DRAFT BASIC ASSESSMENT REPORT THE PROPOSED CONSTRUCTION OF PETRUSDAM 88KV SWITCHING STATION, WITHIN THE RAMOTSHERE MOILOA LOCAL MUNICIPALITY, NORTH WEST PROVINCE.

DEA REF No: 14/12/16/3/3/1/1778

JULY 2017

Prepared for:
ESKOM HOLDINGS SOC LIMITED
P.O BOX 1319
Rustenburg
0300
RSA

Compiled by:
BAAGI ENVIRONMENTAL CONSULTANCY
Postnet Suite 412, P. Bag X4
Menlo Park
0102
RSA



DOCUMENT CONTROL

DEGREE OF CONFIDENTIALITY	CLIENT CONFIDENTIALITY
Title	Draft Basic Assessment Report for the construction of an 88kV Petrusdam Switch Station within the Ramotshere Moiloa Local Municipality, North West Province.
Date of Issue	July 2017
No. of Pages	60
Consultant details: **BAAGI ENVIRONMENTAL CONSULTANCY** 434 Louis Avenue, Waterkloof Glen, Pretoria 0181 RSA Tel: 012 993 0756/7 Fax: 012 993 0743	**Client details:** **Eskom Holdings SOC Limited** P. O Box 1319 Rustenburg 0300 RSA Tel.: 014 523 7079 Fax: 086 668 2987
Compiled by	Mr. Tinashe Maramba
Peer reviewed by	Mr. Angelo Daniels
Approved by	Mr. Lordwick Makhura
Report Number	07/2017
Issue Number	01

Table 1: Details of EAP who prepared the report

Environmental Assessment Practitioner:	BAAGI ENVIRONMENTAL CONSULTANCY
Contact person:	Mr. Tinashe Maramba
Physical address:	434 Louis Avenue, Waterkloof Glen, Pretoria, 0181

Postal address:	Postnet Suite 412, Private Bag X4, Menlo Park
Postal code:	0102
Telephone:	012 993 0756 / 7
Fax:	012 993 0743
Email:	tinashe@baagi.co.za

Mr. Tinashe Maramba is a qualified Geohydrologist/Hydrologist; he obtained a Bachelor's Degree in Hydrology and Water Resources from the University of Venda in 2010. He is a member of South African Council for Natural Scientific professions (SACNASP) (Provisional). He has 5 years' experience in water and resources management and Geohydrological assessments, attained in Zimbabwe (pre-degree) and environmental management (post-degree).

His South African experience began as a consultant heading the Hydrology/Geohydrology Unit of an Environmental Firm. After developing the division into a fully-fledged self-sustaining entity, He moved into the role of Environmental Manager at a Pretoria company were he horned his skills in E.I.A Project Management, Water Use Applications and Water engineering. For more details about his expertise and experience please refer to Appendix A.

DETAILS OF APPLICANT

Table 2: Details of applicant

The Applicant:	**ESKOM HOLDINGS SOC LIMITED**		
Contact person:	Mpho Dorcas Sebole		
Physical address:	Office 101, 43 Boom Street, Rustenburg.		
Postal address:	P.O. Box 1319 Rustenburg		
Postal code:	0300		
Telephone:	014 523 7079	**Fax:**	014 565 1131
Email:	sebolemd@eskom.co.za	**Cell:**	084 504 1730

ABBREVIATIONS

BA	Basic Assessment
BAR	Basic Assessment Report
CA	Competent Authority
EMPr	Environmental Management Programme
DEA	Department of Environmental Affairs
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
I&APs	Interested and affected Party's
PPP	Public Participation Process
NEMA	National Environmental Management Act

DEFINITIONS

"Activity" means an activity identified in Government Notice No. R. 327, 325 and No. R. 324 of 2017 as a listed activity.

"Alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to property, activity, design or technology.

"Applicant" means a person (including juristic person) who has submitted or intends to submit an application;

"Application" means an application for an environmental authorization in terms of Chapter 3 of the Environmental Impact Assessment Regulations, 2017.

"Associated Infrastructure" means any building or infrastructure that is necessary for the functioning of a facility or activity or that is used for an ancillary service or use from the facility.

"Cumulative impact", in relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

"Development", means the building, erection, construction or establishment of a facility, structure or infrastructure, including associated earthworks or borrow pits, that is necessary for the undertaking of a listed activity, including any associated post development monitoring, but excludes any modification, alteration or expansion of such a facility, structure or infrastructure, including associated earthworks or borrow pits, and excluding the redevelopment of the same facility in the same location, with the same capacity and footprint;

"Environmental impact assessment', in relation to an application to which scoping must be applied, means the process of collecting, organizing, analysing, interpreting and communicating information that is relevant to the consideration of that application. A detailed study of the environmental consequences of a proposed course of the action, an environmental assessment or evaluation is a study of the environmental effects of a decision, project, undertaking or activity. It is most often used within an Integrated Environmental Management (IEM) planning process, as a decision support tool to compare different options" (DEAT, 1998)

"Environmental management Programme" means an environmental management plan in relation to identified or specified activities envisaged in section 19 and 23 of the Environmental Impact Assessment Regulations, 2017;

*"**Guidelines"*** means any national guidelines and provincial guidelines issued in terms of NEMA EIA regulations 2017.

''hazardous waste'' means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological of that waste, have a detrimental impact on health and the environment.

"Interested and Affected Party" means an interested and affected party contemplated in section 24(4) (d) of the Act, and which in terms of that section includes -

(a) Any person, group of persons or organization interested in or affected by an activity; and

(b) Any organ of state that may have jurisdiction over any aspect of the activity;

*"**Public Participation Process**"* means a process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, specific matters;

"Registered Interested and Affected Party", in relation to an application, means an interested and affected party whose name is recorded in the register opened for that application in terms of regulation 57.

***"Significant impact**"* means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment;

"Stakeholder", *refers to* a group of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term therefore includes the proponent, authorities and all I&APs.

*"**The Act**"* means the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended April 2017.

"Authority", refers to the national, provincial or local authorities that have a decision-making role or interest in the proposal or activity. The term includes the lead authority, as well as other authorities.

***"Focus* group meeting"** refers to a group who have a significant common interest around a particular issue or geographic area, e.g. farmers associations, conservation/ecotourism associations, ratepayers associations, etc.

''waste treatment facility'' means any site that is used to accumulate waste for the purpose of storage, recovery, treatment, reprocessing, recycling or sorting of that waste.

''Recycle'' 'means processing used materials into new products to prevent waste of potentially useful materials, reduce the consumption of fresh raw materials, reduce energy usage, reduce air pollution (from incineration) water pollution from (Landfilling) by reducing the need for '' convectional'' waste disposal, and lower greenhouse gas emissions as compared to virgin production.

''Landfill'' means a structure that is used for the inputting of waste, it is a site where waste materials are deposited for the purpose of final disposal and may be built on top of the ground or into the ground. It should be constructed in such a way that it minimizes contact between the environment and any water bodies that may be near the site, a landfill has many factors that may potentially harm the environment and care should be taken to ensure that little to no contact takes place between the landfill and the environment.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. BACKGROUND

1.1. Introduction

Eskom Holdings Limited (Eskom) is mandated by the South African Government to ensure the provision of reliable and affordable power to South Africa. Eskom currently generates approximately 95% of the electricity used in South Africa. Electricity cannot be stored and must be used as it is generated. Therefore, electricity must be generated in accordance with supply-demand requirements. Eskom's core business is in the generation, transmission (transport), trading and retail of electricity. In terms of the Energy Policy of South Africa "energy is the lifeblood of development". Therefore, the reliable provision of electricity by Eskom is critical for industrial development and related employment and sustainable development in South Africa.

Why Is An Environmental Impact Assessment Process Necessary?

The Department of Environmental Affairs (DEA) identified certain activities that may have a detrimental impact on the environment. In order to ensure that the potential negative and positive impacts are investigated, understood, and mitigated (made less severe) the DEA promulgated regulations under the National Environmental Management Act (Act 107 of 1998) that (a) identify the activities that require a Basic Assessment (BA) or Full Scoping and Environmental Impact Assessment (S&EIA); and (b) govern how these studies must be conducted. These regulations are called the EIA Regulations of 07 April 2017 and can be found in Gazette No. 40772 and consists of the following regulations:

- Regulation 326 – Environmental Impact Assessment Regulations.
- Regulation 327 – Listing Notice 1.
- Regulation 325 – Listing Notice 2.
- Regulation 324 – Listing Notice 3.

These regulations are used by applicants (Eskom in this case) and Environmental Assessment Practitioners (EAPs) to decide what studies need to be conducted.

In order to construct and operate a Switch Station, a number of the activities in Listing Notice 1 are triggered. This means that Eskom needs to conduct a Basic Assessment and submit it to the Competent Authority (CA). The CA then uses the information in the report to decide whether the activity (building and operating a Switch Station) can be positively authorised (given the go-ahead) and what conditions are necessary to protect the environment, or if the proposed project will be too detrimental to the environment and must be stopped from being implemented.

2. LOCATION OF THE ACTIVITY

Details of the location and extent of the facility is given in table 3 below.

Table 3: Location and extent of activity

PHYSICAL ADDRESS OF THE PREMISES	Farm Name: ROODE KOPJES PUT 32 Portion: 14
DESCRIPTION OF SITE (ERF)	Study area consists mostly of savanna and grassland biomes and mostly dominated by the Zeerust Thornveld vegetation. This vegetation is comprised of a grassy ground layer and an upper layer of woody species. A few areas with scattered plants of the alien cereus jamacaru and several other alien species such as the *bidens pilosa, solanum incanum and opuntia ficus-indica* which are found. The study area also consists of access roads and existing power lines.
COORDINATES	Preferred Alternative: **-25° 09'59.63"S ; 26° 08'46.13"E** Site Alternative: **-25° 09'36,95"S ; 26° 08'52, 61"E**
EXTENT (m^2)	40 000m^2
PROVINCE	North West
METROPOLITAN/DISTRICT MUNICIPALITY	Ngaka Modiri Molema District Municipality
LOCAL MUNICIPALITY	Ramotshere Moiloa Local Municipality, Ward 17
SURVEY GENERAL DIGITS (SGD)	T0JP00 000000003200014

2.1. Locality Map / Plan of the Facility

The location details of the facility is provided in table 3 above and figure 1 below is the facility location where the illustration has a legend on the right hand site for reference of activities and or environmental features near and or around the site.

The proposed development of an 88KV Petrusdam Switch Station Switch Station is within the Ramotshere Moiloa Local Municipality area, coordinates for the development are as follows:

- Preferred Alternative: -25^0 09'59.63"S; 26^0 08'46.13" E
- Site Alternative: -25^0 09' 36, 95" S; 26^0 08 52', 61" E

The proposed development of an 88KV Petrusdam Switch Station Switch Station will affect the following property listed below:

ITEM NO	FARM NAME	PORTION/S
1.	ROODE KOPJESPUT/JP 32	14

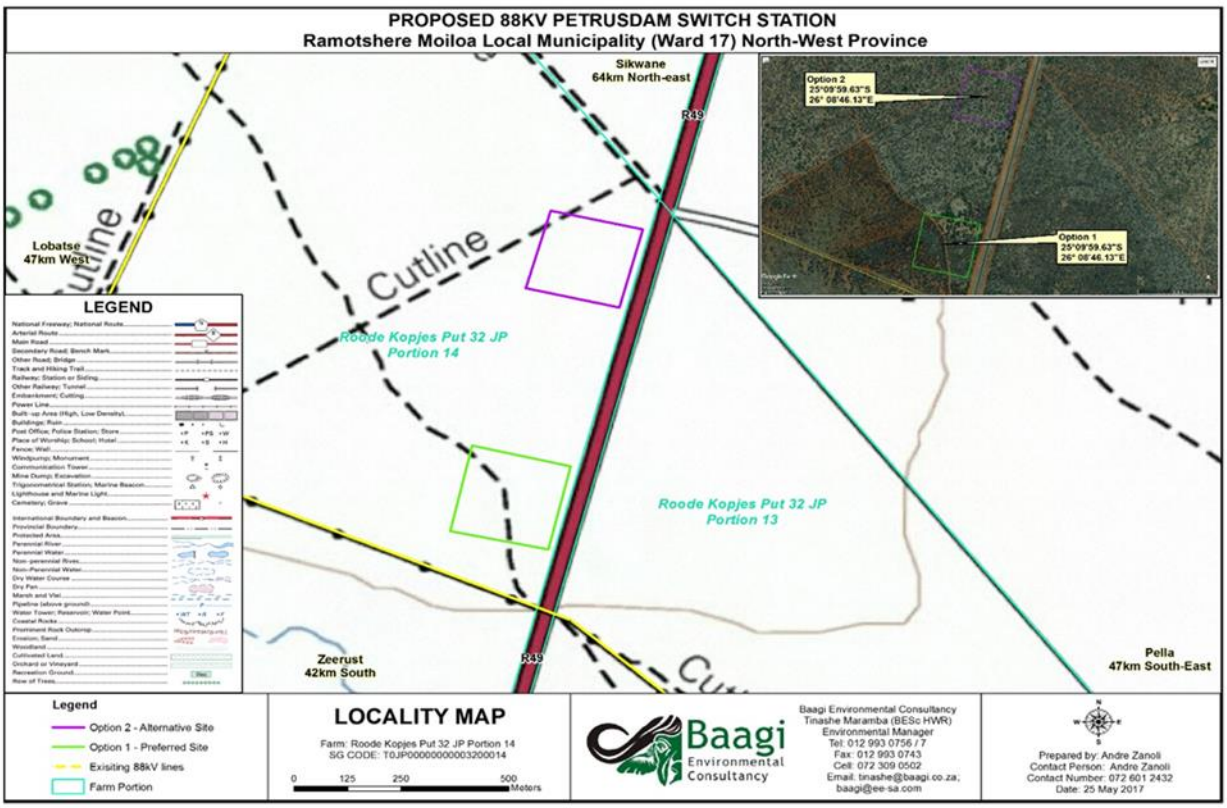

Figure 1: Locality Map of proposed Petrusdam Switch Station

3. DESCRIPTION OF THE ACTIVITY

The Proposed Construction Of The Petrusdam 88kv Switching Station Contains:

An establishment of an 88kv switching station at Petrusdam. The switching station will be equipped with 3x 88kv feeder bays and make provision for a spare 88kv feeder bay. It will also consist of reconnecting the three lines to the following switching station by;

- Building 100m Petrusdam SWS Straatdrift switch station 88kv interconnector
- Building 100m Petrusdam SWS Marico minerals 88kv interconnector
- Building 100m Petrusdam SWS Gopani mine 88kv interconnector
- Constructing a 6m wide access road from the entrance gate of the farm to the proposed Switching Station.

3.1. Listed activities triggered:

The proposed Petrusdam 88kv Switching Station triggers listed activities in terms of the National Environmental Management Act (NEMA), 1998 (Act No 107 of 1998) as amended 07 April 2017. The activities triggered by the proposed 88kV Petrusdam Switch Station are listed in table 4 below, the table gives the Government Notice Number under which the activity is triggered, activity number, activity description in terms of NEMA, and the description of the activity itself in relation to that of the description of the activity being triggered.

Table 4: Listed activities triggered

LISTED ACTIVITY AS DESCRIBED IN GN 327, 325 AND 324	DESCRIPTION OF PROJECT ACTIVITY
Example: ***GN 325 Item xx xx): The construction of a bridge where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.***	***A bridge measuring 5 m in height and 10m in length, no wider than 8 meters will be built over the Orange river***
GNR .327 Item 11(ii): The development of facilities or infrastructure for the transmission and distribution of electricity outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.	The proposed Switch Station is outside urban areas and has a capacity of 88 kilovolts
GNR.327 item 27: The clearance of an area of 1 hectare or more but less than 20 hectares of indigenous vegetation except where such clearance of indigenous vegetation is required for; (i) Undertaking of linear activity or (ii) Maintenance purposes undertaken in accordance with the maintenance management plan	The area to be cleared will be 200m X 200m in extent (40 000m²) which is a total of 4 hectares.

4. LEGISLATIVE CONTEXT

The following legislation, regulations and guidelines are applicable for the 88kV Switch Station as part of the BA. See table 5 below for applicable legislation, regulations and guidelines.

Table 5: Other applicable legislation, policies and guidelines

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
National Environmental Management Act (NEMA) (Act No 107 Of 1998) As Amended 07 April 2017.	The Proposed Development Of A Switch Station Requires For An Environmental Authorisation (EA) In Terms of NEMA.	DEA	1998
Environmental Impact Assessment Regulations Government Notice No. 326	The Proposed Development Of A Switch Station, Requires For An Environmental Authorisation (EA) In Terms of NEMA	DEA	2017
Listing Notice 1 Government Notice No. 327	The Proposed Development of A Switch Station, Triggers Activities Listed In Notice 1 of Government Notice No. 327	DEA	2017
Integrated Environmental Management (IEM) Guidelines of The National Department of Environmental Affairs And Tourism	The Proposed Activity Is A SwitchStation Development, And Runs Through A Farm, i.e. Some Aspects of The Environment Are Considered Sensitive, And Therefore The IEM Is Considered.	DEA	2002
Conservation Of Agricultural Resources (Act No. 43 of 1983).	The study area Is within The North West Area Which Is Considered To Be of A High Conservation Interest.	DAFF	1983
National Environmental Management: Air Quality Act (Act No. 39 Of 2004).	The Act Ensures That The Proposed Development Is Undertaken Within The Confines of The Ambient Levels For Emissions Resulting From The	DEA	2014

	Proposed Development.		
National Environmental Management: Waste Act (Act No. 59 Of 2008).	The Act Will Ensure That All Waste Generated By The Proposed Development During The Construction, Will Be Disposed of In Line With The Requirements Of The Waste Act, For Safe Disposal Of Waste.	DEA	2008
National Environmental Management: Biodiversity Act (Act No. 10 Of 2004).	The Study area Is located within The North West Area Which Is Considered To Be Of A High Conservation Interest.	DEA	1989

5. NEED AND DESIRABILITY

Zeerust-Zeerust Chrome 88kV line is supplied from Zeerust Switching Station. The line carries six substations which are Gopane, Marico Minerals, Zeerust Chrome, Straatdrift and Lerato. The line has a couple of T offs which result in the trip from the source and all the substations fed from this line are out of supply. Zeerust- Zeerust Chrome substation is supplying about 4100 customers which are 10% of the Operating Unit (OU) customer base and these contribute negatively on the performance of the OU.

This project will minimise the impact and will introduce adequate protection in case of fault in any part of the line. There is no reliability in this network, fault in any part of the Zeerust-Zeerust Chrome substation trips the breaker at Zeerust SWS which results in the entire Zeerust network without supply. All the substations are violating the voltage during contingency.

If nothing is done with regards to the issue, the voltage and quality of supply will continue deteriorating and the Eskom image will be impacted. The technical KPI's will not be met and the performances of the OU will continue depreciating further.

The site for the proposed 88kV Petrusdam Switching Station came up as a result of the main reasons below:

- The site is located on the boundary of the farm and the site would have the least impact on the farm itself as well as on the value of the farm.
- Since the farm is a Game Farm, the animals in the farm would be less likely to be affected by the activities during construction.
- The hunters would have less chances of destroying the Switching Station and the supporting infrastructure with stray bullets during the hunting season, seeing that it would be located far away from animals.
- The impact of the overall proposed 88kV Petrusdam Switch Station on the natural habitation of the animals would be minimal.

6. ALTERNATIVE ASSESSMENT

This section describes the proposal and alternatives that can be or are considered for the application to construct the Switch Station. The alternatives include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. It further determines whether the site or activity (including different processes etc.) is appropriate and is informed by specific circumstances of the activity and its environment. Due to the nature of the project, only the site alternative was studied.

Table 6: Alternatives considered

SITE ALTERNATIVE	DESCRIPTION OF ALTERNATIVES
Proposal	The preferred Switch Station alternative will be 100m x 100m with a footprint of 200m x 200m along the boundary of farm.
Site alternative	The alternative site is located 50m due north from the preferred alternative and will consist of the same technical design as the preferred alternative. The Receiving environment is the same as the preferred alternative.
No-Go	The no-go option will mean no development in the area and therefore the status quo will remain. However this will mean no economic development in the area. With the recommended mitigation measures followed the proposed project will have negligible impact on the environment. Therefore the development option far outweighs the no-go option.

7. SITE PICTURES

This section provides pictures from site.





8. SOCIO ECONOMIC CHARACTER OF THE STUDY AREA:

This section describes the socio-economic character of the local municipality in which the proposed sites are situated.

The Racial Makeup of the Study Area: (Source: www.ramotshere.gov.za)

RACE	PERCENTAGE
Black African	94.4%
Coloured	0.9%
Indian/Asian	0.7%
White	3.8%

The level of Education of the Study Area: (Source: www.ramotshere.gov.za)

LEVEL OF EDUCATION	PERCENTAGE
People have grade 9 and higher	49.77%
People have matric and higher	28.19%

Local Languages of the Study Area: (Source: www.ramotshere.gov.za)

LANGUAGES	PERCENTAGE
Tswana	86.0%
Afrikaans	4.5%
English	3.8%
Zulu	1.2%
Other	4.5%

Level of employment of the Study Area: (Source: www.ramotshere.gov.za)

LEVEL OF EMPLOYMENT	PERCENTAGE
Discouraged work seeker	8%
Employed	25%
Unemployed	15%
Other not economically active	48%

Economic profile of local municipality:

Spanning a land area of approximately 105 076 km^2, the North West Province covers 8.6% of the national land area and is home to 7% of South Africa's people with a population figure of 3.6 million. The platinum-rich North West employs 10.8 % of the national share, contributing approximately 5.7% to the nation's production. The buying power in the area is not to be ignored with 5.4% of South Africa's spending power being located in the North West province (source: ihs global insight's index regional explorer, 2013.)

The economic structure of the North West province is significantly different to the national structure, based on data recorded between 2007 and 2012. The most pronounced changes were an increase in the share of the mining sector and a decline in the agricultural, manufacturing, trade and transport sectors. The North West is ideally located and positioned for agriculture and mining, and its economy shows a high concentration of mining and government services sectors compared to the national picture. The composition of the North West economy is as follows: 44% in the primary sector, 7% in the secondary sector (with manufacturing contributing 3% and electricity 1%) and 49% in the tertiary sector.

The study area is located within the Ramotshere Moiloa local municipality where there are large cattle ranches in the area, as well as wheat, maize, tobacco and citrus fruit farms. There are also fluorite and chromite mines in the vicinity which contribute to the socio economic status of the area. Tourism is also a developing industry.

The Average monthly income of the study area is R2 400 with an average monthly household income per household being R14 600. (Source: www.ramotshere.gov.za)

9. PUBLIC PARTICIPATION PROCESS

This section of the Basic Assessment Report incorporates the details of the public participation process for the proposed 88kV Petrusdam Switch Station, as required in terms of National Environmental Management Act, 1998 (Act No 107 of 1998) as amended 07th April 2017. The public participation process is in accordance with Chapter 6 of the Act.

9.1 Purpose of the Public Participation

The public participation process as contemplated in NEMA, aims to provide access to information that has reasonably or may have potential to influence any decision by the competent authority with regard to an application unless access to that information is protected by law and must include consultation with-

(a) The competent authority;
(b) Every State department that administers a law relating to a matter affecting the environment relevant to an application for an environmental authorization;
(c) All organs of sate which have jurisdiction in respect of the activity to which the application relates; and
(d) All potential, or, where relevant, registered interested and affected parties.

It further provides the competent authority and registered interested and affected parties (I&APs), with an opportunity to comment on reports and plans contemplated in sub-regulation (1) of NEMA, prior to submission of an application to the competent authority for decision making, and granting of Environmental Authorization (EA).

9.2 Interested and Affected Parties (I&APs) Identification, Registration and Database

It is eminent to identify relevant stakeholders, and I&APs during the public consultation process, to contribute to the process. The registration of I&APs allows for dissemination of information regarding the project, and for activities to be undertaken in a transparent manner, which afford stakeholders and I&APs the opportunity to voice their concerns and or views as required in Chapter 6 of the NEMA regulations amended 07th April 2017. Below in table 7 is a list of registered stakeholders and I&APs identified.

Table 6: List of registered stakeholders and I&APs

Organ of State/Stakeholder							
Name	**Organization**	**Postal Address**	**Farm No.**	**Tel.**	**Fax**	**Cell.**	**E-mail**
Mr. Krywagen	Transvaal Agricultural Union Manager	138 Deids Street, Rustenburg Rural Development				082 4970386	gertc@webmail.co.za
Ms. Leona Archary	Acting Director-General North West Department of Rural Development and Land Reform			012 312 8503			dgoffice@drdlr.gov.za
Debbie Khan	Executive Assistant North West Department of Rural Development and Land Reform			012 319 9490/8139			dgoffice@drdlr.gov.za
Ms. Yolanda Folotsi	Deputy Director: Ngaka Modiri Molema District (Land Reform)			018 391 9600			Yolanda.folotsi@drdlr.gov.za
Dr Poncho Mokaila	Head of Department	Agricentre Building, Cnr Dr James Moroka Drive & Stadium Road, Mmabatho		018 389 5719/5431/5688	018 392 4377		pmokaila@nwpg.gov.za
Ellis Thebe	North West, Department of Economic Development Environment Conservation and Tourism			018 389 5099			GEthebe@nwpg.gov.za
Mr. C Lobakeng	Department of	Private Bag X 5		018 387 9547	018 384	083 629 8991	LobakengC@dwaf.gov.za

	Water Affairs	Mmabatho, 2735			2059		
Mr. K.G Chauke Municipal Manager, PA: Kefiloe Bogatsu	Ramotshere Moiloa Local Municipality			018 642 1280	018 642 3586		
Mr. SP Ramagaga (Seth)	Chief Directorate: Development & Planning) Department of Local Government & Traditional Affairs	Private Bag X 2099, Mmabatho, 2735			018 3874037		Sramagaga@Nwpg.gov.za; KO ageng@Nwpg.gov.za; Ksmolosiwa@Nwpg.gov.za
Bogopa L	Dept. of Water Affairs & Sanitation	P. Bag x5, MMABATHO, 2735		018 387 9564		082 802 4759	BogopaL@dwa.gov.za
Louw P	Dept. of Water Affairs & Sanitation	P. Bag x5, MMABATHO, 2735		018 387 9847		083 629 8991	LobakengC@dwa.gov.za
Matiwane Ben Mona	Dept. of Rural, Environment & Agriculture			014 592 4026 014 592 8261 014 592 8262 014 592 8272			mbmatiwane@nwpg.gov.za
Makgalemele Noziziwe	Dept. of Rural Development & Land Reform			012 312 8934 012 312 9851	012 323 4516		Noziziwe.Makgalemele@drdlr.gov.za
Ms. S Lesupi	Ngaka Modiri District Municipality			018 381 9405			municipalmanagernmdm@gov.za
Pieter Venter	Pionne Farming Landowner	P.O. Box 19431 Noordburg 2522				0832337550	pieter@michigan.co.za

9.3 Notification of BA Process

9.3.1 Advert

In order to notify and inform the public, stakeholders and I&APs of the proposed Petrusdam 88kv Switching Station an advert will be put in print media. The public and or stakeholders and I&APs are invited to register, by placement of advertisements in the **Rustenburg Herald** circulating in the area, on the **10th of July 2017** in line with the requirements of NEMA in Section 41(2) (c). The advert contained amongst others the following information required:

- Details of the application or proposed application;
- The process being applied for whether Basic Assessment (BA) or S&EIR, in this regard its BA;
- The nature and location of the activity to which the application relates;
- Details of the EAP, where further information can be obtained; and
- The manner which, representations in respect of the application or proposed application may be made i.e. comments, queries and suggestions etc.

9.3.2 Site Notices

Once the advert appeared in the **Rustenburg Herald,** the public participation process will start on the same day that the newspaper was published and the commenting period was closed 30 days after placement of the advert. Site notices A3 in size will be placed on strategic locations near the study area on the **10th of July 2017**. The site notices will be fixed so that they are visible to I&APs, thus site notices will also be placed at the location of the proposed Switch Station.

9.4 Public Involvement and Consultation

To be able to express relevant information regarding the proposed Switch Station at Petrusdam, a detailed Background Information Document for the project will be compiled at the outset of the project. This BID will be distributed on the **10th of July 2017** to identify stakeholders; additional copies will be made available at a public venue within the broader study area. Through consultation with key stakeholders and I&APs, issues for inclusion within

issues based on the screening of the study area, as well as capture their views, issues and concerns regarding the project, various opportunities will continue to be provided for I&APs to have their issues noted after the release of the draft Basic Assessment Report for public review.

9.5 Availability of Daft BAR

The Draft BAR will be made available to the public, should they wished to comment on the document. The DBAR will be dropped at the following locations:

- Madikwe River Lodge
- Pienaar Nature Reserve
- Nietverdiend Laerskool
- Mopipi B&B
- Zeerust Police Station
- Ramotshere Moiloa Local Municipality

10. ENVIRONMENTAL ATTRIBUTES / RECEIVING ENVIRONMENT

This section of the Basic Assessment Report provides a description of the environment that may be affected by the proposed development. This information is provided in order to assist the reader / authorities/ I&APs in understanding the receiving environment within which the proposed development is to take place. Features of the biophysical, social and economic environment that may be directly or indirectly affected, or could be affected by the proposed development have been described. This information has been sourced from both existing information available for the area (desktop studies) as well as collected data from the field with the aim of proving the context within which this BA is being conducted.

10.1 General Biophysical Environmental

10.1.1. Climate

The Zeerust Thornveld is in the summer rainfall region with very dry winter and the MAP ranging in a narrow band of 550 – 600 mm. The area receives frequent frost and temperatures vary between 36.7°C and -0.4°C. (Mucina and Rutherford, 2006).

10.1.2. Geology

The geology of the Zeerust Thornveld is made up of sediments from the Pretoria Group with mostly shale and less quartzite and conglomerates present. Another formations present include carbonates, volcanic rocks, breccia's, diamicities, bronzite, harzburgite, gabbro and norite. Soils are mostly deep red-yellow, apedal and free draining with clays present in many areas (Mucina and Rutherford, 2006).

10.1.3. Vegetation

In the study area around the proposed Switch Station one vegetation unit is found. It passes to a small section of a second unit and will be discussed, as some trees associated with the unit are observed in the corridor. The main vegetation unit is referred to as the Zeerust Thornveld (Mucina and Rutherford, 2006) but was previously known as the Sourish Mixed Bushveld (Acocks, 1953) or the Mixed Bushveld (Low and Rebelo, 1996).

Zeerust Thornveld is distributed in the North-West Province with the altitude varying between 1 000 and 1 250m. It consists of deciduous, open to short thorny woodlands dominated by various Acacia species. The grasses form the herbaceous layer on clays on the plains, lowlands and between the rocky ridges (Mucina and Rutherford, 2006).

Seven protected tree species were recorded on the area surveyed and only one protected tree was found to fall within the preferred site. Seven protected tree species were recorded on the area surveyed and only one protected tree was found to fall within the preferred site. Two species recorded on site were *Acacia Erioloba* and *Boscia albitrunca*.

Table 7: Protected Species List

Protected Tree Species	Coordinates
Acacia Erioloba	S25°09.995' , E 026°08.831
	S25°09.906' , E 026°08.692
	S25°09.904' , E 026°08.694

	S25°09.868' , E 026°08.715
	S25°09.804' , E 026°08.789
Boscia albitrunca	S25°09.798' , E 026°08.762
	S25°09.798' , E 026°08.762

Ethno botanical plants are found within the study area. Ethno botany is a branch of botany that places focus on the use of plants for medicines and other practical purposes. The use of native plants for ethno botanical uses can be detrimental to populations that are overexploited. South Africa has a rich diversity of medicinal plants that not only have a global significance, but also have a cultural and historical role (van Wyk et al. 2009). There is a rapidly growing concern for conservation of medicinal plants that are dwindling in number due to illegal harvesting (Institute of Natural Resources 2003). This is particularly apparent in rural areas where medicinal plants are overexploited by traditional doctors.

From the list of plant species identified during the field surveys there are 3 species (Table 8) that have cultural uses. Medicinal plants are important to many people and have been used traditionally for centuries to cure many ailments. Plants have also been used traditionally for other cultural uses, such as building material, and for spiritual uses such as charms.

Table 8: Species Description

Species Name	Common Name	Uses
Acacia caffra	Common Hook Thorn	Dye and tanning
Acacia karroo	Sweet Thorn	Dyes and tanning
Bidens pilosa	Black Jack	Herbs

10.1.4. Conservation

The vegetation community is listed as a least threatened ecosystem with a conservation target of 19% less than 4% statutorily conserved, spread between four reserves including the Pienaar and Marico Bushveld Nature Reserves. Some 16% transformed mainly by cultivation, with some urban or built-up. A few areas with scattered plants of the alien Cereus jamacaru and several other alien species very scattered elsewhere. Erosion is mainly very low to low.

Conservation of the Savanna Biome is food in principle, mainly due to the presence of the Kruger and Kgalakgadi Trans frontier Parks and various other large reserves in neighbouring countries. However, this high area conserved in South Africa, belies the fact that half of savanna vegetation types are inadequately conserved, in having less than 5% of their area in reserves. However, much of the area is used for game farming and can thus be considered effectively preserved.

10.1.5. Fauna

From an overall faunal perspective, some of the habitat types within the corridor are considered to be sensitive on a large scale, as well as a site specific basis. Immediate impacts include trampling and overgrazing effects from livestock and wildlife mismanagement by landowners. Although a number of species in the area are considered to be red-data, the nature of the Switch Station development is relatively low impact on most of the larger, more mobile species. It is the more sedentary and fossorial (burrowing) species, or those species relying upon sensitive habitats that may be at risk from the development process. Overall, from a terrestrial fauna perspective, the proposed project represents a relatively low impact development type. The footprint of the clearance will also be minimised as the existing servitude will be used to service the infrastructure, ensuring that the overall habitat loss is minimised. However, recognised sensitive habitat - such as ridges, dune crests or wetlands - are at risk from impacts such as the creation of the small excavation paths, vegetation clearance by machinery and Switch Station placement (and subsequent maintenance).

10.1.6. Avi-Fauna

The proposed Petrusdam Switch Station will pose a limited threat to the birds occurring in the vicinity of the new infrastructure. The infrastructure poses a medium-high collision risk, mostly to non-Red Data species and a medium-high electrocution risk, in particular to vultures. With the implementation of appropriate mitigation measures, the risk should be reduced to low for both these envisaged impacts. The habitat transformation will have a low impact, and should

only affect a few non-Red Data species at a local level, provided riparian vegetation is not significantly impacted.

As far as indicating a preferred site alternative from a bird impact perspective is concerned, there is little to choose between the various alternatives because both options All run through virtually the same type of habitat and therefore the potential impacts are likely to be similar.

11. IMPACT ASSESSMENT

11.1. Aim of Impact Assessment

The Impact Assessment aims to achieve the following:

- An assessment of the environment likely to be affected by the proposed project, including cumulative environmental impacts.
- Any assessment of the environment likely to be affected by the identified alternative land use or developments, including cumulative environmental impacts (if applicable)
- An assessment of the extent, duration, intensity, probability and significance of the identified potential environmental, social and cultural impacts of the proposed development including cumulative impacts.
- A comparative assessment of the identified land use and development alternative and their potential environmental, social and cultural impacts (if applicable)
- Inclusion of technical and supporting information as appendices (if any)

11.2. Methodology of Impact Assessment

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, Amended 07th of April 2017 and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

As means of determining the significance of the various impacts that can or may be associated with the proposed 88kV Petrusdam Switch Station, a series of assessment criteria were used for each impact. Environmental Impacts are assessed by different criteria to assign relative significance to each predicted impact associated with an activity. The criteria used to evaluate the impacts of this activity are as follows: nature, extent, duration, intensity and probability of occurrence.

- **Nature:** A brief written statement of the environmental aspect being impacted upon by a particular action or activity;
- **Extent:** The area over which the impact will be expressed;
- **Duration:** The duration indicates what the lifetime of the impact will be;
- **Intensity:** Describes whether an impact is destructive or benign; and
- **Probability**: Describes the likelihood of the impact actually occurring.
- **Cumulative**: In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Table 9: Criteria used for Impact Assessment

Aspect	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Scale	Site	1
	Local	2
	Regional	3

Magnitude/Severity	**Low**	**2**
	Medium	**6**
	High	**8**
Significance	**Sum (Duration, Scale, Magnitude) x Probability**	
	Negligible	**≤20**
	Low	**>20 ≤40**
	Moderate	**>40 ≤60**
	High	**>60**

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

Table 10: Positive/Negative/Neutral Rating

Status	Denotes the perceived effect of the impact on the affected area
Positive(+)	Beneficial impact.
Negative (-)	Deleterious or adverse impact.
Neutral (/)	Impact is neither beneficial nor adverse.

Cumulative Effects: It is important to assess the natural environment using a systems approach that will consider the cumulative impact of the various actions. A cumulative impact refers to the impact on the environment, which results from the incremental impact of the actions when added to other past, present and reasonably foreseeable future actions regardless of what agencies or persons undertake such actions. Cumulative impacts can result from individually minor but collectively significant actions or activities taking place over a period of time. Cumulative impacts can take place so frequently in time that the effects cannot be assimilated by the environment.

Identification of Mitigation Measures: The mitigation measures should describe possible actions for the mitigation of the significant negative environmental impacts identified in the

assessment. The philosophy of identifying mitigation measures for negative impacts will be based on the reduction of the impact at source, the management of the impact through monitoring and control, and the involvement of the I&APs in consideration of mitigating measures, where appropriate.

Maximisation of Positive Impacts: The philosophy to be followed will focus on maximizing the benefits to the local environment.

Assessment of potential positive and negative environmental impacts in table 11 and 12 below.

Table 11: Potential Impacts during the Construction and Operational Phase

	Score before mitigation					Development phase Construction and Operation			Score after mitigation				
Aspect	**P**	**D**	**S**	**M/S**	**S**	**Management objectives**	**Management targets**	**Mitigation measures**	**P**	**D**	**S**	**M/S**	**S**
Planning & Environmental Awareness	5	1	1	8	+50	• Minimise negative impacts through the implementation of environmental monitoring • Formalise environmental responsibilities • Legislative compliance	• Contracts in place • Site documentation including EMPr, EA and method statements are in place	• Appointment of ECO and other role players • All role-players must understand their part in the implementation of the mitigation contained in this specialist report and in the EMPr • Required method statements are compiled and approved • Any licences and/or permits required have been obtained e.g. tree cutting permits from DAFF. • All identified protected tree species should be marked within the project footprint • Establish procedures to effectively verify and address complaints and claims received. • Complaints or liaisons with landowners with regard to environmental matters must be recorded, reported to the correct person and a record of the response is to be entered in the complaints register.	5	3	1	2	+30

	Score before mitigation					Development phase Construction and Operation			Score after mitigation				
Aspect	**P**	**D**	**S**	**M/S**	**S**	**Management objectives**	**Management targets**	**Mitigation measures**	**P**	**D**	**S**	**M/S**	**S**
								• Establish lines of communications with landowners. Provide relevant contact details to landowners for queries / raising of issues or complaints. • Landowners will be kept up to date with projected construction durations on their properties.					
Site preparation:	5	5	1	8	-70	• Clear indication of construction footprint • Avoid/reduce impacts on surrounding environment, infrastructure and services	• Method statement detailing location and management of all access points and roads. • Method statement regarding establishment and management of constructio	• Soil and vegetation to be stripped only from project footprint area • No-go areas (if any) to be clearly fenced off • Construction camp to be clearly demarcated including all Contractor's buildings, lay down areas, etc • All identified protected tree species should be marked within the project footprint • All employees should be educated on identifying protected tree species • A qualified and / or appropriately experienced Botanist or an experienced person who knows	2	1	1	2	-8

	Score before mitigation					Development phase Construction and Operation			Score after mitigation				
Aspect	**P**	**D**	**S**	**M/S**	**S**	**Management objectives**	**Management targets**	**Mitigation measures**	**P**	**D**	**S**	**M/S**	**S**
							n camp	specific vegetation types well should mark any species of conservation importance other medicinal plants when the site is pegged. All medicinal, protected or red data listed species should be marked prior to the clearing of vegetation. Species survival. • Workers must be educated to recognize markers on plants. • Sensitive environmental features must be identified, mapped and demarcated as • no-go zones,					
Method statements	5	3	1	6	+50	• Protocols to minimise negative impacts on the environment	• Approved method statements in place	• Contractor to supply method statements for the clearing of vegetation on site. The ECO must approve before vegetation is cleared on site.	2	3	1	6	+20

	Score before mitigation					Development phase Construction and Operation Phase			Score after mitigation				
Aspect	**P**	**D**	**S**	**M/S**	**S**	**Management objectives**	**Management targets**	**Mitigation measures**	**P**	**D**	**S**	**M/S**	**S**

	Score before mitigation					Development phase Construction and Operation Phase			Score after mitigation				
Aspect	**P**	**D**	**S**	**M/S**	**S**	**Management objectives**	**Management targets**	**Mitigation measures**	**P**	**D**	**S**	**M/S**	**S**
Loss of plant communities, natural habitats and fragmentation thereof	5	3	2	6	-55	• Minimise impacts on vegetation during construction process • Keep within construction footprint	• Impacts to vegetation and soil beyond what is necessary are avoided.	• Ensure that workers and machinery do not unnecessarily trample vegetation. • All infrastructures should be confined to the areas demarcated for such and no infrastructure should be permitted in areas not correctly prepared. • The project should retain as small footprint as possible to minimise impacts to surrounding vegetation and soil. • All areas not within the footprint of the project area where soil has been compacted or vegetation disturbed should be immediately ripped and re-vegetated immediately. • Careful planning of access roads in order to prevent excessive removal of trees and prevent soil erosion.	2	3	1	2	-12

	Score before mitigation					Development phase Construction and Operation Phase			Score after mitigation				
Aspect	**P**	**D**	**S**	**M/S**	**S**	**Management objectives**	**Management targets**	**Mitigation measures**	**P**	**D**	**S**	**M/S**	**S**
								• No collection of firewood may be allowed. • Topsoil will only be removed off areas proposed for access roads. All soils should be stored and managed correctly for rehabilitation. • Rehabilitate all temporarily access roads by replacing topsoil and scarring compacted earth to allow seedlings to take root. • When possible make use of existing roads rather than creating new access Routes.					
Ground and Surface Water Pollution	5	4	4	8	-80	• Prevent pollution of environment Minimising occurrence of such impacts	• No oil spillages • Adequate storm water management plan must be implemented • Proper Sanitary facilities on site. • Use of Registered	• Construction vehicles must be maintained in good working order to reduce the potential for leaks and spills. • Oil residues must be treated with an oil absorbing substance, it should be done by an oil rehabilitation company.	2	4	4	6	-28

	Score before mitigation					Development phase Construction and Operation Phase			Score after mitigation				
Aspect	**P**	**D**	**S**	**M/S**	**S**	**Management objectives**	**Management targets**	**Mitigation measures**	**P**	**D**	**S**	**M/S**	**S**
							landfill site for disposal of contaminated material.	• Polluted material must be disposed of at a registered waste disposal site allowing for disposal of such contaminated or polluted material. • Hazardous materials and or chemicals such as oils, fuels, paints, insecticides etc. should be stored in a bunded area. • Storage of potentially hazardous substances should be done away from any water courses. • Contractors must provide regularly Serviced chemical toilets for the construction camp. • An adequate storm water management plan must be implemented during the construction phase to ensure controlled flow of water on site.					

	Score before mitigation					Development phase Construction and Operation Phase			Score after mitigation				
Aspect	**P**	**D**	**S**	**M/S**	**S**	**Management objectives**	**Management targets**	**Mitigation measures**	**P**	**D**	**S**	**M/S**	**S**
Soil Erosion and sedimentation	5	4	1	6	-55	• Minimisation of erosion and Sedimentation.	• Increasing the soil stability, thereby reducing the potential for erosion.	• In areas where vegetation clearing is required, surface water velocity must be dissipated using meter drains at appropriate intervals. • No stockpiles or construction materials may be stored or placed within any drainage line on site or areas where water naturally accumulates. • Stockpiles must not exceed more than 2m in height, Stockpiles must not be stored for excessively long periods. • Any stockpile stored for long periods must be retained in a bunded area. Stockpiles must be covered during excessively windy conditions. • Special care needs to be	2	3	1	2	-12

	Score before mitigation					Development phase Construction and Operation Phase			Score after mitigation				
Aspect	**P**	**D**	**S**	**M/S**	**S**	**Management objectives**	**Management targets**	**Mitigation measures**	**P**	**D**	**S**	**M/S**	**S**
								taken to prevent sediments and other pollutants from entering natural drainage systems. • Driving through streams should not be allowed, except on existing roads.					
Safety and Security	5	3	1	8	-60	• Minimisation of an uncontrolled construction site.	• Safety and Secure working environment.	• Access to the construction site should be strictly controlled by appointing security personnel on site. • Consumption or illegal selling of alcohol, drug utilization or selling on site should be prohibited. • Any persons found to be engaged in such activities should undergo a disciplinary hearing. • No person shall enter the site unless authorized to do so by the contractor, project manager and ECO if any fencing interferes with the construction	2	3	1	2	-12

	Score before mitigation					Development phase Construction and Operation Phase			Score after mitigation				
Aspect	P	D	S	M/S	S	Management objectives	Management targets	Mitigation measures	P	D	S	M/S	S
								process, such fencing shall be deviated until construction is completed. • The deviation of fences shall be negotiated and agreed with the landowner in writing. • Construction staff is to make use of the facilities provided for them, as opposed to ad-hoc alternatives (.e.g. fires for cooking, the use of surrounding bush as a toilet facility are forbidden). • Trespassing passing on private / commercial properties adjoining the site is forbidden. • Driving under the influence of alcohol should be prohibited. • All employees must undergo the necessary					

	Score before mitigation					Development phase Construction and Operation Phase			Score after mitigation				
Aspect	**P**	**D**	**S**	**M/S**	**S**	**Management objectives**	**Management targets**	**Mitigation measures**	**P**	**D**	**S**	**M/S**	**S**
								safety training and wear the necessary protective clothing. • Secure the site in order to reduce the opportunity for criminal activity in the locality of the construction site.					
Air Quality	5	3	1	6	-50	• Minimisation of air pollution.	• Air Quality requirements should be adhered to.	• Vehicles transporting friable materials such as sand, Gravel etc. must be covered with a tarpaulin, and their speed must be limited to 40km/hr. Times. • All construction vehicles should be in good working order to prevent unnecessary Exhaust fumes.	2	1	1	2	-8
Noise Pollution	5	3	1	6	-50	• Minimisation of noise levels	• Noise levels below 40db around study area.	• The construction phase must aim to adhere to the relevant noise regulations and limit noise to within	2	3	1	2	-12

	Score before mitigation					Development phase Construction and Operation Phase			Score after mitigation				
Aspect	P	D	S	M/S	S	Management objectives	Management targets	Mitigation measures	P	D	S	M/S	S
								standard working hours in order to reduce disturbance of areas in close proximity to the development. • Construction site yards, workshops, and other noisy fixed facilities should be located well away from noise sensitive areas. Once the proposed final layouts are made available by the contractor(s), the sites must be evaluated in detail and specific measures designed into the system. Truck traffic should be routed away from noise sensitive areas, where Possible. • Noisy operations should be combined so that they occur where possible at the same Time. • Blasting operations (if					

	Score before mitigation					Development phase Construction and Operation Phase			Score after mitigation				
Aspect	P	D	S	M/S	S	Management objectives	Management targets	Mitigation measures	P	D	S	M/S	S
								required) are to be strictly controlled with regard to the size of explosive charge in order to minimise noise and Air blast, and timings of explosions. • No blasting should be allowed at night. • Construction activities are to be contained to reasonable hours during the day and early Evening (07:00 am to 17:00pm). • Night-time activities near noise Sensitive areas should not be allowed. With regard to unavoidable very noisy construction activities in the vicinity of noise sensitive areas, The contractor and ECO should liaise with neighbours.					

	Score before mitigation					Development phase Construction and Operation Phase			Score after mitigation				
Aspect	**P**	**D**	**S**	**M/S**	**S**	**Management objectives**	**Management targets**	**Mitigation measures**	**P**	**D**	**S**	**M/S**	**S**
								As construction workers operate in a very noisy environment, it must be ensured that their working conditions comply with the Requirements of the Occupational Health and The contractor must take measures to discourage labourers from loitering in the area and causing noise disturbance. • Where possible labour shall be transported to and from the site by the contractor or his Sub-Contractors by the contractors own transport.					
Waste Generation	5	3	1	6	-50	• Minimisation of uncontrolled waste produced.	• Waste properly managed and discarded of at registered landfill sites.	• Construction rubble shall be disposed of in pre – agreed, demarcated spoil dumps that have been Approved by the Relevant Municipality. Littering	5	3	1	2	-30

	Score before mitigation					Development phase Construction and Operation Phase			Score after mitigation				
Aspect	P	D	S	M/S	S	Management objectives	Management targets	Mitigation measures	P	D	S	M/S	S
								by the employees of the Contractor shall not be Allowed under any circumstances. The ECO shall monitor the neatness of the work sites as well as The Contractors campsite. • All waste must be removed from the site and transported to a suitably permitted landfill site. • All waste hazardous materials must be carefully Stored as advised by the ECO, and then disposed of offsite at a licensed landfill site. • Contaminants to be stored safely to Avoid spillage. • Machinery must be properly maintained to keep oil leaks in check.					

	Score before mitigation					Development phase Construction and Operation Phase			Score after mitigation				
Aspect	**P**	**D**	**S**	**M/S**	**S**	**Management objectives**	**Management targets**	**Mitigation measures**	**P**	**D**	**S**	**M/S**	**S**
Visual	5	5	1	8	-70	• Minimise visual obstructions	• Planning and Design in such that the transmission line is placed is such a manner that the visual intrusion is either avoided or limited as far as possible.	• Colour/Coating: Using a coating on the steel that is darker than galvanized steel will reduce the visual impact. • Clearing of any vegetation that would provide a screening effect should be avoided. Generally, the overall area has fairly dense vegetation which could be utilised as a very effective shield.	5	5	1	8	-70
Loss of vegetation and seed banks.	5	3	2	6	-55	• Prevent pollution of environment • Minimising occurrence of such impacts	• No oil spillages • No damage due to oil spillages • Comprehensive method statement addressing handling and storage of oil and emergency spills procedure	• Ensure that proper measures are in place to contain any oil and diesel leakages or spills. • Proper handling and storage practices, as well as readily available oil-spill kits should minimise the risks associated with such spills. • Spills should be cleaned up immediately by removing the polluted soil	2	1	1	2	-8

	Score before mitigation					Development phase Construction and Operation Phase			Score after mitigation				
Aspect	**P**	**D**	**S**	**M/S**	**S**	**Management objectives**	**Management targets**	**Mitigation measures**	**P**	**D**	**S**	**M/S**	**S**
								and disposing thereof at an appropriate registered waste facility • Drip trays to be placed under vehicles that stand for more than 24 hours. Size of drip trays must be sufficient to contain the amount of oil in the vehicle • Suitable covered containers should be provided for disposal of waste. All used oils, grease or hydraulic fluid should be placed therein and these containers should be removed from the site on a regular basis for disposal at an appropriate registered waste facility.					
Increased potential of invasion by alien invasive species	4	3	2	6	-44	• Avoid legal infringements by preventing spread of alien vegetation	• No noticeable spread of alien vegetation on site	• Early detection and eradication of alien vegetation species through on-going monitoring and	2	1	1	2	-8

	Score before mitigation					Development phase Construction and Operation Phase			Score after mitigation				
Aspect	**P**	**D**	**S**	**M/S**	**S**	**Management objectives**	**Management targets**	**Mitigation measures**	**P**	**D**	**S**	**M/S**	**S**
								eradication programme • Control and manage the removal of vegetation. Vegetation removal to be undertaken in consultation with the ECO • Encroachment of alien vegetation should be monitored regularly and controlled; the area must be kept clear of all invader plants as per the Conservation of Agricultural Resources Act, 1983 (Act No 43 of 1983). Rehabilitation measures must be employed until such a time as indigenous species are established. If herbicides are used then correct licenses and permits must be acquired prior to use.					
Fauna and avifauna Protection & Search and Rescue	4	3	2	6	+44	• Minimise disturbance and mortality to animals and	• No loss of avifaunal and faunal species	• Switching Station and supporting infrastructure should be properly barricaded to avoid	2	1	1	2	+8

	Score before mitigation					Development phase Construction and Operation Phase			Score after mitigation				
Aspect	P	D	S	M/S	S	Management objectives	Management targets	Mitigation measures	P	D	S	M/S	S
						birds		electrocution of faunal species. • Switching Station and supporting infrastructure should be designed and planned to cater for bird perching and visibility by species to avoid collision. • Workforce to be instructed that no animals or birds may be caught or killed. • Workforce to be informed that poaching is illegal and if they are caught poaching they will be dismissed. • Construction vehicles to keep to speed limits to limit killing animals and birds on site • Construction activities to take place during daylight hours to reduce risks to faunal species. • Training of construction					

	Score before mitigation					Development phase Construction and Operation Phase			Score after mitigation				
Aspect	**P**	**D**	**S**	**M/S**	**S**	**Management objectives**	**Management targets**	**Mitigation measures**	**P**	**D**	**S**	**M/S**	**S**
								workers to recognize threatened animal species will reduce the probability of fauna being harmed unnecessarily. • Barricading measures to be utilised should not restrict the movement of the fauna in the area. • Clearance of vegetation only around site for proposed Switching Station so that vegetation in the area is not damaged and destroyed benefitting game hunting activities within the farm.					
Fire	4	1	2	8	-44	• Maintain safety on site and in surrounding environment • Reduce risk of veld fires and destruction of natural habitat	• No veld fires started by the workforce • No claims from landowners for damages due to veld fires • Method statement in place and	• No open fires are to be permitted on-site. • Method statement by Contractor that indicates how wild fires will be dealt with from adjacent properties. • Fire breaks should be done in accordance with the station's fire breaks	2	1	1	2	-8

	Score before mitigation					Development phase Construction and Operation Phase			Score after mitigation				
Aspect	**P**	**D**	**S**	**M/S**	**S**	**Management objectives**	**Management targets**	**Mitigation measures**	**P**	**D**	**S**	**M/S**	**S**
							adhered to	procedure. Sufficient fire extinguishers and other fire-fighting equipment to be supplied in construction area					
Dust	4	3	2	2	-28	• Minimise dust disturbance	• Method statement regarding dust control in place	• Wetting down of work areas can be used to reduce dust levels but not to a degree that causes runoff and contamination. • Cultivate awareness among personnel to limit excessive and unnecessary dust. • Maintain speed control measures on access roads through construction of speed bumps and speed limit signs.	2	1	1	2	-8

Table 12: Potential Impacts during Decommissioning Phase

	Score before mitigation					Development phase –Decommissioning Phase			Score after mitigation				
Aspect	**P**	**D**	**S**	**M/S**	**S**	**Management**	**Management targets**	**Mitigation**	**P**	**D**	**S**	**M/S**	**S**

						objectives		**measures**					
Rehabilitation of Vegetation	5	1	1	8	+50	• Minimise exposed areas • Appropriate plants are used for re-vegetating • Reduce risk of spread of invasive species	• Exposed areas are rehabilitated quickly to reduce loss of soil • Area is rehabilitated to surrounding area standard • No signs of invasive species on rehabilitated areas	• Topsoil removed during the construction phase must be used where possible to rehabilitate disturbed areas; • Topsoil must be analysed for its fertility and if reduced, appropriate fertilisers must be used to increase the fertility of the soil prior to rehabilitation. • Re-vegetate the area with plant species consistent to surrounding	5	1	1	6	+40

								environment. • Methods and timing of rehabilitation must be prescribed by an ecologist based on site conditions at the time under the guidance of the ECO. • Badly damaged areas should be fenced off to allow the area to rehabilitate. • Remove invasive vegetation from damaged construction area and from rehabilitated • areas • Manual labour to be used to					

								remove alien plant species instead of chemical removal						

11.3. Cumulative Impacts

Cumulative impacts imply the sum total or combined impacts (positive and negative) associated with the proposed development whether on a local or regional scale. In terms of the EIA regulations, a cumulative impact in relation to an activity means "the impact of an activity that itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar of diverse activities or undertakings in the area". This section describes the following cumulative impacts:

Impacts on Game Farming Activities:

There are various game farming activities occurring within the study area. The cumulative impact of construction the proposed 88kV Petrusdam Switch Station within game farming activities may negatively impact the farm by depreciating its value.

To optimise hunting shelters, workers' houses, sheds and similar buildings should remain unseen, away from major internal roads. Good quality access roads that can accommodate standard passenger vehicles, internal roads, including firebreak roads, game-viewing roads and walkways for game retrieval, that are in good condition is needed for Game farming activities, however the proposed 88kV Petrusdam Switch Station might interfere with this if necessary precautions and mitigation measures are not followed.

Impacts on Ecological Resources:

The cumulative impact of construction of the proposed 88kV Petrusdam Switch Station within significant ecological resources would cause further habitat fragmentation and habitat degradation in sensitive ecosystems. Clearance of vegetation should only be conducted within the footprint of the study area and necessary measures provided in the EMPr should be followed.

12. IMPACT STATEMENT & SUMMARY

12.1. Impact Statement

An **Environmental Impact Statement (EIS)** is an assessment of the likely influence a project may have on the environment. "Environmental Impact Assessment can be defined as: The process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made" (IAIA 1999). The purpose of the assessment is to ensure that decision-makers consider environmental impacts before deciding whether to proceed with new projects and what necessary precautions need to be taken into account.

During the impact assessment, potential impacts were assessed for the Construction, Operation and Decommissioning of the Petrusdam Switch Station. Impacts of the activities are likely to have more negative, or a high to medium significance before mitigation measures are implemented.

The proposed construction of an 88 kV Petrusdam Switch Station will have a limited environmental impact on the surrounding environment as long as all mitigation measures are correctly implemented. If the aforementioned recommendations and mitigation measures are managed and implemented accurately, the majority of the identified impacts will be at environmentally acceptable levels.

Below in table 13 is a summary of the impacts assessed in the Constructional, operational and decommissioning phases of the activity respectively.

Table 13: Impact Summary

IMPACT	SIGNIFICANCE	
	BEFORE MITIGATION	AFTER MITIGATION
Planning and Environmental Awareness	+50	+30
Site Preparation	-70	-8
Method Statements	+50	+20
Loss of Plant communities, natural habitats and fragmentation thereof	-55	-12
Loss of vegetation and seed bank due to fires	-55	-6

caused by oil and diesel spillages		
Increased potential of invasion by alien invasive species	-44	-8
Visual	-70	-70
Ground water and surface water pollution	-80	-28
Air Quality	-50	-8
Waste Generation	-50	-30
Noise	-50	-12
Soil Erosion and sedimentation	-55	-12
Safety and Security	-60	-12
Fauna Protection and rescue	+44	+8
Fire	-44	-8
Dust	-28	-8
Rehabilitation of vegetation	+50	+40

13. DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

The EMPr will outline all activities that have to be undertaken, where they will take place, the responsible persons, all possible environmental or social impacts, mitigation measures, rehabilitation plans, monitoring methods, the frequency of monitoring and performance indicators. The EMP will be a legally binding stand-alone document, which will be used to ensure that Eskom adheres to all conditions of the Environmental Authorization (EA) and Basic Assessment Report (BAR).

14. CONCLUSION & RECOMMENDATIONS

The results of specialist study was used by the Environmental Assessment Practitioner to create an integrated assessment of the proposed development. The outcomes of the integration and assessment are documented in this Draft Basic Assessment Report, which has been released to public domain for comment. Following the comment period, comments will be consolidated and this report will be updated for submission to the National Department of Environmental Affairs.

The proposed construction of an 88 kV switch station will have a limited environmental impacts on the surrounding environment as long as all mitigation measures are correctly implemented. If the aforementioned recommendations and mitigation measures are managed and implemented accurately, the majority of the identified impacts will be at environmentally acceptable levels.

Appendix A: EAP's C.V

Appendix B: Maps

Appendix C: Site Photographs

Appendix D: Stakeholder Database

Appendix E: Environmental Management Programme

Appendix F: Draft Ecological Report

Appendix G: EAP Declaration

Appendix H: Specialist Declaration