directions published by the Minister on 31 March 2020 in GN R480. The purpose of these Directions is to provide guidance in the manner in which licencing and permitting processes including the EIA PP process should be conducted, in order to comply with COVID-19 regulations and with an aim of addressing, preventing and combating the spread of COVID-19 related to environmental management processes. Annexure 3 to the Directions stipulates the requirements for the provision of services by environmental assessment practitioners (EAPs) as part of the environmental authorisation process including the manner in which the PP should be undertaken.

This public participation process will therefore adhere to the stipulations indicated in these directions, taking cognisance of various legislations relating to PP including:

- The Regulations issued by the Minister of Co-operative Governance and Traditional Affairs in terms of section 27(2) of the Disaster Management Act, 2002 (Act No. 57 of 2002), published on 29 April 2020;
- The Directions regarding measures to address, prevent and combat the spread of Covid -19 relating to National Environmental Management Permits and Licences, published on 05 June 2020;
- The EIA 2014 (as amended in 2017) Regulations;
- The National Environmental Management Act, 1998 (Act No.107 of 1998)
- The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996);
- Promotion of Access to Information Act, 2000 (Act No. 2 of 2000); and
- Public Participation Guidelines published in terms of Section 24J of NEMA.

8.2.2 Public Participation Undertaken to Date

The issues from interaction with other stakeholders such regulatory authorities even before the preliminary commenting period are provided in Section 8.3.

8.2.3 Notification Methods

The following notification and communication methods were applied during the public participation:

- Email communication;
- SMS communication;
- Face to face meetings;
- MS Teams meeting;
- Physical door-to-door; and
- Telephone Communication.

8.2.4 Advertisements

In fulfilment of the EIA Regulations, GNR 982 Section 42, a newspaper advertisement, to notify and invite I&APs to participate in the proposed project, has been developed and this will be placed in Bosvel Review at the beginning of the 30-day public review period opening on 01 July 2021. Copies of the draft advertisement to be published is attached as Appendix 8.2-1.

8.3 Public Meeting

A public meeting will be held with community members and any other I&APs who can avail themselves to the meeting. Initially, a proposal was made to undertake the meeting in Mokopane because the venue was considered a central place. In addition, during telephone consultations with community leaders, it was highlighted that there is political instability in the area. However, during focus group meetings with the Tribal Leader and the Ward Councillor, it was indicated that the tensions within the community will be settled in May 2021 after which a public meeting can be held within the community, Ham Number 1 village. Therefore, a public meeting will be undertaken during the public review and commenting period that will commence on 01 July 2021 and close on 02 August 2021.

8.4 Issues Raised by Interested and Affected Parties

This section of the report synthesizes the issues and concerns identified by interested and affected parties during the notification period of the public participation process. The comments were provided during a meeting, and therefore not a verbatim of the comments provided. The details of the raised issues, comments and concerns are detailed in Table 8.4-1. No comments were submitted through emails. Comments to be submitted during the public

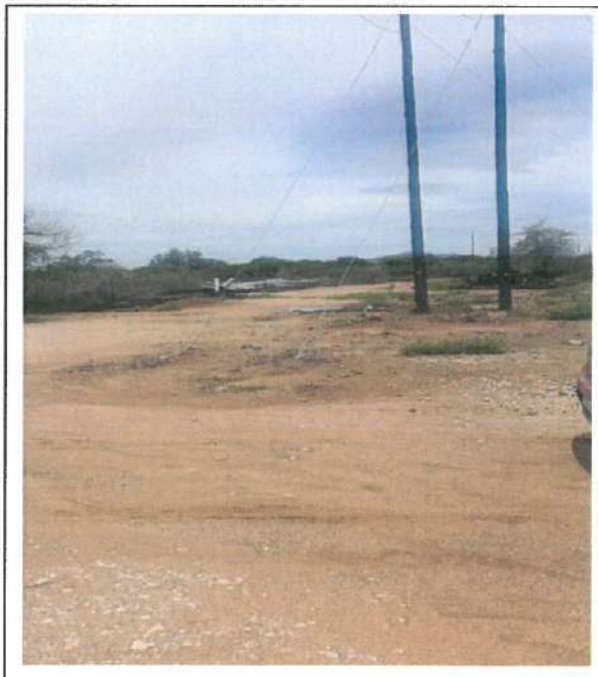
review and commenting period will be captured under this section and these will be addressed accordingly.

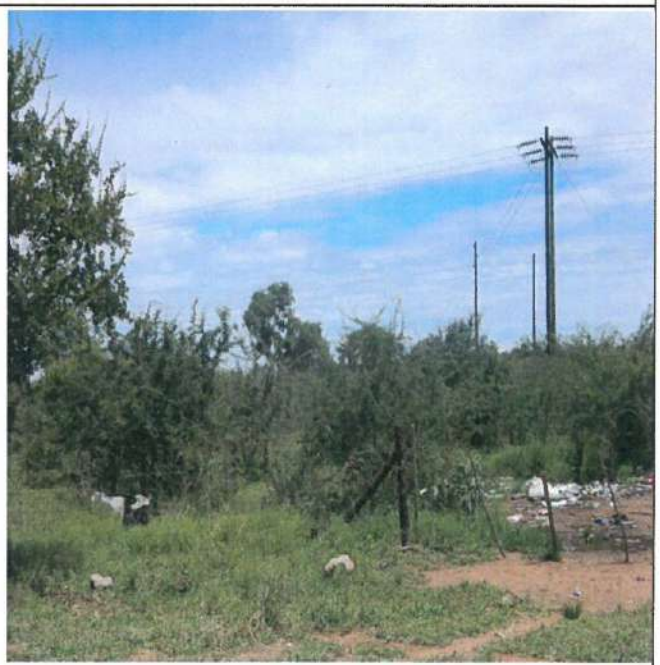
Table 8.4-1: Issues Raised and Comments Received during the Notification Phase

ISSUE/COMMENT	RAISED BY	RESPONSE	MODE OF RECEIPT	SECTION WHERE ADDRESSED IN THE BAR
1. It is crucial that a public meeting with the community members be held, and clarity be given to community members in regard to any concerns, issues or comments they might have	Ward Councillor	The Councillor was requested to engage with the EXCO members and the iNduna and provide feedback after which meeting date will be set.	Notification Meeting held on 23 April 2021.	Section 8.4

8.5 Environmental Attributes

A photographic view, which depicts some of the environmental features and attributes of the site are depicted in Section 4.2 of this report. In addition, below are pictorial records of the proposed site.





Pictorial View: Site Environmental Context

8.5.1 Geographical

8.5.1.1 Climate

Mogalakwena generally experiences a hot semi-arid climate. The MLM falls within the summer rainfall region of Limpopo and the regional climate is typically hot summers and cool, dry winters. The rainy season is from November to March with average rainfall of about 600-650 mm. The rainfall period occurs from November to February, associated with thunderstorms, and the average rainfall declines from east to west. Hail and fog are infrequent. Summer days are hot with temperatures varying between 28°-34° C in October to March. Summer night temperatures are hot to mild varying between 16°-21°C. The winter day temperatures are mild to warm varying between 19.6°-25.2° C in April to September. Winter nights are cold with temperatures of 4.3°-12.1° C (Mogalakwena Local Municipality IDP 2019/2020).

8.5.2 Topography

MLM area forms the central part of the Waterberg District and is occupied by the Waterberg Mountain range forming a central mountain plateau. It is linked to the Sebetiela Mountains in the south-eastern part of the Waterberg District, which in turn is linked to the Great Escarpment of the Drakensberg Mountain range by the Strydpoort Mountains. Secondary drainage lines, mostly occurring along valleys in a northerly direction, bisect the central topography. From the central plateau there is a marked drop in altitude to the south towards the Springbok Flats that extend from neighbouring Bela-Bela LM to north of Mokopane. In the north the terrain becomes undulating and slopes down towards the Limpopo Valley while flat plains occur to the west.

8.5.3 Soils and Geology

The soils of the district range from deep sandy soils from the flatlands, stretching from the west and north-western parts along the western Limpopo valley, with sourish sandy soils in the central area bisected with alluvial soils along the drainage lines and valleys. The soils along the rivers have the highest agricultural production potential and were therefore the areas impacted on in the past by various agricultural and human activities. Studies undertaken by Vlok and van Wyk (2021) show that there is an ephemeral drainage line on site. An ephemeral drainage system refers to; "a stream or reach of a stream that flows only in direct response to precipitation or to the melting of snow or ice in the immediate watershed." On site, no alluvial soils that can be associated with the ephemeral channel however, changes to the general habitat with historic activities (agricultural – presumed grazing) and proposed construction activities might have had some minor impacts on the habitat (Vlok & van Wyk, 2021).

The greater Waterberg District area is. The Waterberg district has a fairly complex geology with a relative high degree of minerals manifesting unique geological formations (predominantly sandstone) (Mogalakwena Local Municipality IDP 2019/2020). The most important intrusive rock formation is the Bushveld Ingenious Complex that holds large reserves of platinum (Environmental Potential Atlas for South Africa, 1997).

8.5.4 Physical

8.5.4.1 Hydrology

There are a number of significant rivers flowing through the MLM, such as Sterkrivier. flowing alongside the western border and flows into the Doorndraai Dam; the non-perennial Pholotsi River flowing past the GaMapela, Pholotsi villages and is a tributary of the Mogalakwena River; and the Thwathwe River flows past the Ga-Mabuela, Ga-Masoge villages and is a tributary of the Mogalakwena River (Mogalakwena Local Municipality IDP 2019/2020). There are occurrences of sponges and wetlands within MLM with the most prominent features including: Nylsvlei floodplain, GaTshokwe (Sterkwater), Telekishi, Blinkwater farm and Mamatlakala wetland. An assumption was made that there is a wetland happening on site, however, according to Vlok and van Wyk (2021) the only water resource observed onsite was the ephemeral drainage line flowing in a south to north direction into the Matlala River to the northeast of the study site. Figure 8.4-1 is a map showing the ephemeral drainage. The ephemeral drainage line looks to be an "Unchannelled valley-bottom set on a Plain" using the SANBI Classification.

8.5.4.1.1 Surface Water Quality

The area associated with the substation falls into the Limpopo River Water Management area and the streams from the site drains into the Matlala River to the north. This river is a tributary of the Mogalakwena River (Sub Water Management Area) that is an important tributary of the Limpopo River (Vlok & van Wyk, 2021).

Figure 8.5-1: Map showing the ephemeral drainage (blue line) (source: Vlok & van Wyk, 2021)

8.5.5 Biological

The Waterberg Biosphere represents one of the most critical environmental assets and the MLM is rich with a number of environmentally sensitive areas, which need protection (Mogalakwena Local Municipality IDP 2019/2020). According to Vlok and van Wyk (2021), there is no clear indication of vegetation indicating a riparian zone on the eastern section near the N11 with some larger trees around the farm dam.

8.5.5.1 Biodiversity

8.5.5.1.1 Flora

There are a total of seven (7) veld types occurring within MLM. The largest veld types are: Arid Sweet Bushveld, Mixed Bushveld, Sourish Mixed Bushveld, Sourish Bushveld, Pietersburg Plateau False Grassveld, Springbok Flats Turf Thornveld, North-Eastern Mountain Sourveld (Mogalakwena Local Municipality IDP 2019/2020). Vegetation within the local municipality is not static and tends to change over time (improve or deteriorate) and the changes can be attributed to climatic changes, such as rainfall, and over utilization (overgrazing). Within veld types unique plant communities and/or plant species are found.
The project site falls within the Makhado Sweet Bushveld (SVcb 20) (Vlok & van Wyk,2021). According to Vlok and van Wyk (2021) the woody species in the proposed corridor is dominated by *Dichrostachys* cinerea as a result of bush encroachment (result of disturbances) with *Vachellia tortilis* a secondary encroacher. Other woody species in or adjacent to the

corridor include *Grewia flava, Ehretia rigida* and *Ziziphus mucronata*. Outside the corridor in the surrounding landscape other woody species noted were *Grewia monticola, Boscia foetida, Sclerocarya birrea, Peltophorum africanum, Senegalia nigrescens, S. mellifera, Vachellia rehmanniana* and *Terminalia sericea*.

With regards to the basal layer the following graminoides dominated: *Anthephora pubescens*, *Aristida stipitata* subsp. *graciliflora*, *Enneapogon scoparius*, *Brachiaria nigropedata*, *Eragrostis trichophora*, *Panicum maximum*, *Schmidtia pappophoroides* and *Urochloa mosambicensis*.

A number of alien invasives are present and include: *Cereus jamacaru, Melia azedarach, Tagetes minuta* and *Agave sisalana*.

There are no red data or protected species associated with the proposed new corridor of the deviation power line.

Figure 8.5-1: The study site (blue circle) in Makhado Sweet Bushveld (SVcb 20) (light blue coloured circle) (source: Vlok & van Wyk, 2021).

When looking at the ecological biodiversity as specified in the Limpopo Province Biodiversity Plan, the proposed site falls within Ecological Support Area (ESA) as shown on Figure 8.4-6.

Figure 8.5-2: Image of the study area, showing blue circle) falls within the Ecological Support Area (ESA – light green)

According to Vlok and van Wyk (2021), there is clear indication of riparian zone vegetation on the eastern section near the N11. Some larger trees around the farm dam and the drainage line to the southwest is visible, but vey opaque to the northeast, indicating the flow of water was disrupted since the construction of the impoundment. Nonetheless, the new deviation line will have no direct impact on the vegetation associated with the impoundment of the drainage line.

8.5.5.1.2 Fauna

MLM has a wide spectrum of physical environments and natural vegetation provides the habitat for most of the larger mammal species as well as smaller mammal species and one of the highest counts of bird life, reptiles, amphibians and insect life in South Africa (Mogalakwena Local Municipality, 2020). Historically, the area provided habitat to a wide spectrum of animal wildlife. Hippopotamus and crocodiles are still present in their natural habitat in most of the perennial rivers. Leopard and cheetah still occupy or roam over extensive areas in the Mogalakwena Local Municipality area. The diversity resulted from cattle farms being reverted to game farms. Landowners of game farms also formed conservancies to benefit from the biological diversity.

No signs of the presence of any wild mammals such as tracks or scats were noted. With regards to the amphibians, some tadpoles of *Pyxicephalus edulis* and *Cacosternum boettgeri* were observed in the farm impoundment. It must be emphasised that the new proposed deviation power line will not affect or impact on the amphibians. During the field survey, only two lizards

were noted dashing into the long grass. No clear observation was possible, but both cases were representatives of *Nucrass spp*. probably *Nucras holubi*.

According to the SABAP2 (2021), a total of 184 bird species and 11 threatened and near threatened species have been recorded in the 2335_2850 QDGC and this equals to 46% of approximate 399 species listed for this region (Vlok & van Wyk, 2021). Despite the high bird diversity in this region, the proposed project site is limited with regards to habitat diversity due to the Bushveld habitat type covering most of the study area. Based on the habitat that is present and observed during the site assessment, only a total of 40 species which includes 1 threatened bird species was confirmed during the investigation, keeping in made the limitation. This equals to 22% of the expected number of bird species and 10% of the expected threatened and near threatened species obtained from SABAP2.

Table 8.4-5 list the number of observed species inclusive of the red listed species is very low in comparison with the total number of expected species for the study area since a total of 184 bird species and 11 threatened and near threatened species have been recorded (Vlok and van Wyk, 2021).

Table 8.4-5: Summary of the total number of species and red listed species expected to occur and observed within the proposed study area (Source: Vlok & van Wyk, 2021).

	Expected (SABAP2, 2021)	Observed	Observed percentage (%)
Total number of species	184	40	22
Number of Red Listed Species	11	1	9

Avifauna

According to Vlok and van Wyk (2021), areas with low sensitivity includes "Transformed and Disturbed" areas and the surrounded associated Bushveld. However, the area may also inhabit foraging or breeding areas for no threatened and threatened bird species even if it is regarded as a low sensitivity area. Threatened bird species such as the Lanner Falcon (*Falco biarmicus*) would still use this area as suitable foraging and breeding habitat (Palons) and species such as European Roller (*Coracias garrulus*) may use the area only for foraging purposes. Table 8.4-6 show a list of the endangered and near threatened bird species and their likelihood of occurrence.

Table: List of the endangered and near threatened bird species and their likelihood of occurrence

Species	Global Conservation Status (Bird Life SA, 2016)	Regional Conservation Status (Bird Life SA, 2016)	Recorded during SABAP 2	Recorded during site assessment	Preferred Habitat (Hockey, *et al.*, 2005)	Likelihood of occurrence
Oxyura maccoa (Maccoa Duck)	Vulnerable	Near Threatened	Yes	No	Prefers permanent wetlands in open grassland.	Unlikely, lack of preferred habitat. Only recorded once in 2013.
Sagittarius serpentarius (Secretarybird)	Vulnerable	Vulnerable	Yes	No	Favours open grassland with scattered trees or shrubs. Nest usually placed on flat thorn trees.	Likely, for foraging purposes and potential breeding habitat. Only recorded once in 2013.
Gyps coprotheres (Cape Vulture)	Endangered	Endangered	Yes	No	Linked to cliff breeding areas.	Unlikely, might be for foraging purposes. No, breeding habitat. Only recorded once in 2013.
Torgos tracheliotus (Lappet-faced Vulture)	Endangered	Endangered	Yes	Yes	Favours semi-arid open woodlands. Nest placed on crown of isolated flat-topped tree.	Likely, to be seen as a flyby. Unlikely, lack of breeding habitat.
Gyps africanus (White-backed Vulture)	Critical Endangered	Critical Endangered	Yes	No	Woodland and Bushveld	Likely, to be seen as a flyby. Unlikely, lack of breeding habitat. Only recorded once in 2013.

8.4.5.2 Wetland and Delineation

A wetland can be defined in terms of hydrology (flooded or saturated soils), plants (adapted to saturated soils) and soil (saturated). Due to the variable nature of South Africa's climate, the direct presence of water is often an unreliable indicator of wetland conditions.

For wetland delineation was conducted making use of desktop and field assessments. The National Wetland Map version 5 (NWM5) as presented by SANBI was scrutinised and no wetland area was identified on or in close proximity to the study site that could be affected by the proposed activities. The only water resource noted was the ephemeral drainage line flowing in a south to north direction into the Matlala River to the northeast of the study site. According to the SANBI Classification (2009) this ephemeral drainage line looks to be an **"Unchannelled valley-bottom set on a Plain".**

The area associated with the drainage line flowing in a southerly to northerly direction is on a flat plains area. To the west and southwest, some high ground (approximately 5.5km away) drain towards the northeast and water will flow towards the Matlala River. In the vicinity of the substation, the terrain is very flat with no steeper slopes that one can detect. The channel of the drainage line is not well defined and during the site visit it is clear that recent activities (roads and construction) have an impact on the flow of surface water after rain events. Therefore, no clear channels can be identified, but from the historic images and the site investigation, it is clear that water from the substation terrain drains to the northeast and east into the drainage line which in turn drains to the northeast, across the N11 towards the Matlala River.

8.5.5.1.3 Classifications of wetlands

According to the wetland classification system, the wetland is a hill slope seep feeding a watercourse downstream. According to Vlok and van Wyk (2021), an ephemeral drainage was observed on site, and this cannot be classified as a wetland taking cognisance of the provided wetland definition.

Table: Wetland Classification of the ephemeral stream at the Gilead Substation.

Level 1: System	Level 2: Regional setting	Level 3: Landscape unit	Level 4: Hydrogeomorphic (HGM) unit	
Connectivity to open ocean	Ecoregion	Landscape setting	HGM type	Longitudinal zonation / landform
			A	B
INLAND	DWAF Level 1 Ecoregions	VALLEY FLOOR	Unchannelled valley-bottom wetland	Valley-bottom flat

8.5.6 Social

8.5.6.1 Project Area

The project site is located under the jurisdiction of Mogalakwena Local Municipality, in Limpopo Province. The project site is approximately 3 km south of Ham No. 1 (Moyaneng) Village; 8 km north-west of Hwibi Village. The site can be accessed via the N11 road and Mokopane town is the town of the area.

The proposed site, Portion R/2 of Farm Gillimberg 861LR, is currently under use by Eskom owned by Department of Agriculture, Land Reform and Rural Development (DALRRD). The project area falls under a rural setting therefore, under tribal authority. Domestic animals such as goats and cattle were observed within the project area denoting that resident might be practicing animal husbandry.

8.5.6.2 Social Baseline Data

The section to follow presents a brief overview of the socio-economic conditions within the regional and local study areas.

8.5.6.2.1 Socio-economic Indicators Summary

Analysis of the demographic data focuses on population figures, gender breakdown and the age structure of the population; whilst analysis of HHs focuses on the total number and size of HHs, which is about the average number of people in a household. Information used is based on the 2016 Community Survey by Statistics South Africa. Table 8.4-1 present socio-economic indicators for WDM and MLM.

Table 8.4-1: WDM and MLM Socio-economic Indicators

Key Indicator	Waterberg District Municipality	Mogalakwena Local Municipality
Population		
Total Population	745 758	325 291
Population under 15	34.4%	39.9%
Population 15 to 64	60.5%	53.4%
Population over 65	5.1%	6.6%
Sex Ratio		
Males per 100 females	104.7	88.3
Education		
1. No schooling	7.1%	10.2%

Key Indicator	Waterberg District Municipality	Mogalakwena Local Municipality
2. Matric	27.6%	24.4%
3. Higher education	9.0%	8.7%
Labour Market		
Unemployment rate	28.1%	40.2%
Youth unemployment rate (official) 15-34	35.5%	32.3%
Health Facilities		
(a) Clinics	57	29
(b) Hospitals	11	3
(c) Mobile Clinics	29	13
(d) Community health centres	1	0
Household Dynamics		
Households	211 471	82 674
Average household size	3.5	3.9
Female headed households	40.9%	52.2%
Formal dwellings	85.0%	95.3%
Housing owned	63.6%	81.5%
Access to Basic Services		
Water (Piped)	24.4%	14.5%
Sanitation (Flush)	43.8%	25.6 %
Electricity for lighting	86.1%	92.0%
Weekly Refuse Removal	44.4%	32.9%
Economy (Major GDP contributing sectors)		
Mining	56.0%	27.0%
Community services	12.0%	21.0%
Trade	9.0%	13.0%
Finance	8.0%	15.0%
Transport	4.0%	11.0%
Agriculture	3.0%	2.0%
Electricity	3.0%	3.0%
Manufacturing	3.0%%	5.0%

Key Indicator	Waterberg District Municipality	Mogalakwena Local Municipality
Construction	2.0%	3.0%

Sources: Stats SA Community Survey 2016; 2019/2020 IDPs for MLM and WDM.

8.5.7 Heritage

Mokopane, is home of one of the world's most important archaeological sites such as Makapansgat where deep and large limestone cave have been found with remains of some of the earliest hominids yet identified, the species *Australopithicus africanus*, who lived more than three million years ago; and *Homo erectus*, who lived a million years ago (Muroyi, 2021). The first substantial evidence of hominid habitation relates to people of the Middle Stone Age (MSA) and extensive remains of MSA occupations in the Waterberg is significant. MSA occupations occurred in Waterberg and at present it is assumed that the occupations would have been somewhere between 200 000 and 25 000 years ago. MSA People lived in rock shelters or open camps, sometimes near pans, lakes or rivers, though they were not as dependent on close sources of water as their ancestral Early Stone Age (ESA) counterparts. This independence from water suggests that they had water containers that could have been made of skin or ostrich eggshell.

People in the MSA were efficient hunters and gatherers, hunting with spears tipped with stone. This is evidenced by some South African sites like Klasies River Mouth (near Storms River), which had stone spear-tips embedded in animal bones (Mitchell 2012). In addition, researchers have found microscopic traces of blood and animal remains on stone points. Stone points were hafted onto handles because microscopic analysis has revealed resins on their bases, in addition to micro-chipping where twine would have been used to attach the stones to shafts (Wadley *et al.* 2004).

An archaeological survey for the proposed project area undertaken by Muroyi (2021) concludes that there are no heritage features on site.

Archaeological and Palaeontological Resources

Section 35 (4) on the NHRA state that no person may, without a permit issued by the responsible heritage resources authority:

- During the survey, no archaeological and paleontological sites were recorded.

8.5.8 Cultural

The cultural landscape of the development footprint can be understood to be an organically evolved landscape, which has resulted from hominids. The sediments, fossils, bones and artifacts found in the caves, about 15 km from Mopane town, preserve a unique record of habitation and evolution dating back 3,3 million years (Mogalakwena Local Municipality, 2020). In September of 1854 and approximately 12 men, women and children who were members of the Trekker party were viciously attacked and murdered by the Mugombane's Chiefdom marking the beginning of the Anglo Boer Wars that lasted till Apartheid.

The current Mokopane is a result of The Great Trek, which was a mass migration of Dutch-speaking inhabitants of the British-run Cape Colony, who left the Cape and travelled eastward by wagon train, into the interior of the continent, in order to live beyond the reach of the British colonial administration. The settlers named the town Potgietersrus, and was named after he slain Voortrekker leader Piet Potgieter. In 2003, the own was changed to Mokopane and was named in honour of a local Shumayela Ndebele leader, King Mngombane Kekana, who ruled the area before being conquered by the Voortrekkers. However, major language in Mokopane is Northern Sotho.

8.6 Impacts and Risks Identified for Alternatives

8.6.1 Extent of Reversal of Impacts

The impacts of the selected alternative can be reversible. The alternative pertaining to the pole design to be utilised, that is steel monopole structures, will be adopted and will be within the same footprint as is the preferred alternatives, wooden pole structures. As such, the alternative design will not result to unmanageable impacts.

Rehabilitation will ensure that the impacts are reduced to minimum and areas that were disturbed will be rehabilitated back to their current or similar state.

8.6.2 Extent of Irreplaceable Resource Loss

The alternative designs are being undertaken within the same footprint as is the preferred alternatives and there is no expected irreplaceable loss of natural resources. Here were not identified areas of significant conservation value within the site with respect to heritage and palaeontology. The surrounding sensitive features include faunal biodiversity, such as birds and frogs,that might be impacted by the proposed activities such as vehicle movements amongst others.

8.6.3 Mitigation, Avoidance and Management of Impacts and Risks

8.7 Methodology for Impact Assessment and Analysis

A preliminary background research was done to obtain an overview of the project context from an environmental, legal, policy and administrative, as well as institutional context. The baseline environmental assessment studies of the receiving environment that are likely to be affected by the proposed waste drop off facility were conducted. Impacts were identified through use of collected data from the literature review of the municipality and its related documents such as the State of the Environment Report (SoER), IDP, SDF, Waste Management Strategy, communication with the municipality officials, consultation with the authorities from the Competent Authority offices, research of information from SANBI and Windeed and professional expertise. Once the impacts were identified, they were assessed for significance, using the criteria and methodology provided in Section 9. The first stage of impact assessment was identification of environmental activities, aspects and impacts. This was supported by the identification of receptors and resources, which allowed for an understanding of the impact pathway and an assessment of the sensitivity to change.

Refer to Section 9.0 for the Methodology use for Impact ranking for the project site.

8.8 Positive and Negative Impacts of the proposed Activity

The positive and negative impacts the proposed project activity and alternatives will have on the environment and on the heritage and cultural aspects are presented on Table 8.7-1.

Table 8.8-1: Impacts that the proposed project activities will have on the environment and community.

Aspect	Impacts
Geographical	*Positive*; Infrastructural development. New settlements. Increase in community size. Negative: None
Physical	*Positive*: Construction of permanent soil erosion control mechanisms *Negative*: Soil erosion. Minimum vegetation clearing. Temporary noise and dust nuisance. Temporary air pollution.
Biological	Positive: None *Negative*: Minimal habitat disturbance. Vegetation clearing without vegetation loss.
Social	*Positive*: Increased social interaction. Knowledge transfer. Better amenities. Negative: None
Economic	*Positive*: Temporary employment creation. Skills transfer. Improved livelihoods. Negative: None
Heritage	*Positive*: Preservation of any identified heritage resources.

	Negative: None
Cultural	*Positive*: Culture sharing. Preservation of cultural practices. Negative: None

8.9 Possible Mitigation Measures and Level of Residual Risks

The project will make use of several mitigation measures to avoid and manage environmental impacts. Since the project is of small scale with construction not expected to go beyond 6 months, there are no major or residual impacts expected. Below are the mitigation measures that will be followed to avoid, minimize and manage the following possible residual impacts.

Objective: Soil erosion control and dust minimisation

Minimal vegetation clearing – minimum clearing of bushveld and riparian vegetation will be avoided at all costs as this has high biodiversity and act as buffers preventing runoff of soil into streams. Hence, they prevent siltation and sedimentation.

Soil stockpiling – Due to the project size, no large stockpiles are expected on site. However, where vegetation is cleared, the topsoil can be stockpiled since it is a seed bank. Such soil can be used as pole filling as well as covering cleared land.

Objective: Pollution minimization and control

Storage Designs – cement to be used for pole filling will be stored where it is not blown away by wind causing dust. If there is storage of oil, a bunding will be used to prevent spillage that may contaminate water and soil.

Minimal Construction Vehicle Usage – the project might make use of light usage construction vehicles for excavation and stringing. As such there will be unlikely chances of air pollution, noise, vibration and soil compaction. Where construction vehicles are used, they will have devices fitted to reduce air emissions and should be well serviced to reduce noise.

Project Duration and Timing – the project will be undertaken after the issuance of an environmental authorisation and activities will be undertaken with the conditions of the issued environmental authorisation.

Objective: Waste minimization

Waste Management – the project will involve the removal of the powerline and the installation of a new powerline chemical or hazardous waste such as cut cable conductors can be produced. The contractor shall hold relevant material safety data sheets for the waste to be generated on site and domestic waste from such will be stored and moved to a licenced waste

recycling or dumping site. No waste dumping shall occur on site. Purifiable waste must be kept in scavenger proof containers.

Objective: Labour and occupational safety

Casual labour – where there is need for casual labour, this will be sought from surrounding communities.

8.10 Outcomes of Site Selection Matrix

The proposed site is already an established and operational substation with limited space for site alternatives. Thus, no site selection matrix was done. Detailed site selection considerations are discussed in Section 6 and Section 7 of this report.

8.11 Motivation for no Alternative Locations Activity

The site for the proposed development is already an established and operational substation. The motivation for no site alternatives is in regard to limited space for the proposed development. A 66 kV powerline should have a servitude of about 36 metres, 18 metres to both sides from the centre of the structure and due to limitations in development space, any alternatives to be considered will still fall within the 36-metre servitude and based on the analysis, it was determined there are no alternatives.

9 ENVIRONMENTAL IMPACTS AND RISKS IDENTIFIED

An Impact Assessment Methodology for Assessing the Impact Significance of proposed activities is outlined below. The assessment of possible impacts during the project life cycle stages was done through the establishment of a standardised and internationally recognised methodology to assess the significance of the potential environmental impacts of the proposed development. The significance of the impacts was determined through the following:

- For each impact, the SEVERITY (size or degree), DURATION (time scale) and EXTENT (spatial scale) are used to determine the CONSEQUENCE of the impact.
- The section below outlines the assessment methodologies utilised in the study.

In order to identify and assess impacts, a site surveillance was undertaken to support desktop studies, specialist studies, Geographic Systems Information and through the use of tools and standards provided by NEMA, IFC and UNEP.

Nature of Impact – describes the impact. It shows how the impacts arise. For example, "emissions by machinery" describes the production of air pollutants from vehicles that use fossil fuels.

Magnitude – describes the degree to which the impact's effects affect the environment. It is the severity of the impact rated as minimal, moderate, severe or extremely severe.

Extent – this is the geographical radius of the impact's influence described as localised or widespread. For example, air pollution is widespread as the contaminants are carried by air across large areas whilst vegetation clearing is limited to one site which is described as localised.

Probability – this is the likelihood or risk of the impact occurring. It is described as unlikely, likely or highly likely. Impacts such as soil erosion where there is no vegetation clearings are unlikely whilst they are highly likely where vegetation is cleared.

Duration – this is the time for which the impact continues to have an effect on the environment or local communities. The impact is rated as short-term, medium-term or long-term. Some impacts such as noise can have a duration of one day whilst some such as spillage of chemicals into water last until the chemical is biodegraded.

Significance – describes the importance of the impact depending on the consequences and secondary effects arising. Rated as insignificant, significant or highly significant.

Reversibility – describes whether the impact can be reversed or not. It is rated as reversible or irreversible. Impacts such as vegetation clearing can be reversed whilst those such as loss of human life are irreversible.

Table 8.11-1: Risk Assessment Evaluation

EVALUATION CRITERIA	RISK ASSESSMENT
1. Description of Potential Impact	Negative impacts range from partial to total destruction of surface and under surface movable/immovable relics
2. Nature of Impact	Negative impacts can both be direct or indirect.
3. Legal Requirements	Sections 34, 35, 36, 38 of National Heritage Resources Act (No. 25 1999).
4. Stage/Phase	Construction phase, Operational phase
5.Nature of Impact	Negative, both direct & indirect impacts.
6. Extent of Impact	Excavations and ground clearing has

	potential to damage archaeological resources above and below the surface not seen during the survey.
7. Duration of Impact	Any accidental destruction of surface or subsurface relics is not reversible but can be mitigated.

Table 8.11-2: Impacts Assessment

Nature: During the construction phase activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological material or objects.		
	Without Mitigation	**With Mitigation**
Extent	Local (1)	Local (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Low (2)	Low(2)
Probability	Not Probable (2)	Not probable (2)
Significance	Low (16)	Low(16)
Status	Negative	Negative
Reversibility	Not irreversible	Not irreversible
Irreversible loss of resources	No resources were recorded	No resources were recorded
Can impacts be mitigated?	Yes, a chance find procedure should be implemented.	Yes

10 ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISKS

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 section.

Also, this section outlines benefits and how they can be maximized. The assessment include:

- Cumulative Impacts
- Nature, Significance and Consequence, Impacts and Risks
- Extent and Duration of Impacts and Risks
- Probability of Impacts and Risks Occurring
- Extent of Reversal of Impacts and Risks
- Extent of Losses Associated with Risks and Impacts

- Mitigation, Avoidance and Management of Impacts and Risks

Tables 10-1 to 10-5 detail the identified impacts for various development phases and provides assessment of these according to the defined criteria provided in Section 9.

Eskom

Eskom

Table 10.1: Assessment of identified potentially significant impact and risk during construction phase

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
Land clearing during preparation of area for power line construction	ii). During the construction of the power line, casual labour will be sourced from the local communities, if need be *Impact Status: Positive* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: High* *Confidence rating: Medium*	Probable 3 + 4 = 7	Reversible. Short-term financial benefits.	3 Significant	7 x 7 = 49	3 + 1 = 4	None	None	8 x 7 = 56 Moderate benefit
	Mitigation/Enhancement: During construction, contractor will give preference of casual labour to locals. Once project ends, casual labour employees can be issued with letters of recognition of their contribution to the construction.								
	Cumulative Impacts: Currently, there is no known activity at the power line creating employment for surrounding communities. As such, the cumulative effect during the project will be low.								
	iii). Due to the measures that will be put in place to limit negative impacts, there can be easing of pre-	Probable 2 + 4 = 6	Irreversible. Most of these measures	4 Beneficial	8 x 6 = 48	3 + 1 = 4	Medium	Low	9 x 6 = 54 Small benefit

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
	existing environmental challenges. *Impact Status: Positive* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*		are long-term or permanent						
	Mitigation/Enhancement Measures: Permanent and long-term measures will be put in place for controlling existing environmental challenges.								
	Cumulative impacts: Currently, there is no known activity at the power line contributing to alleviation of existing environmental issues. As such, the cumulative effect during the project will be low.								
	iv). Leftover construction materials such as cable conductors, wire and rubble can be given to community members if they want to use them for things such as construction of fowl runs. *Impact Status: Positive*	Probable 5 + 4 = 9	Irreversible. Most material left over from power line construction is durable e.g. cable conductors.	4 Beneficial	8 x 9 = 72	3 + 1 = 4	Low	None	9 x 9 = 81 Moderate benefit

Eskom

Eskom

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
	Degree to which the impact can cause loss to natural resources: Low *Degree to which the impact can be mitigated: -High* *Confidence rating: High*								
	Mitigation/Enhancement Measures: Hazardous material and substances will not be part of the leftover material that may be made available for collection by community members. Community members who choose to collect left-over material will be informed on how to get rid of the material when they no longer need it.								
	Cumulative impacts: Collected leftover material may end up being disposed of improperly. However, in rural areas, the issues of existing improper waste disposal are close to non-existent and Gilead is no exception. As such, the cumulative effect will be low.								
	v). There will be loss of vegetation during clearing of land. *Impact status: Negative* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High* *Confidence rating: Medium*	2 + 4 = 6	Irreversible. Even though vegetation can be planted again, power lines must have no vegetation.	4 Harmful	7 x 6 = 42	1 + 2 = 3	Low	None	10 x 6 = 60 Moderate benefit

Eskom

Eskom

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
	Mitigation/Enhancement Measures: Unnecessary vegetation clearing, especially outside of demarcated project area, will be avoided at all cost. Project area to be cleared will be visibly demarcated to avoid unnecessary vegetation clearing.								
	Cumulative impacts: At the moment, there are no known activities causing vegetation loss at the Chloe-Gilead power line. Therefore, the cumulative effect during construction will be low.								
	vi). Habitat destruction will occur during removal of vegetation since wildlife such as birds and insects greatly rely on tree and shrub vegetation. *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*	2 + 4 = 6	Reversible. Affected wildlife will most likely migrate to nearby vegetation	2 Potentially harmful	6 x 6 = 36	2 + 2 = 4	Low	Low	3 x 6 = 18 Low risk
	Mitigation/Enhancement Measures: Construction activities and movement of workers or machinery will avoid the east to north-east of the project site to allow for smooth migration of any wildlife to the nearby game reserve.								

Eskom

Eskom

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
	If bird nests are encountered, they will be carefully moved to nearby vegetation which will not be cleared.								
	Cumulative impacts: Currently, there is no known activity at the power line causing loss of habitats. As such, the cumulative effect due to construction activities will be low.								
	vii). Spread of alien invasive species may occur due to vegetation clearing and the movement of workers. The following alien invasive species were observed by Vlok and van Wyk (2021); *Cereus jamacaru, Melia azedarach, Tagetes minuta* and *Agave sisalana.* *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: Medium* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*	Probable 3 + 5 = 8	Reversible. Any spread alien invasive species can be cleared and destroyed	3 Slightly harmful	5 x 8 = 40	1 + 1 = 2	Low	Low	2 x 8 = 16 Low risk
	Mitigation/Enhancement Measures: In addition to an alien vegetation management, the identified alien invasive species will be removed and burnt before any vegetation clearing begins. The site ECO will familiarise with the alien invasive species identified by Vlok and van Wyk (2021).								

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
	Hunting of both animals and plants by project workers will be prohibited as this also spreads alien and invasive species from outside the project site.								
	Cumulative impacts: Currently, most alien invasive species most probably spread through movement of people and wildlife. With the commencement of construction activities, movement of wildlife and people will be low to none. There will only be movement of workers. As such, the cumulative effect is expected to be low.								
	viii). Biodiversity disturbance and loss of endangered species may occur due to loss of vegetation due to land clearing. *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: Medium* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*	Improbable 1 + 3 = 4	Reversible. Biodiversity can be revived or promoted through the use of mitigation measures.	2 Potentially harmful	4 x 4 = 16	1 + 1 = 2	Medium	Low	3 x 4 = 12 Low risk
	Mitigation/Enhancement Measures: According to the study by Vlok and van Wyk (2021), only one endangered species Pyxicephalus edulis was identified and this will not be affected by the project activities. Vlok and van Wyk (2021) also recommended that minimum clearing to the bushveld vegetation be observed in order to limit impacts. To reduce pressure on biodiversity, all construction workers will not be allowed to poach or make use of ecosystem services.								

Eskom

Eskom

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
	Cumulative impacts: Rural areas such as Gilead usually experience seasonal veld fires that weaken the intensity of biodiversity. The clearing of land during construction has low intensity effects on biodiversity but when viewed together with existing causes such as veld fires, the cumulative effect is medium.								
	Mitigation/Enhancement Measures: Dust suppression measures will be used especially during windy days. These may include spraying of water or binding agents. Wind barriers will also be installed on windy days.								
	Cumulative impacts: Even though dust can occur naturally in pristine conditions, it is unlikely that the project site experiences such due to the presence of vegetation. Dust is likely to be experienced during the construction phase only. As such, the cumulative effect will be low.								
	x). Soil erosion and loss of top soil will be a result of loss of vegetation as their root systems which hold soils together to prevent soil erosion, will be removed. *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*	Probable 3 + 4 = 7	Reversible. Even though the power line must be free of vegetation, top soil will be restored and geotextiles used to prevent future erosion.	3 Slightly harmful	8 x 7 = 56	1 + 1 = 2	Medium	Low	5 x 7 = 35 Low risk

Eskom

Eskom

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
	Mitigation/Enhancement Measures: Unnecessary vegetation clearing, such as removal of plants outside of the project site, will be minimised. Erosion control mechanisms such as use of geotextiles will be done.								
	Cumulative impacts: Satellite images of the project site from 2005, 2018 and 2021 shows a trend in increasing soil erosion. According to https://www.worldweatheronline.com/ (2021), average wind speed in the area September and October can reach up to 16 kilometres per hour which is powerful enough to gradually cause noticeable soil erosion. As such, considering construction activities, the cumulative effect will be medium.								
	xi). Land degradation due to land clearing activities that involve removal of vegetation and loss of top soil. *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: High* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*	Improbable 5 + 2 = 7	Reversible. Mitigation will restore land even though there may be no revegetation	4 Harmful	6 x 7 = 42	2 + 1 = 3	Medium	Low	3 x 7 = 21 Low risk
	Mitigation/Enhancement Measures: All degraded land will be restored using geotextiles, stones or rip rap methods.								
	Cumulative impacts:								

Eskom

Eskom

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
	As aforementioned, satellite images show changes in vegetation over time and soil erosion occurring. Further land degradation due to construction activities will result in medium cumulative impacts. They will not be high at any given time due to use of soil erosion control mechanisms that will be installed before construction.								
	xii). Undiscovered paleontological resources can be inadvertently disturbed or wrecked during site preparation activities *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*	Improbable 3 + 2 = 5	Irreversible.	2 Potentially harmful	5 x 5 = 25	1 + 2 = 3	Low	None	3 x 5 = 15 Low risk
	Mitigation/Enhancement Measures: The site ECO and site supervisor will be trained on how to identify paleontological resources. According to Muroyi (2021), if any skeletal remains are discovered, works will cease whilst a qualified archaeologist and SAHRA will be engaged.								
	Cumulative impacts: Currently, there are no known activities causing disturbance of paleontological resources in the project site and therefore the cumulative effect is almost non-existent. The Heritage Study by Muroyi (2021) also confirmed that no visible material remains pertaining to heritage resources occur within the proposed development footprint.								

Eskom

Eskom

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
	xiii). Disturbance of riverine ecosystems may occur. Satellite imagery shows a seasonal water body about 500 metres south-east of the Gilead substation *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: Medium* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*	Probable 5 + 2 = 7	Reversible. It can be avoided and the current status enhanced after construction.	3 Slightly harmful	7 x 7 = 49	3 + 1 = 4	Low	None	5 x 7 = 35 Low risk
	Mitigation/Enhancement Measures: Workers will be prohibited from accessing the seasonal water body. All project activities will not come within 300 metres of the water body.								
	Cumulative impacts: Currently there are no known activities causing disturbance of the seasonal water body								

Eskom

Eskom

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
Movement of construction machinery and vehicles.	i). Air pollution will occur as a result of greenhouse gas emissions from construction machinery powered by diesel engines. *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*	Probable 5 + 4 = 9	Reversible. Carbon can be trapped by wetlands and trees. The impact can also be minimised.	3 Slightly harmful	7 x 9 = 63	3 + 1 = 4	Medium	Low	5 x 9 = 45 Low risk
	Mitigation/Enhancement: Construction vehicles will be well serviced before project activities begin. Vehicles with high emissions will be fitted with catalytic converters.								
	Cumulative impacts: The project area has fewer sources of greenhouse gas emissions. Traffic movement is generally low. Taking into account the movement of construction vehicles, the cumulative effect is low.								
	ii). Vibration can result from the operations and movement of heavy vehicles and construction machinery. The vibrations	Probable 5 + 4 = 9	Reversible. There are no sensitive receptors nearby	1 Non-harmful	3 x 9 = 27	1 + 1 = 2	Low	None	2 x 9 = 18 Low risk

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
	can disturb underground animals such as moles. Vibrations can cause the shaking syndrome in workers if exposed over a long period. *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*								
	Mitigation/Enhancement: Vehicles and machinery used will have low vibration technology Sound absorbers and good maintenance will be used as vibration-reducing measures Workers will make use of vibration protection measures such as limiting daily and weekly exposure to vibration equipment.								
	Cumulative impacts: Even though there is a road next to the Gilead substation and power line running parallel, the movement of heavy vehicles which can cause vibrations is low. Again, power line construction does not involve high usage of heavy vehicle for long periods of time. As such the cumulative impact of vibration remains low when considering both ground disturbance and occupational risks to workers.								
	iii). Compaction of soil can occur from the repeated	Improbable 5 + 1 = 6	Reversible. Endangered	3	6 x 6 = 36	2 + 1 = 3	Medium	None	4 x 6 = 24

Eskom

Eskom

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
	movement of heavy construction vehicles on the project site. Soil compaction can disturb the soil structure resulting in poor infiltration and aeration. *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: Medium* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*		plants can be avoided or replanted. Impact can be avoided	Slightly harmful					Low risk
	Mitigation/Enhancement Measures: Use of heavy machinery will be limited during rainy days or when the soil is wet and most likely to be compacted. Movement of heavy vehicles will be restricted to the project site, main road and areas where there may be need to collect construction material.								
	Cumulative impacts: As an operational power line, there is currently no movement of heavy vehicles or activities causing soil compaction. Even when viewed alone, the movement of construction vehicles is not likely to cause significant compaction. Cumulative impacts will be low.								
	iv). Soil and Water contamination from oil and grease spills from heavy	Probable 2 + 4 = 6	Reversible. Can be reversed but	2 Potentially harmful	7 x 6 = 42	3 + 2 = 5	High	Low	5 x 6 = 30 Low risk

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
	construction vehicles and machinery infiltrating the soil or runoff to nearby waterbodies or seepage into wetlands. *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*		at a high cost. Damage takes time to occur.						
	Mitigation/Enhancement Measures: All vehicles and machinery will be regularly inspected and maintained in good condition to reduce incidences of oil leaks or fuel leaks. Any machinery or construction vehicles will be parked on hard surfaces within the existing substation parking to minimise infiltration of oils and fuel into soil after leaks or spills.								
	Cumulative impacts: According to the Biodiversity Report by Vlok and van Wyk (2021), the nearest wetland is in good condition and has not been disturbed. The project activities will not disturb or impact the wetland. As such, there will be no need for mitigation and there will be no cumulative impacts.								
	v). Noise pollution from use of machinery and movement of construction vehicles can result in	Improbable 5 + 4 = 9	Irreversible. In some cases, damage to	3 Slightly harmful	5 x 9 = 45	1 + 1 = 2	Low	None	3 x 9 = 27 Low risk

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
	disturbance of wildlife breeding pattern. Noise is also an occupational health hazards that can cause ear damage. *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*		ears can be permanent.						
	Mitigation/Enhancement Measures: Workers in high noise areas exceeding 85 dB (WHO threshold level) will be provided with ear protection. The biodiversity study by Vlok and van Wyk (2021) found no wildlife breeding areas in the vicinity of the project area therefore none will be impacted.								
	Cumulative impacts: Due to the absence of sensitive areas such as wildlife breeding grounds within the vicinity of the project site, the likelihood of this impact is low. Currently there are no activities causing noise above 85 dB in the area therefore there will be no cumulative impacts.								
	vi). Dust particulate emissions will most likely result from construction activities. Dust inhalation	2 + 3 = 5	Reversible. The impact is easily avoidable	3 Potentially harmful	7 x 5 = 35	2 + 2 = 4	Low	Low	5 x 5 = 25 Low risk

Eskom

Eskom

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
	result in respiratory problems *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: - High* *Confidence rating: High*		and will be short term						
	Mitigation/Enhancement Measures: Water with binding agents will be sprayed to reduce the likelihood of soil being blown away by the wind. Construction vehicles will travel below 30 kilometres per hour. Workers will be provided with PPE such as goggles and respirators when working in high dust areas.								
	Cumulative impacts: Being a naturally hot and dry region, the project area can easily experience dust. However, the project site still has vegetation cover enough to limit dust generation even by natural means such as wind. Therefore, whether viewed alone or with natural causes such as wind, the cumulative impacts remain low.								
	vii). Being close to the highway, construction vehicles will cross and use it regularly. This makes the risk of traffic accidents high.	Probable 5 + 2 = 7	Irreversible. Traffic accidents can result in loss of life or	4 Harmful	8 x 7 = 56	3 + 1 = 4	Low	None	3 x 4 = 12 Low risk

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
	Impact Status: Negative *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*		permanent injuries.						
	Mitigation/Enhancement Measures: All construction vehicles will adhere to the national traffic regulations. Approved traffic signs will be erected at least 400 metres from crossing points to warn incoming traffic of construction vehicles movement and crossing. All construction vehicle drivers will be reminded daily on the need for extra caution when entering into or crossing the highway.								
	Cumulative impacts: The project site is in a rural area with low traffic movement and this makes traffic incidents low. Due to this, the likelihood of accidents remains low. Cumulative impacts will be none with measures put in place to ensure road traffic safety.								
Movement of workers	i). Construction workers can put unnecessary pressure on ecosystem services when they rummage nearby bushes for firewood or wildlife. *Impact Status: Negative*	Probable 4 + 3 = 7	Reversible. Ecosystem services can be restored	3 Slightly harmful	7 x 7 = 49	3 + 1 = 4	Medium	Low	5 x 6 = 30 Low risk

Eskom

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
	Degree to which the impact can cause loss to natural resources: Medium *Degree to which the impact can be mitigated: -High* *Confidence rating: High*								
	Mitigation/Enhancement Measures: As part of contractual agreements, the contractor and other workers will not be allowed to poach for firewood or wildlife. Vegetation from bush clearing will be pilled and allowed to decompose and will be categorised as garden waste. Garden waste will be managed according to internal waste management procedures.								
	Cumulative impacts: In rural areas, firewood and wildlife poaching is common and if this pressure increases due to construction workers poaching firewood / wildlife, the cumulative effect is medium and can put considerable pressure on ecosystem services. However, with mitigation the cumulative impacts are low.								
	iv). There is risk of spread of infectious diseases, particularly STIs and COVID-19 by construction workers and the influx of sex workers. *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: Low*	Probable 3 + 1 = 4	Irreversible Effects of COVID-19 and STIs can result in death or long-term illness	4 Harmful	9 x 4 = 36	3 + 2 = 5	High	Low	6 x 3 = 18 Low risk

Eskom

Eskom

Activity	Possible Impacts and Impact Status	Impact Probability *Activity Frequency + Impact Frequency*	Reversibility	Severity	Significance prior to mitigation *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement *Consequence x Probability*
	Degree to which the impact can be mitigated: -High *Confidence rating: High*								
	Mitigation/Enhancement Measures: All workers will be tested for COVID-19 before commencing work. Priority for casual and unskilled labour will be given to local communities. Married workers to be allowed to periodically travel to their families if they are far from the project area.								
	Cumulative Impacts: Given the recent rampage in COVID-19 in South Africa, the cumulative effect of allowing workers from different places to start work untested for the infection is high. However, with precautionary measures in place, the cumulative impact is low.								
1. Waste generation	i). Contractor camps produce solid waste which may distort the environment or attract vectors such as rodents and mosquitos that spread diseases. *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High*	Probable 4 + 4 = 8	Reversible but at a cost	4 Harmful	7 x 8 = 56	2 + 1 = 3	Low	None	5 x 5 = 25 Low risk

	Confidence rating: High								
	Mitigation/Enhancement Measures: (a) Proper waste segregation bins will be put in place in contractor camps. (b) Waste will be collected regularly on approved sites.								
	Cumulative Impacts: Prior to mitigation, cumulative impact is low since there is no known activity in the area producing and managing waste in an inappropriate manner.								
	ii). There is high likelihood of spread of diseases such as cholera if there is no proper provision of ablution facilities. *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*	Probable 5 + 3 = 8	Reversible	4 Harmful	7 x 8 = 56	2 + 1 = 3	Low	None	5 x 6 = 30 Low risk
	Mitigation/Enhancement Measures: (a) Proper ablution facilities such as portable toilets will be provided with daily emptying and cleaning. (b) Use of bush toilets by workers will be prohibited.								
	Cumulative Impacts: At the moment, there is no evidence of use of bush toilets by locals or any cases of spread of sanitation related illnesses in the project area. As such, the cumulative impact will be low prior to mitigation.								

Table 10.2: Assessment of identified potentially significant impact and risk during operational phase

Eskom

Eskom

Activity / Factor	Possible Impacts and Impact Status	Impact Probability ; Activity Frequency + Impact Frequency	Reversibility	Severity	Significance prior to mitigation; *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts Prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement Consequence x Probability
1. Provision of Electricity	i). The power line deviation will ensure better power provision and more coverage to meet the increase in power demand. *Impact status: Positive* *Degree to which the impact can cause loss to natural resources: None* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*	Probable 5 + 5 = 10	Permanent	5 Extremely beneficial	14 x 10 = 140	4 + 5 = 9	High	High	15 x 10 = 150 Moderate benefit
	Mitigation / Enhancement Measures: (a) The power line will be regularly maintained to make sure that it remains operational at peak performance.								
	Cumulative benefits: Considering that the area is an agricultural hub with need for power and the drive by Eskom and other IPPs to increase power generation and access across SADC, the cumulative benefits are high								
	ii). There is likely going to be an increase in power exports and economic production in agriculture and other sectors such as mining and	Definite 5 + 5 = 10	Permanent	4 Beneficial	13 x 10 = 130	4 + 5 = 9	High	High	15 x 10 = 150 Moderate benefit

Activity / Factor	Possible Impacts and Impact Status	Impact Probability ; Activity Frequency + Impact Frequency	Reversibility	Severity	Significance prior to mitigation; *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts Prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement Consequence x Probability
	manufacturing due to more efficient power distribution and transmission. *Impact status: Positive* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*								
	Mitigation / Enhancement Measures: (a) The power lines will be regularly maintained to make sure that it remains operational at peak performance.								
	Cumulative impacts: Given that with the drive by Eskom and other IPPs to increase power generation and access across SADC, the cumulative benefits are high.								
	v). With more efficient power distribution in the community and the region, deforestation will decrease due to a stable power supply. *Impact status: Positive*	Definite 5 + 5 = 10	Permanent.	4 Beneficial	12 x 10 = 120	3 + 5 = 8	High	High	14 x 10 = 140 Moderate benefit

Eskom

Eskom

Activity / Factor	Possible Impacts and Impact Status	Impact Probability; Activity Frequency + Impact Frequency	Reversibility	Severity	Significance prior to mitigation; *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts Prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement Consequence x Probability
	Degree to which the impact can cause loss to natural resources: Low *Degree to which the impact can be mitigated: -High* *Confidence rating: High*								
	Mitigation / Enhancement Measures: (a) The power line will be regularly maintained to make sure that it remains operational at peak performance. (b) Use of electricity and other off-grid renewable power alternatives such as solar will be encouraged to reduce deforestation.								
	Cumulative impacts: Considering SADC's effort to reduce deforestation, the cumulative benefit of the power line being operational is high as this complement towards deforestation reduction efforts.								
2. Power line operations	i). Avifauna, especially birds, can get electrocuted by power lines *Impact status: Negative* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High*	Probable 2 + 4 = 6	Reversible but with considerable resource and time consumption.	4 Harmful	11 x 6 = 66	2 + 5 = 7	Low	None	6 x 4 = 24 Low risk

Eskom

Activity / Factor	Possible Impacts and Impact Status	Impact Probability; Activity Frequency + Impact Frequency	Reversibility	Severity	Significance prior to mitigation; *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts Prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement Consequence x Probability
	Confidence rating: High								
	Mitigation / Enhancement Measures: (a) Bird deterrent spikes can be used if there is high bird mortality rate due to electrocution. (b) Bird feeding and watering sites can be established far from the power line to limit avifaunal activity nearby.								
	Cumulative impacts: At the moment, there are no known activities or causes resulting in bird deaths. As such, there are expected to be no cumulative impacts.								
	ii). Electrocution of humans can occur resulting in death or permanent disability. *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*	Improbable 1 + 4 = 5	Irreversible.	5 Very harmful	12 x 5 = 60	2 + 5 = 7	None	None	10 x 4 = 40 Low risk
	Mitigation / Enhancement Measures: (a) Warning signage will be put at the power line to warm the public about the high risk of death due to electrocution.								
	Cumulative impacts: There are no activities or infrastructure causing electrocution or death by such in the area, therefore there will be no cumulative impacts.								

Eskom

Activity / Factor	Possible Impacts and Impact Status	Impact Probability ; Activity Frequency + Impact Frequency	Reversibility	Severity	Significance prior to mitigation; *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts Prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement Consequence x Probability
	iv). Vandalism of power line equipment can interrupt power supply or result in electrocution and death of perpetrators. *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*	1 + 2 = 3	Reversible. Powerline equipment can be replaced.	5 Very harmful	7 x 3 = 21	1 + 1 = 2	Low	Low	2 x 3 = 6 Low risk
	Mitigation / Enhancement Measures: (a) Electrocution warning signs can deter would-be offenders.								
	Cumulative impacts: Currently, there have been no reports of vandalism at the existing power line due to thieves or mischief. There are expected to be no cumulative impacts.								

Table 10.3: Assessment of identified potentially significant impact and risk during decommissioning phase

Activity / Factor	Possible Impacts and Impact Status	Impact Probability; Activity Frequency + Impact Frequency	Reversibility	Severity	Significance prior to mitigation; *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts Prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement Consequence x Probability
1. Closure of power lines	i). Metal frames and cables from power line infrastructure can distort natural look of the environment *Impact status: Negative* *Degree to which the impact can cause loss to natural resources: None* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*	Probable 4 + 2 = 6	Permanent	3 Slightly harmful	8 x 6 = 48	2 + 3 = 5	None	None	8 x 4 = 32 Low risk
	Mitigation / Enhancement Measures: (a) Metal frames and cables from the power lines can be reused elsewhere or sold to recyclers.								
	Cumulative benefits: There is expected to be no material distorting the natural look of the environment around the power lines. As such, there will be no cumulative impacts.								
	ii). Concrete foundations can leave land degraded after removal of equipment. *Impact status: Negative*	Definite 4 + 3 = 7	Reversible	4 Harmful	9 x 7 = 63	2 + 3 = 5	None	None	8 x 6 = 48 Low risk

Eskom

Eskom

Activity / Factor	Possible Impacts and Impact Status	Impact Probability; Activity Frequency + Impact Frequency	Reversibility	Severity	Significance prior to mitigation; *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts Prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement Consequence x Probability
	Degree to which the impact can cause loss to natural resources: Low *Degree to which the impact can be mitigated: -High* *Confidence rating: High*								
	Mitigation / Enhancement Measures: (a) Rubble from power line foundations will be used to fill concrete foundations.								
	Cumulative impacts: Since there are no identified existing activities causing land degradation along the power lines, there are expected to be no cumulative impacts.								
	iii). Dust is generated during demolition work. This can cause respiratory irritation if inhaled. *Impact status: Negative* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*	Definite 5 + 2 = 7	Reversible	3 Slightly harmful	6 x 7 = 42	2 + 1 = 3	Low	Low	5 x 5 = 30 Low risk

Eskom

Eskom

Activity / Factor	Possible Impacts and Impact Status	Impact Probability; Activity Frequency + Impact Frequency	Reversibility	Severity	Significance prior to mitigation; *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts Prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement Consequence x Probability
	Mitigation / Enhancement Measures: (a) During demolition, workers will be provided with respirators and goggles to protect against dust.								
	Cumulative impacts: There is likely to be presence of natural dust due to power line servitude being void of vegetation. Viewed together with dust generation due to demolition, the cumulative effect would be low.								
	iv). Loss of employment and income will occur *Impact status: Negative* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*	Probable 4 + 2 = 6	Reversible	4 Harmful	11 x 6 = 66	2 + 5 = 7	Medium	Low	6 x 4 = 24 Low risk
	Mitigation / Enhancement Measures: (a) Power line maintenance workers can be deployed elsewhere within Eskom. (b) Retrenched workers can be assisted with advice and guidance on how to start profitable businesses with their retrenchment packages if they wish to do so.								
	Cumulative impacts: More livelihoods will be lost downstream due to the decommissioning of the power lines. As such, the cumulative effect will be high.								

Eskom

Eskom

Activity / Factor	Possible Impacts and Impact Status	Impact Probability ; Activity Frequency + Impact Frequency	Reversibility	Severity	Significance prior to mitigation; *Consequence x Probability*	Spatial Scale + Duration	Cumulative Impacts Prior to Mitigation	Cumulative Impacts after Mitigation	Significance Rating after Mitigation or Enhancement Consequence x Probability
	v). Noise and vibration are produced during demolition and these can be a nuisance to nearby communities. *Impact Status: Negative* *Degree to which the impact can cause loss to natural resources: Low* *Degree to which the impact can be mitigated: -High* *Confidence rating: High*	Probable 3 + 5 = 8	Reversible.	2 Potentially harmful	6 x 8 = 48	3 + 1 = 4	None	None	5 x 6 = 30 Low risk
Mitigation measures: (a) Nearby communities will be informed of demolition activities before they commence as this reduces irritation. (b) Demolition works will not be carried out at night.									
Cumulative impacts: At the moment, there are no other activities causing noise and vibration near the existing power line there will be no cumulative impacts.									

11 SUMMARY OF FINDINGS AND IMPACT MANAGEMENT MEASURES

11.1 Record of Proposed Impact Management Outcomes for Developments

The specialist studies for which summaries are provided below are attached as Volume III of the BAR.

11.1.1 Biodiversity (Ecological and Avifauna)

Vlok and van Wyk (2021) indicate that the activities to be undertaken will have a negligible/insignificant impact on the habitat. The following important aspects were recorded:

- The project will not have a significant impact on the avifaunal species, as the alignment of the proposed project powerline will run parallel with existing infrastructure (powerlines).
- The new power line deviation will have no visible impacts (unless aggravated erosion occur) on the ephemeral channel in its current state.
- Historic activities such as agriculture (grazing) and the construction of the N11 and substation had some minor impacts on the habitat.
- There are no red data or protected species associated with the proposed new corridor of the deviation power line.

Despite the fact that the proposed project will have minor impacts, the following mitigation recommendations are made:

- Limited clearing is recommended, including leaving the basal layer (grass layer) intact to prevent erosion and intrusion of alien invasive vegetation.
- Alien vegetation management must be developed as part of the management strategy.

11.1.2 Heritage Study

The following comments were made by Muroyi (2021):

- Due to the lack of apparent significant heritage resources no further mitigation is required prior to construction.
- A Chance Find Procedure should be implemented for the project should any sites be identified during the construction process.

11.2 Biodiversity

The survey was conducted during winter and it was a daytime survey only. All the different habitats at the site was investigated and it was therefore possible to complete a rapid survey and obtain information on the habitats that are present and the site, or that are likely to occur there.

12 ENVIRONMENTAL IMPACT STATEMENT

This section gives a summary of the key findings of the impact assessment studies and the development and mitigation process to be adopted on or near sensitive ecosystems.

12.1 Summary of Key Findings of Environmental Impact Assessment

The proposed project form part of a broader vision of Eskom's LC, to upgrade the electricity distribution infrastructure in order to improve the reliability of the existing electricity supply and also where possible provide new supply for any additional customers. The project will allow the MLM to meet its mandate to provide electricity to residents and businesses without disruptions.

The proposed activities will involve the erection and removal of pole structures, about 3 to 4 poles. Due to the size of the project, there are no major environmental issues that are expected during the planning, operational and decommissioning phase. Vlok and van Wyk (2021) indicate there are no significant impacts, to the environment, that will emanate from the proposed activities. However, mitigation measures were recommended to ensure that environmental damage will not result from the proposed activities. Mitigation recommendations done include limited bush clearing as well as alien vegetation control.

There were no significant heritage resources found onsite thus, no mitigation is required prior to construction. However, a Chance Find Procedure shall be implemented for the project should any sites be identified during the construction process.

12.2 Map Showing Project Development and Measures on Sensitive Areas

Vlok and van Wyk (2021) state that there is an ephemeral drainage line happening on site. In addition, there are some larger trees around the farm dam and the drainage line. However, no impacts are expected to happen close to the mentioned sensitive areas since activities will not happened in close proximity to the proposed activities.

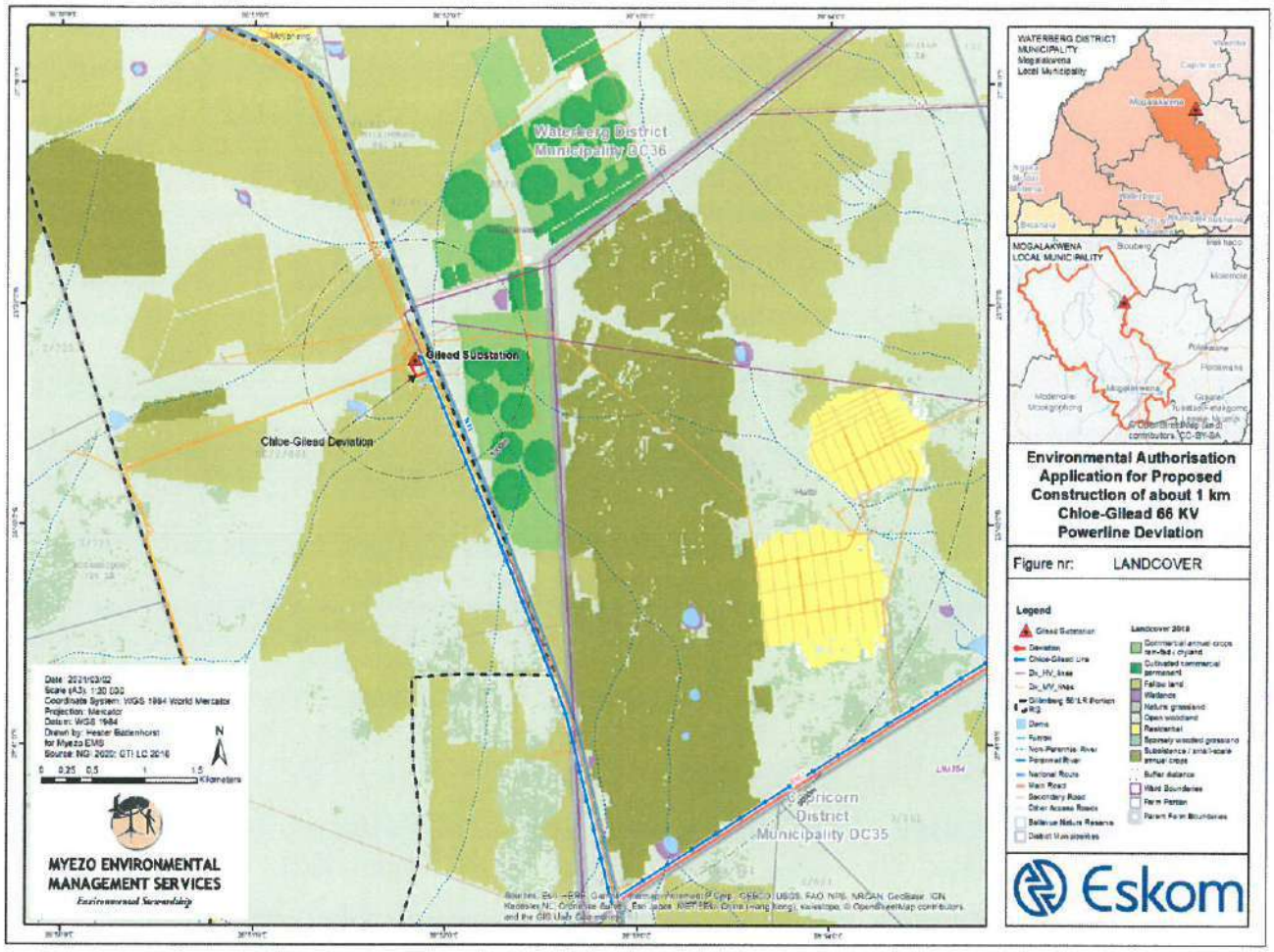


Figure 12.1-1: Map showing Sensitive Areas

13 IMPACT MANAGEMENT MEASURES FROM SPECIALIST REPORTS BASED ON THE ASSSESSMENT

Biodiversity (Ecological and Avifauna) Study Specialist (Vlok & van Wyk, 2021) recommends that:

- The wetland (ephemeral drainage line) identified is in a fair condition – roads, grazing, wood harvesting and construction had some impacts on the system.
- No further detailed mammal, herpetological and amphibian studies are needed – no red data species present and the *Pyxicephalus edulis* will not be affected by the new proposed power line.
- The vegetation will not be negatively impacted, as the current vegetation along the proposed corridor is modified – mostly *Dichrostachys cinerea* in a dense stand, indicating some encroachment.
- It is recommended that the client must have alien vegetation management as part of the management strategy.
- With regards to the avifauna, the study area consists of two (2) habitat types observed during the site survey: (1) the larger area associated with the existing development (substation) and (2) the associated infrastructure (powerlines).
- During the site survey one (1) threatened bird species was observed (*Torgos tracheliotus*).
- Some other threatened species that were not observed during the site survey and has a high likeliness of occurring in and surrounding the study area, especially for foraging purposes are species including but are not limited to *Falco biarmicus* and *Coracias garrulus*.
- Although the one (1) threatened species was observed during the site survey and with other threatened species with a high possibility of occurring in the area, this proposed project will not have a significant impact on the avifaunal species, as the alignment of the proposed project powerline will run parallel with existing infrastructure (powerlines).

- It is however recommended that minimum impact to the bushveld vegetation during clearing must be affected. It is thus proposed that the clearance area be minimized to limit impacts.
- ensure that the power line is constructed as close to the substation as legally possible;
- All activities should stay out of the wetland habitat and its recommended buffer zones;

Heritage Archaeological studies (Muroyi, 2020) recommends that:

A field assessment undertaken by the heritage specialists indicate that there are heritage resources in the area. Thus, no impact management measures were developed. However, it should be noted that a Chance Find Procedure should be implemented for the project should any sites be identified during the construction process.

14 ANY ASPECTS CONDITIONAL TO ASSESSMENT FINDINGS TO BE INCLUDED AS CONDITIONS FOR AUTHORISATIONS

Heritage Impact Assessment (Roy, 2021) recommended that a chance find be implemented during the construction phase. The following protocol will guide the chance find and the management of fossils:

- As part of the Environmental Authorisation conditions, an Environmental Control Officer (ECO) will be appointed to oversee the construction/prospecting/mining activities in line with the legally binding Environmental Management Programme (EMPr) so that when a fossil is unearthed, they can notify the relevant department and specialist to further investigate.
- All fossil finds must be placed in a safe place for further investigation.
- The ECO should familiarise him- or herself with the applicable formations and its fossils.
- Most Universities and Museums have good examples of fossils.
- The EMPr already covers the conservation of heritage and palaeontological material that may be exposed during construction/prospecting/mining activities. For a chance fossil find, the protocol is to cease all construction activities, construct a 30 m no-go barrier, and contact SAHRA for further investigation.

- It is recommended that the EMPr be updated to include the involvement of a palaeontologist, when necessary, either for pre-construction training of ECO or for pre-determined site visits. The ECO must visit the site after clearing, drilling, excavations and blasting and keep a photographic record.
- The developer may be asked to survey the areas affected by the development and indicate on plan where the construction will take place. Trenches may have to be dug to ascertain how deep the sediments are above the bedrock (can be a few hundred metres). This will give an indication of the depth of the topsoil, subsoil, and overburden, if need be trenches should be dug deeper to expose the interburden.
- The palaeontological impact assessment process presents an opportunity for identification, access and possibly salvage of fossils and add to the few good localities. Mitigation can provide valuable onsite research that can benefit both the community and the palaeontological fraternity. A Phase 2 study is very often the last opportunity we will ever have to record the fossil heritage within the development area. Fossils excavated will be stored at a National Repository.

Environmental Assessment Practitioner (Fatyi, 2021) recommends that:

- There must be an Environmental Control Officer on site to monitor for environmental quality for the duration of the construction phase.
- Before construction begins, measures must be put in place to curb naturally existing environmental issues such as soil erosion and possible degradation of habitats.

15 ASSUMPTIONS, UNCERTAINITIES AND KNOWLEDGE GAPS RELATING TO ASSESSMENT AND MITIGATION MEASURES

The assessment was based on the assumption that all information provided by proponent and affected parties during the public participation process is correct. It is also the EAP's assumption that information on such gathered in specialist reports such as the biodiversity (Ecological and Avifauna) study (Vlok & van Wyk, 2021) and Heritage and Palaeontological Studies (Muroyi, 2021) is correct and gathered professionally. Using all information gathered during specialist studies and site visits, enough evidence is available to predict possible impacts and avert them. It must also be noted that in the process of converting spatial data to

final output drawings, several steps were followed and these may affect the accuracy of delineated areas even though due diligence was done to preserve accuracy.

No assumptions should be made unless opinions are specifically indicated and provided.

Data presented in this BAR may not explain all possible conditions that may exist given the limited nature of the enquiry.

16 REASONED OPINION OR CONDITIONS AS TO WHETHER THE PROPOSED ACTIVITY SHOULD BE AUTHORISED

Given specialist studies available and impact analysis done, it is the opinion of the EAP that any potential negative impacts arising from the project can be avoided or mitigated adequately with proper planning and rehabilitation. The proposed project should be authorised given that the mitigation measures and suggestions contained in this report are followed. These best practices ensure that project benefits are reaped whilst negative impacts are avoided and managed at minimal costs.

17 PROJECT DURATION AND ENVIRONMENTAL AUTHORISATION REQUIRED

The site establishment is expected to take about a week after which the construction related works will last for about one month. Construction activities will commence within a year of the receipt of the environmental authorisation.

18 ENVIRONMENTAL ASSESSMENT PRACTITIONER OATH UNDERTAKING

I, **Babalwa Fatyi**, confirm and assure that the information provided in this report is to the best of my knowledge accurate at the time of report production. I also affirm that comments and inputs from interested and affected parties contained in this report are correct and where not summarised, no information was tampered with. Inclusion of comments and reports by specialists in this report where relevant and was done with exactness. I confirm that information provided to the interested and affected parties concerning this project was correct and simple.

_____ June 2021

Signature **Date**

19 FINANCIAL PROVISION FOR REHABILITATION AND CLOSURE

The rehabilitation after construction activities will be provided through the construction and operational costs.

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

20 SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

The project needs to follow the mitigation and avoidance measures mentioned in this report as well as any other Eskom requirements, where applicable. Monitoring reports and timeframes, with respect to environmental management, are proposed and these details are provided in the EMPr (Volume 3 of this report)

It is the view of the EAP that the developer should co-operate with the competent authority should authorisation be granted to ensure a holistic approach to environmental protection and ensuring that the intended and inadvertent project benefits are maximised whilst minimising the negative effects.

21 ANY OTHER MATTER IN TERMS OF SECTION 24 OF THE ACT

Section 24 1 (1A) of NEMA states that:

Every applicant must comply with the requirements prescribed in terms of this Act in relation to-

(a) Steps to be taken before submitting an application, where applicable;

(b) Any prescribed report;

(c) Any procedure relating to public consultation and information gathering;

(d) Any environmental management programme;

(e) The submission of an application for an environmental authorisation and any other relevant information; and

(f) The undertaking of any specialist report, where applicable.

In addition, Section (4) (a) and (b) stipulates the procedures or the investigation, assessment and communication of the potential consequences or impacts of activities on the environment. These set procedures are that potential impacts of activities must:

(a) Must ensure, with respect to every application for an environmental authorisation-

(i) Co-ordination and cooperation between organs of state in the consideration of assessments where an activity falls under the jurisdiction of more than one organ of state;

(ii) That the findings and recommendations flowing from an investigation, the general objectives of integrated environmental management laid down in this Act and the principles of environmental management set out in section 2 are taken into account in any decision made by an organ of state in relation to any proposed policy, programme, process, plan or project;

(iii) That a description of the environment likely to be significantly affected by the proposed activity is contained in such application;

(iv) Investigation of the potential consequences for or impacts on the environment of the activity and assessment of the significance of those potential consequences or impacts; and

(v) Public information and participation procedures which provide all interested and affected parties, including all organs of state in all spheres of government that may have jurisdiction over any aspect of the activity, with a reasonable opportunity to participate in those information and participation procedures; and

(b) Must include, with respect to every application for an environmental authorisation and where applicable-

i) Investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity;

ii) Investigation of mitigation measures to keep adverse consequences or impacts to a minimum;

iii) Investigation, assessment and evaluation of the impact of any proposed listed or specified activity on any national estate referred to in section 3(2) of the National

Heritage Resources Act, 1999 (Act No. 25 of 1999), excluding the national estate contemplated in Section 3(2)(i)(vi) and (vii) of that Act;

iv) Reporting on gaps in knowledge, the adequacy of predictive methods and underlying assumptions, and uncertainties encountered in compiling the required information;

v) Investigation and formulation of arrangements for the monitoring and management of consequences for or impacts on the environment, and the assessment of the effectiveness of such arrangements after their implementation;

vi) Consideration of environmental attributes identified in the compilation of information and maps contemplated in subsection (3); and

vii) Provision for the adherence to requirements that are prescribed in a specific environmental management Act relevant to the listed or specified activity in question.

Section 24 (4A) says "where environmental impact assessment has been identified as the environmental instrument to be utilised in informing an application for environmental authorisation, Subsection (4)(b) is applicable. Furthermore, Section 24 (7) of the Act also state that "compliance with the procedures laid down by the Minister or an MEC in terms of Subsection (4) does not absolve a person from complying with any other statutory requirement to obtain authorization from any organ of state charged by law with authorising, permitting or otherwise allowing the implementation of the activity in question".

Section 24 (8) state that:

a) Authorisations obtained under any other law for an activity listed or specified in terms of this Act does not absolve the applicant from obtaining authorisation under this Act unless an authorisation has been granted in the manner contemplated in Section 24L.

b) Authorisations obtained after any investigation, assessment and communication of the potential impacts or consequences of activities, including an exemption granted in terms of Section 24M or permits obtained under any law for a listed activity or specified activity in terms of this Act, may be considered by the competent authority as sufficient for the purposes of Section 24(4), provided that such investigation, assessment and communication comply with the requirements of section 24(4)(a) and, where applicable, comply with Section 24(4)(b).

Thus, for the proposed project, a WUL and EA will be sought. The required licences will be sought from different organs of state which are MDARDLEA for EA and DHSW&S for WUL. To avoid duplication of efforts, a parallel public participation process was undertaken.

22 REFERENCES

Acocks, J.P.H. 1953. Veld types of South Africa. Mem. Bot. Surv. S. Afr. No. 40:1-128.

BirdLife South Africa. 2016. BirdLife South Africa official Checklist of Birds in South Africa 2016. http://www.birdlife.org.za/publications/checklists

Bulpin, T.V., 1965. To the Banks of the Zambezi. Nelson.

Clark, K., 2001. Planning for the past: heritage services in local planning authorities in England. Cultural trends, 11(43-44), pp.61-94.

Department of Water Affairs and Forestry. 2006. Notice of list of protected tree species under the national forests act, 1998 (Act no. 84 of 1998); as amended. Government Gazette no. 29062, notice 897, 8 September 2006.

De Vaal, J.B. 1953. Die Rol van João Albasini in die Geskiedenis van die Transvaal. Agrief-jaarboek vir Suid-Afrikaanse Geskiedenis 16 (1). Elsieirivier: Nasionale Handelsdrukkery vir die Staatsdrukker

De Waal, J.J. 1978. Die vehouding tussen die blankes en die hoofmanne Mokopane en Mankopane in die omgewing van Potgietersrus (1836-1869). Verhandeling voorgelê vir die graad Magister Artium in die Department Geskiedenis, Fakulteit Lettere en Wysbegeerte.

Ferreira, O.J.O. 2002. Montanha in Zoutpansberg. 'n Portugese handelsending van Inhambane se besoek aan Schoemansdal, 1855-1856. Pretoria: Protea Boekhuis

Grootjans, A.P., Jansen, A.J.M., de Hullu, P.C., Joosten, H., Bootsma, A. and Grundling, P.L., 2015. In search of spring mires in Namibia: the Waterberg area revisited. Mires and Peat, 15(10), pp.1-11.

Glasson, J. et al. (2012), Introduction to Environmental Impact Assessment: Principles and Procedures, Process, Practice and Prospects, Oxon: Routledge.

Glasson, J. and Therivel, R., 2013. Introduction to environmental impact assessment. Routledge.

Hofmeyr, I. 1993. "We spend our years as a tale that is told" Oral historical Narrative in a South African Chiefdom. Johannesburg: Witwatersrand University Press.

Hockey, P.A.R., Dean, W.R.J. and Ryan, P.G. (eds.) 2005. Roberts – Birds of Southern Africa, VIIth Ed.

Morgan, R.K. (2012), "Environmental impact assessment: the state of the art", Impact Assessment and Project Appraisal, 30(1), pages 5-14

Morton, F. 2005. Female Inboekelinge in the South African Republic, 1850-1880.

Mogalakwena Local Municipality. (2020). Mogalakwena History. http://www.mogalakwena.gov.za/?q=node/15

Mogalakwena Local Municipality. 2020. Integrated Development Plan IDP 2021/2022. Mogalakwena Local Municipality: Mokopane.

Mucina, L. and Rutherford, M.C. (eds.) 2006. The vegetation of South Africa, Lesotho and Swaziland.Strelitzia 19. South African Biodiversity Institute, Pretoria.

NEMBA. 2004. National Environmental Management: Biodiversity Act, 2004. Act No. 10 of 2004.

Nel, J.L., Murray, K.M., Maherry, A.M., Petersen, C.P, Roux, D.J., Driver, A., Hill, L., van Deventer, H.,Funke, N., Swartz, E.R., Smith-Adao, L.B., Mbona, N., Downsborough, L. and Nienaber,S. 2011.Technical Report for the National Freshwater Ecosystem Priority Areas project. WRC Report No.1801/2/11. Pretoria.

Naidoo, J. 1987. The siege of Makapansgat: a massacre? And a trekker victory? History in Africa, 14: 173-187.

Preller, H., 1931. Die Geschichte der Nachkriegszeit und ihre Behandlung im Geschichtsunterricht an höheren Schulen. BG Teubner.

Muroyi R. 2021. Heritage Impact Assessment Report. Tsimba Archaeological Footprints (Pty) Ltd.

Theal, G.M., 1908. History of South Africa since September 1795. Vol. III: Cape Colony from 1846 to 1860, Natal from 1845 to 1857, British Kaffraria from 1847-1860, and the Orange River Sovereignty and the Transvaal Republic from 1847-1854.

Slavery and Abolition, 26 (2): 199-215. Mitchell, P. 2012. South African and Lesotho Stone Age Sequence Update (I). The South African Archaeological Bulletin. Vol 67 (195): 123-144.

Sinclair I., & Hockey P and Tarboton, W. 2011. Sasol Birds of Southern Africa. Struik, Cape Town.

Skinner, J.D and Chimimba, C.T. 2005. The mammals of the southern African subregion. 3rd Edition.Cambridge University Press.

South African National Biodiversity Institute. 2019. Précis information on red data species. Pretoria.

Southern African Bird Atlas Project 2. South Africa, Lesotho, Botswana, Namibia, Mozambique,

Swaziland, Zimbabwe, Zambia. 2016. Animal Demography

Van Deventer, H. et al., 2019. National Wetland Map 5 - and improved spatial extent and representation of inland aquatic and estuarine ecosystems in South Africa. Water SA, 46(1), pp. 66-79.

Vlok W. and Van Wyk A.E., 2021. Biodiversity assessment Gilead project. BioAssets CC

Wadley, L., Williamson, B. and Lombard, M., 2004. Ochre in hafting in Middle Stone Age southern Africa: a practical role. World Archaeology, 26, pp.19-34.

Watson, D., 2003. Guidelines for landscape and visual impact assessment

Eskom

Eskom

ESKOM - GILEAD - BASIC ASSESSMENT

BASIC ASSESMENT REPORT IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NO. 107 OF 1998), AS AMENDED, FOR THE PROPOSED DEVIATION OF APPROXIMATELY ONE (1) KM OF AN EXISTING GILEAD POWERLINE AT GILEAD SUBSTATION LOCATED WITHIN MOGALAKWENA LOCAL MUNICIPALITY,WATERBERG DISTRICT MUNICIPALITY IN LIMPOPO PROVINCE.

DOCUMENT NAME: EGB - REPORT- BAR

DATE: 25 June 2021

DOCUMENT STATUS: Ver 1

Volume 1 of 4

MYEZO REF: EGB 2020/12/BAR

MYEZO ENVIRONMENTAL MANAGEMENT SERVICES
Environmental Stewardship

DISTRIBUTION RECORD

Copies	Type of copy	Person	Company	Contact details	Revision	Signature/Stamp	Dated and Comment
1	Electronic	Babalwa Fatyi	Myezo Environmental Management Services (Pty) Ltd	Email: babalwa@myezo.co.za Tel: 012 998 7642	1		June 2021
1	Electronic	Samkelisiwe Dlamini	Department of Forestry, Fisheries and Environment	Email: SDlamini@environment.gov.za	1		June 2021

Eskom

Eskom

Copies	Type of copy	Person	Company	Contact details	Revision	Signature/Stamp	Dated and Comment