

**DRAFT SCOPING REPORT FOR THE PROPOSED CONSTRUCTION OF THE
400/50KV SUBSTATION BETWEEN JUNO AND AURORA SUBSTATIONS
AND THE CONSTRUCTION OF THE 20KM 400KV LOOP IN AND LOOP OUT
LINES, WESTERN CAPE PROVINCE.**

**DEAT REF NO: 12/12/20/1168
HESSA REF NO: ESK0001/2008**

POLOKWANE: APRIL 2008

PREPARED BY:

NZUMBULULO HERITAGE SOLUTIONS

Suite #345,
Postnet Library Gardens
Private Bag X9307
Polokwane
0700

Tel: 015 297 8066

Fax: 015 297 0059

E-mail: hessa5@telkomsa.net

www.hessa.co.za



Nzumbululo
heritage solutions south africa

TABLE OF CONTENTS

TABLE OF CONTENTS.....	i
REPORT DETAILS.....	iii
DEFINITIONS.....	iv
2 PROJECT BACKGROUND INFORMATION.....	- 6 -
2.1 INTRODUCTION.....	- 7 -
2.2 DESCRIPTION OF THE PROPOSED PROJECT.....	- 7 -
2.3 PROJECT TEAM MEMBERS.....	- 7 -
2.4 PROJECT LOCATION.....	- 8 -
2.5 PROJECT TIMEFRAME.....	- 8 -
2.6 TECHNICAL DETAILS OF THE PROPOSED SUBSTATION AND LOOP-IN AND LOOP-OUT LINES.....	- 8 -
3.1 SUBSTATION.....	- 10 -
3.2 LOOP-IN AND LOOP-OUT POWER LINE.....	- 10 -
PUBLIC PARTICIPATION.....	- 10 -
4.1 STATUTORY REQUIREMENTS.....	- 11 -
6 DISCUSSION OF THE PROJECT ALTERNATIVES.....	- 15 -
6.1 STRATEGIC ALTERNATIVES.....	- 15 -
6.2. TECHNICAL ALTERNATIVES:.....	- 15 -
6.3 SITE ALTERNATIVES.....	- 15 -
6.4 ROUTE ALTERNATIVES.....	- 16 -
6.6. NO-GO OPTION.....	- 16 -
7 BASELINE INFORMATION.....	- 17 -
7.1 BACKGROUND INFORMATION OF THE RAILWAY LINE.....	- 17 -
7.2. ACCESSIBILITY OF THE PROPOSED DEVELOPMENT AREA.....	- 17 -
7.3 INFRASTRUCTURES.....	- 17 -
7.4 TOURISM POTENTIAL.....	- 18 -
7.5. AIR QUALITY.....	- 18 -
7.6 NOISE.....	- 19 -
8.1 THE POTENTIAL IMPACTS.....	- 20 -
8.1.10 Infrastructure and Services.....	- 23 -
•8.2 SPECIALIST STUDIES.....	- 24 -
8.3 ENVIRONMENTAL IMPACTS EVALUATION.....	- 25 -
9.1 SITE INSPECTION.....	- 27 -
9.2 LITERATURE REVIEW.....	- 27 -
9.3 GEOGRAPHIC INFORMATION SYSTEMS.....	- 28 -
9.4 PUBLIC PARTICIPATION PROCESS.....	- 28 -
9.5 IMPACT ASSESSMENT.....	- 29 -

List of Tables

- Table 1: Project team Members
- Table 2: Project Environmental Assessment Practitioner
- Table 3: List of the Specialist Consultants
- Table 4: Listed Activity
- Table 5: Impact Duration rating
- Table 6: Impact extent rating
- Table 7: Impact intensity rating
- Table 8: Impact significant rating
- Table 9: Impact probability rating
- Table 10: Degree of Confidence

REPORT DETAILS

PROJECT NAME:	EIA FOR THE CONSTRUCTION OF THE 400/50KV SUBSTATION BETWEEN JUNO AND AURORA SUBSTATIONS AND THE CONSTRUCTION OF THE 20KM 400KV TURN IN LINES, WESTERN CAPE PROVINCE.
REPORT TITLE:	SCOPING REPORT FOR THE PROPOSED CONSTRUCTION OF THE 400/50KV SUBSTATION BETWEEN JUNO AND AURORA SUBSTATIONS AND THE CONSTRUCTION OF THE 20Km 400KV TURN IN LINES, WESTERN CAPE PROVINCE.
AUTHOR: SIGNATURE:	MONICA MOKGAWA
CHECKED BY: SIGNATURE:	
CLIENT REFERENCE NO.	JC10087284
HESSA REFERENCE NO.	EIA 2008
DEAT REFERENCE NO.	12/12/20/1168
STATUS OF THE REPORT:	DRAFT REPORT
FIRST ISSUE:	APRIL 2008
<p>P.S.P APPROVED FOR PSP BY HEAD OF DEPARTMENT:</p> <p>-----</p> <p>DATE: April 2008</p>	

DEFINITIONS

“**Air pollution**” means any change in the composition of the air, caused by smoke, soot, dust (including fly ash), cinders and solid particles of any kind, gases, fumes, aerosols and odorous substances.”(air quality act, 2004).

“**Alternative**” means a different means of meeting the general purpose and need of a proposed activity.” (Guideline 5, June 2006).

“**Construction**” means the building, erection or expansion of a facility, structure or infrastructure that is necessary for the undertaking of an activity, but excludes any modification, alteration or upgrading of such facility, structure or infrastructure that does not result in a change to the nature of the activity being undertaken or an increase in the production, storage or transportation capacity of that facility, structure or infrastructure;”(R386, 2006)

“**Interested and affected party**- refers to:

- (a) any person, group of persons or organisation interested in or affected by an activity; and
- (b) any organ of state that may have jurisdiction over any aspect of the activity;” (R385,2006)

“**linear activity**- means an activity that is undertaken across several properties and which affects the environment or any aspect of the environment along the course of the activity in different ways, and includes a road, railway line, power line, pipeline or canal;” (R385,2006)

“**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.”(R385, 2006)

“**Plan of study for environmental impact assessment**- means a document contemplated in regulation 29(1)(i) which forms part of a scoping report and sets out how an environmental impact assessment must be conducted;”(R385,2006)

“**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.”(R385,2006)

Water use is defined broadly, and includes taking and storing water, activities which reduce stream flow, waste discharges and disposals, controlled activities (activities which impact detrimentally on a water resource), altering a watercourse, removing water found underground for certain purposes, and recreation.

PROPOSED CONSTRUCTION OF THE 400/50KV SUBSTATION BETWEEN JUNO AND AURORA SUBSTATIONS AND THE CONSTRUCTION OF THE 20Km 400KV TURN IN LINES, WESTERN CAPE PROVINCE

SCOPING REPORT

1. EXPERTISE OF THE ENVIRONMENTAL ASSESSEMENT PRACTITIONERS

Regulation 17 of the regulations published in the Government Notice No. R385 of April 2006, (regulations published in line with Chapter 5 of the National Environmental Management Act [NEMA], Act No. 107 of 1998). The regulation requires the applicant (Eskom Transmission) to appoint an Environmental Assessment Practitioner (EAP) who will facilitate the environmental authorisation process” (EIA Regulation, 2006). Eskom Transmission appointed Nzumbululo Heritage Solutions to facilitate the environmental authorisation process for construction of the proposed Aurora and Juno Substation and associated turn in power lines between Aurora and Juno Substations in Cederberg Local Municipality, Western Cape Province.

The general requirements and responsibilities of the Environmental Assessment Practitioner (EAP) are outlined in Regulation 18 published in the Government Gazette R385 of April 2006. The regulation highlight (among others) that the “EAP should be independent and; have expertise in conducting environmental impact assessments, including knowledge of the Act, these Regulations and any guidelines that have relevance to the proposed activity.”(EIA regulation, 2006).Nzumbululo Heritage Solution designated the EAP’s listed below.

Table 1.1: Project Environmental Assessment Practitioners.

NAME OF THE EAP	QUALIFICATIONS	POSITIONS FOR THIS PROJECT
Nonhlanhla Nobanda	B.Sc Environmental Health	Study Leader, Environment
Hellen Mlotshwa	B.Sc Environmental Health	Environmental Officer
Monica Mokgawa	N.D Environmental Management	Environmental and GIS Officer
Pinky Monyela	BSc. Environmental Management (3 rd Year Student)	Student Intern

1 EXECUTIVE SUMMARY

Eskom Holding Limited has an obligation to supply electricity to its customers. One of these customers, Spoornet would like to more than double the carrying capacity of the Sishen-Saldanha railway line from 29 Mega tons to 67 Mega tons per annum. This requires a substantial increase in the number of locomotives along the railway route. In order for Eskom Holding Limited to meet Spoornet's need, Eskom Transmission has to construct five new substations in-between existing substations along the Sishen-Saldanha Transmission powerline from which the railway lines acquire power. These substations will reduce the physical length of the 50kv reticulation system which in turn allows for increased load ability of the 50kv system along the railway line.

Five different Environmental Impact Assessment (EIA) applications, one for each proposed substation and associated loop-in and loop-out powerlines, have been lodged with the National Department of Environmental Affairs and Tourism (DEAT). The present Draft Scoping Report focuses on the construction of a 400/50kv substation to be situated between Aurora and Juno and the construction of a 20km 400kv loop-in and loop-out lines to link the new substation to the Aurora-Juno 400kv transmission line.

Three alternative sites have been identified for the proposed construction of the Substation. The final location will determine which loop-in and loop-out line route will followed from the proposed substation to the tracking station along the Sishen-Saldanha Spoornet railway line.

2 PROJECT BACKGROUND INFORMATION

2.1 INTRODUCTION

The mining industry in the Sishen area seeks to increase their iron ore and manganese export. To achieve this, the industry requires increased rail transport capacity for the existing Sishen –Saldanah export railway line. “In order to meet the iron and the manganese ore export demands arising from the expansion of mining activities in the Sishen area, the ore export [carrying] capacity of the Sishen – Saldanah export railway line needs to be increased” (SHE, 2007). As such, Transnet freight rail has proposed to increase the capacity of the Sishen –Saldanah railway line from the current 29 Mega tons per annum to 69 Mega tons per annum. In order to meet this target new substations and the associated loop-in and loop-out lines have been proposed along the transmission powerline between Sishen and Saldanah Bay. Eskom Transmission appointed Nzumbululo Heritage Solutions to investigate the environmental impacts associated with the construction of new Aurora-Juno substation and the associated 20km 400kV Loop-in Loop-out powerlines. Nzumbululo Heritage Solutions conducted the scoping process for the construction of the proposed project as part of an EIA process. This Draft Scoping Report was produced in compliance with Regulation 29 published in the Government Notice No. R385 of April 2006.

2.2 DESCRIPTION OF THE PROPOSED PROJECT

The proposed project includes the following activities:

- Construction of the 400kv/50kv substation within an area of 500m x 500m
- Construction of the about 20km 400kv loop-in and loop-out powerlines
- Construction of the access road

2.3 PROJECT TEAM MEMBERS

Table 2.1: Below outlines the details of the project team members

DETAILS OF THE PROJECT APPLICANT	DETAILS OF THE ENVIRONMENTAL IMPACT PRACTITIONERS
ESKOM TRANSMISSION P.O. Box 1091 Johannesburg 1091	NZUMBULULO HERITAGE SOLUTIONS Suite 345 Postnet Private Bag X9307 Polokwane 0700
Contact Person: Mmamoloko Seabe Telephone .no. : 011 800 5601 Fax no.: 011 800 3917 e-mail : Mmamoloko.seabe@eskom.co.za	Contact Person: Nonhlanhla Nobanda Telephone no.: 015 297 8066 Fax no.: 015 297 0059 e-mail: hessa5@telkomsa.net

2.4 PROJECT LOCATION

The project area is located in Clan William in Cederburg Local Municipality, Western Cape Province. The project area is situated in the area predominantly used for sheep farming. It falls within the Skerpheuwel 232 and Louis Klipheuwel 223 farms. The proposed loop in-loop-out transmission powerlines will link the existing Eskom Transmission substation of Aurora and Juno to a new substation between Aurora-Juno substations. The study area is located at the following co-ordinates readings: S32° 16'02.2" and E018 °25'14".

2.5 PROJECT TIMEFRAME

The schedule of tasks below has been created on the assumption that the Scoping Report will be approved by the National Department of Environmental Affairs and Tourism.

ACTIVITY	DATE
Submission of Final Draft Scoping Report and Plan of Study for EIA	20 June 2008
Approval of Scoping Report and Plan of Study by DEAT	25 July 2008
Resume PPP	28 July 2008
Circulation of Draft EIR to I&APs (including specialist reports)	01 September 2008
Comments from I&APs	15 September 2008
Final EIR (including Issues and Response Report) to DEAT	20 October 2008
Notification to I&APs of outcome of Environmental Authorisation	22 December 2008

2.6 TECHNICAL DETAILS OF THE PROPOSED SUBSTATION AND LOOP-IN AND LOOP-OUT LINES

2.6.1 Substation

The construction of the proposed substation will involve:

- Construction of the 400/50kv substation
- Construction of 2 X 40MVA 400/50kV single-phase transformers
- Construction of the 400kV double bus bar
- 2 X 150MVA series caps (one on the incomer and the second on the outgoing feeder)

2.6.2 400kV Loop-in and Loop-out Transmission Powerlines

The proposed loop-in and loop-out line, pylon type and servitude details are as follows:

- 400kV overhead Transmission line
- Pylon construction will typically be cross-rope suspension design, 35 – 40m high (Plate 2.2), or a compact cross-rope suspension design (see Plate 2.2 below) of similar dimensions.
- Strain towers may be required on difficult terrain and on bends greater than 3° (Plate 2.1),

- Single-pole lattice structures with anchor guys may also be used on bends as appropriate. These are much less visually intrusive and are cheaper than conventional strain towers (Plate 2.3).
- Conductor ground clearance between towers is 8.1m
- Maximum operational height under conductors of 4.0m
- Servitude width 55m (27.5m either side of centre line).

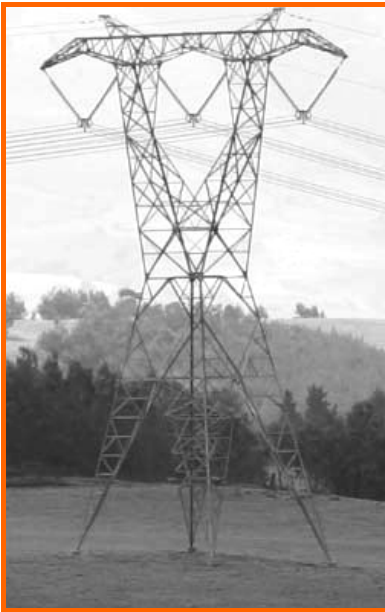


Plate 2.1: Example of strain tower type.



Plate 2.2: Example of compact cross rope suspension tower types



Plate 2.3: Example of a single pole steel lattice pylon.

3 PROPOSED STUDY APPROACH

3.1 SUBSTATION

Given the three alternative sites evaluated, the proposed substation will be located on ground that have already been disturbed and used during the construction of the existing infrastructure such as farm boundary fence lines, access roads and livestock grazing and existing powerlines, it prudent that a detailed Scoping Study for entire project area be undertaken. An EIA Application was submitted to DEAT and the study was approved proceed on this basis. The Scoping Report and Plan of Study are therefore prepared and submitted for approval by DEAT.

3.2 LOOP-IN AND LOOP-OUT POWER LINE

Three alternative servitude routes were identified and each is linked to alternative substation sites. The servitude route under study will link the newly proposed substation to the Sishen-Saldanha Transmission powerline and the railway line traction station.

3.3 PUBLIC PARTICIPATION

The public participation process is defined as the study phase during which potential interested and affected parties are given the opportunity to comment and raise issues on specific matters regarding the proposed development. SHE cape environmental consultants were sub-contracted by Nzumbululo Heritage Solutions to facilitate the Public Participation process for the proposed construction of Aurora-Juno Substation. The Public participation process is conducted in accordance with the minimum requirements of Chapter 6 of the Government Notice No.R385 of April 2006 (EIA Regulations, Chapter 5 of the National Environmental Management Act, Act 107 of 1998).

Regulation 56 (Government Notice No. R385) broadly specifies that:

- Notice of the application is given to all Interested and Affected parties.
- Information containing the relevant facts in respect of the application is made to Interested and affected parties.
- Interested and affected parties are provided with a reasonable opportunity to comment.

The following activities were undertaken as part of the public participation process during the Scoping phase.

- Give written notice to the owners and occupiers of the land adjacent to the site.
- Give written notice to the Municipalities, landowners within 100m boundary of the site.
- Place an advert in the local and National newspapers
- Place the notice board within the proposed project site
- Conduct the public meetings in which interested and affected parties were invited

Distribute the Draft Scoping report for public review in local libraries and municipal offices.

4 LEGISLATION FRAMEWORK AND GUIDELINES

4.1 STATUTORY REQUIREMENTS

The proposed development is a listed activity in terms Sections 24 and 24D of the NEMA, Act 107 of 1998. Listed activities requires environmental authorisation by a competent authority (the Department of Environmental Affairs and Tourism [DEAT]) before the construction phase of the project. An activity of this nature is considered to have the potential to cause significant impacts on the affected environments.

4.1.1. Project Specific Legislation

The proposed project comprises of activities listed in the Government Notices No.R387 and R386. Table 4 below represents listed activities for the proposed development:

Table 3.1: Listed activities

Government Notice and activity number	Description of the Listed activity(in terms of the government notice)	Description of the proposed activity
R387: 1(L)	The construction of facilities or infrastructure, including associated structures or infrastructure, for transmission and distribution of above ground electricity with a capacity of 120 kilovolts or more.	Construction of the 20km 400kv loop in and loop out power lines
R387:1(A)	The construction of facilities or infrastructure, including associated structures or infrastructure, for the generation of electricity where –The elements of the facility cover a combined area in excess of 1 hectare;	Construction of the 400kv/50kv substation within an area of 500m x 500m
R386:15	The construction of a road that is wider than 4metres or that has a reserve wider than 6metres excluding roads that fall within the ambit of another listed activity or which are access roads of less than 30metres.	Construction of the access roads
R386: 1(P)	The temporary storage of hazardous waste.	Temporary hazardous waste storage area within the substation yard

4.1.2 Applicable Legislative Requirements

The following legislation is applicable to the proposed development:

- National Environmental Management Act, act no 107 of 1998: Control of Environmental Management.
- Occupational Health and Safety Act (Act no 85 of 1993): Controls the exposure of employees_and the public to dangerous and toxic_substances or activities.
- Conservation of Agricultural Resources Act (Act no 43 of 1983): Control of the utilisation and protection of wetlands, soil conservation and related matters,_control and prevention of veld fires, control of weeds and invader plants, the control of water pollution from farming practices.
- Hazardous Substances Act (Act no 15 of 1973): Control of substances capable of causing injury, ill-health or death.

- Forest Act ,act 84 of 1998: Control of veld, forest and mountain fires and the protection of biota and ecosystems
- Atmospheric Pollution Prevention Act (Act no 45 of 1965): Control of all forms of air pollution, e.g. smoke, dust and vehicle emissions.
- Environment Conservation Act (Act no 73 of 1989) and Regulations under the act: Matters relating to conservation, littering, combating of noise, etc.
- Fencing Act (Act no 31 of 1963): Prohibition of damage to a property Owner's gates and fences.
- South African Transport Services Act (Act no 65 of 1981): Control on all environmental matters of SA Transport Services properties.
- National Water Act (Act no 36 of 1998): Control of the conservation and use of water for domestic and industrial purposes; treatment and disposal of waste and waste water and pollution of surface and ground water.
- National Heritage Resources Act, act no. 25 of 1999: Control of heritage resources.
- Advertising on Roads and Ribbon Development (Act No 21 of 1940): Prohibition of leaving refuse, and erection and construction of structures near certain roads.

4.1.3 EIA REGULATIONS AND GUIDELINES

- EIA regulation R386 (2006), Department of Environmental Affairs and Tourism, Pretoria.
- EIA regulation R387 (2006), Department of Environmental Affairs and Tourism, Pretoria.
- EIA regulation R385 (2006), Department of Environmental Affairs and Tourism, Pretoria.
- DEAT (2005) Guideline 3: General Guide to the Environmental Impact Assessment Regulations, 2005, Integrated Environmental Management Series, Department of Environmental Affairs and Tourism, Pretoria.
- DEAT (2005) Guideline 4: General Guide to the Environmental Impact Assessment Regulations, 2005, Integrated Environmental Management Series, Department of Environmental Affairs and Tourism, Pretoria.
- DEAT (2005) Guideline 5: General Guide to the Environmental Impact Assessment Regulations, 2005, Integrated Environmental Management Series, Department of Environmental Affairs and Tourism, Pretoria.

4.1.4 ESKOM GUIDELINES

Eskom has some form of dominance of the national development scene. As such the organisation can be listed as one of the major developer at national level. As such, the organisation has developed detailed additional environmental management guidelines for their proposed developments which serve to support the national and regional legislations and regulations. The following regulations, guidelines and policies are worth mentioning here:

- Air quality management policy (ESKPBA3)

- The control of dust exposure within Eskom (ESKADAAD6)
- Environmental Impact Assessment (ESKPVAAL7)
- Passive fire protection for oil filled equipment in high voltage yards (FSGASAAQ8)
- Standard for bush clearance and the maintenance of overhead powerlines (ESKASABG3)
- Guidelines for weed eradication at Eskom substations using herbicides (TRR/S.92/034)
- Oil spill clean-up and rehabilitation (ESKAGAAD7).

5. DESCRIPTION OF STUDY AREA

The location and general data relating to the Substation and the associated Loop-in and Loop-out Lines are given in the map and data sheet in Appendix 1. The Loop-in and Loop-out will link the proposed Aurora-Juno Substation with the existing Aurora substation, Juno Substation and the Sishen–Saldanha 400kV Transmission line. The study primarily focussed on the 20km long corridor for proposed Loop-in and Loop out lines and the site for the Proposed Substation development site and associated access road development.

The affected project area is predominantly Karoo landscape with very limited human occupation. The area is predominantly sheep-farming land. Given the lack of human occupation and sparse vegetation and uniform topography, the visual quality of this area may be defined as low. Views of the Loop-in and Loop-out lines will be consistent given the uniform nature of the terrain. Transmission powerline and associated infrastructures already exist in this project area.

The land cover is characterised by Karoo bushveld vegetation type with large sections of which remain little affected by land-use practices and are in good condition, though some areas of Karoo bushveld occur where disturbances (sheep-grazing) have occurred and some sections have been disturbed by past impacts (e.g. access farm roads and track crossing, erosion, farm boundary fence lines). The Karoo bushveld attract a number of bird species that are sensitive to power lines mainly through collision with earth wires, insulator pollution, nesting on power lines and electrocution. These birds include Cattle Egret, African fish-eagle, Greater Flamingo and lesser flamingoes. It is estimated that there are power line sensitive Red Data bird species in the study area (more data will image from the specialist studies). The ecology of the area is generally seen to be robust given the nature of substation and power line developments. The study area falls within the Karoo bushveld where a number of Red Data plants are recorded.

Apart from impacts on birds, other fauna in the area is mobile and should move away from the areas during construction. However, there are a number of protected species that will need to be avoided and will require care in the construction phase.

Land use is primarily extensive livestock grazing of predominantly sheep. The area is also sparsely populated with very isolated clusters of farm homesteads scattered in the area.

6 DISCUSSION OF THE PROJECT ALTERNATIVES

6.1 STRATEGIC ALTERNATIVES

To meet the required standard of reliability capacity of power supply from Sishen–Saldanah Transmission line, to the railway line, a new substation with the associated Loop-in and Loop-out lines will be required. As part of the planning exercise, Eskom investigated different options and identified their best technical and cost options for the proposed development. The loop-in and loop-out lines will link the railway powerline directly to a Transmission substation. The loop-in and loop-out lines will be approximately 20km, and both will be through terrain of uniform environmental sensitivity. Hence, preference is given to developing a Loop-in link to the Sishen–Saldanah line running directly from the proposed substation.

6.2. TECHNICAL ALTERNATIVES:

The main technical alternative to the overhead power lines is the possible ‘under grounding’ of the power lines. There are both environmental and cost implications of this option that are described in more detail in several other studies for similar developments. This alternative has not been considered further in this study of the Loop-ins. There is no technical alternative to the proposed substation.

6.3 SITE ALTERNATIVES

Three alternative sites were identified for the proposed substation development which is located at approximately 80km from the existing Juno substation and Aurora substation. The identified alternative sites are located at the following co-ordinate points: Refer to appendix 1.

1. Preferred Alternative 1a: S32°16'02.2", E018°25'14.4.
2. Alternative 1b :S32°15'41.0", E018°25';31.6"
3. Alternative 1c : S32°15'51.2", E018°25'21.8"

The above sites are located close to each about 300m apart. All these sites are densely vegetated with various tree species. There is a view of the Olifantsburg Mountain on the eastern side of these sites as shown in plate 6.1 below. The Grootberg Mountain can be seen on the south eastern side of the proposed sites. The Atlantic Ocean is on the west of these proposed sites. Site 1c is on sloppy ground hence it can not be recommended for the substation location. Site 1c is located opposite sites 1a and 1b and there is no access to the site thus site 1a would be the most preferred site for the proposed development. All these sites are adjacent to road R364 to Elandsbaai which is approximately 15km from the proposed sites.



Plate 6.1: View of the Olifantsburg Mountain

6.4 ROUTE ALTERNATIVES

The alternative routes for the power line (Appendix 3) would be from the proposed substation to the proposed traction station, the preferred route will be the shortest between the new substation and the traction station. This is particularly because the line will traverse through a generally uniform landscape and the shortest route will ensure minimum environmental impacts. In this case the routes to be considered are routes 1a and 1b.

6.5 DEMAND ALTERNATIVES

The demand for iron and manganese ore export from the Sishen mining area has increased and consequently, the upgrading of the existing infrastructures including the railway carrying capacity is a necessity. This includes the upgrading of the existing power supply services (substations and powerlines). However, no other alternative energy sources were identified at this stage.

6.6. NO-GO OPTION

It should be noted from the onset that the no-go alternative not feasible or implementable in this case. All the developments and socio-economic developments in the project area are pinned on sustainable railway transportation between Sishen town and Saldanah Bay. The no-go option would mean that the proposed development and the rail upgrade projects would not take place.

7 BASELINE INFORMATION

7.1 BACKGROUND INFORMATION OF THE RAILWAY LINE

In 1953, Iscor (Iron and Steel Corporation) discovered the iron deposit of 4000 million tons near Sishen in the Northern Cape Province. Iscor started mining the high grade iron-ore and the project created a large scale iron-ore export in South Africa. Saldanah bay was chosen as the best harbour for the export of the ore. This led to the construction of an 861km railway line which connects the iron-ore mines with the Sishen bay harbour in the Western Cape. The railway line was constructed by the Transnet largest division called Transnet Freight Rail (also known as Spoornet). Even though the railway line was primarily constructed to transport the iron-ore, it is currently transporting other minerals such as zinc, salts, gypsum and coal. The trains which carry the ore to the harbour normally consist of 228 wagons, 342 and 420 wagons. On a historical note, in 1989 the Sishen –Saldanah railway line was recorded in the Guinness book of World records .The record was set when the heaviest and longest train used the Sishen-Saldanah railway line. The train was 7.303km long, weighing 7120 metric tons pulling 660 wagons. The train was travelling at the maximum speed of 80km/h.

7.2. ACCESSIBILITY OF THE PROPOSED DEVELOPMENT AREA

The project area can be accessed from the Road N7 to Clanwilliam Town and road R365 from Clanwilliam town to Elandsbaai. Elandsbaai is located at approximately 200km from Cape Town. The proposed substation and Loop-in and Loop-out lines project sites are accessible through the current Transnet maintenance road next to the railway line.

7.3 INFRASTRUCTURES

The study area is predominantly used for commercial sheep farming. The existing infrastructure includes tarred roads and access gravel roads, electricity distribution powerline, telephone and water services. Picture 1 below shows the existing roads infrastructure of the study area.

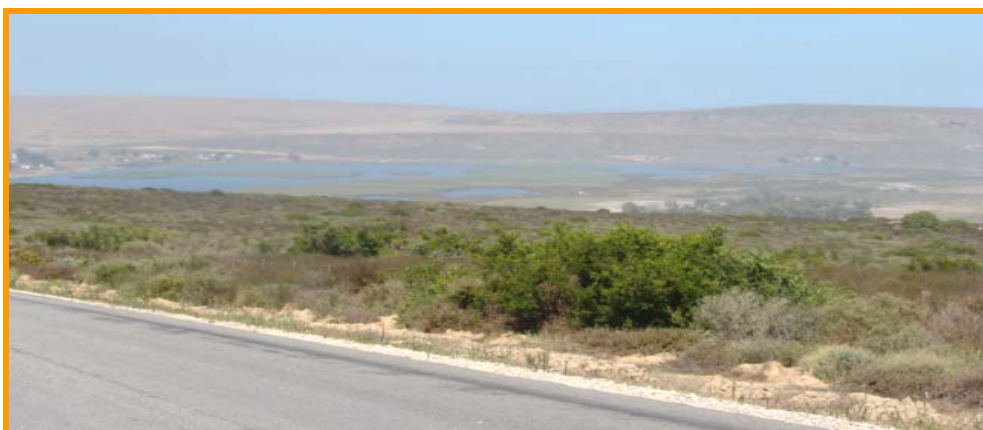


Plate 7.1: Road infrastructures in the project area. The Karoo bushveld in the background.

7.4 TOURISM POTENTIAL

The study area is located within the close vicinity to Cederberg Mountain range and the Atlantic coast line (Plate 7.2).



Plate 7.2: Cederberg Mountain range in the background as seen from the proposed substation development site.

Other famous sites in the general area include Elands Bay Cave, Wadrif Soutpan, Verlorenvlei (Ramsar site/bird watching area). Crop farming agricultural potential of the area is poor. Soils are sandy and shallow with largely poor retention capacity. The vegetation is typically Karoo and sparse, consisting mainly of *strandveld* (semi-succulent scrub) and *fynbos*, both of which are well adapted to the hot, dry conditions (Plate 7.3).



Plate 7.3: Typical soil types in the study area are sandy and the vegetation type is predominantly Karoo *fynbos*.

7.5. AIR QUALITY

The air quality of the study area is generally good to excellent due to the absence of major pollution sources. The current sources of air pollution are the loaded ore trains which disperse iron ore dust while travelling between Sishen and Saldanah. Only 1.58% of the iron ore being transported falls within the respirable particle size of $10\mu\text{m}$ (SHE cape, 2007). The emission concentration is very low compared to the proposed South African Noise Standard (SANS) particulate matter emission limit value of $75\mu\text{m}/\text{M}^3$.

7.6 NOISE

“The ambient noise level of the project area derives from train traffic on the ore railway line, Transnet personnel, farmers and public vehicles. The residual noise levels during the absence of train operations are 30dBA during the day and 27dBA during the night time. The ambient noise levels (which include train activity) are 65dBA during the day and 64dBA during the night time” (SHE cape, 2007). There are no noise sensitive areas in the affected project area as defined by the noise management standards SANS 0328-2001 methods for Environmental Noise Impact assessments. Noise sensitive areas would include:

- Educational, residential, office and health care buildings and their surroundings,
- Churches and their surroundings,
- Auditoriums and concert halls and their surroundings,
- Recreational areas and Nature reserves.

8. POTENTIAL ENVIRONMENTAL IMPACTS

The identification of the potential impacts of an activity on the environment should include impacts that may occur during the commencement, operation and termination of an activity. The process of identifying and assessing the potential impacts includes the:

- Determination of the current environmental conditions in sufficient detail so that there is a baseline against which impacts can be identified and measured,
- Determination of future changes to the environment that will occur if the proposed activity does not take place,
- An understanding of the activity in sufficient detail to understand its consequences, and
- The identification of significant impacts which are likely to occur if the activity is undertaken.

8.1 THE POTENTIAL IMPACTS

The proposed development will certainly alter the current state of the environment that exists in the project area. The following are possible impacts that may be anticipated from the proposed substation and Loop-in and Loop-out powerline development:

- Impact on avi-fauna;
- Increased surface water runoff and increased erosion along river banks
- Floral destruction;
- Geotechnical suitability and stability;
- Destruction of riverine habitat;
- Faunal displacement and destruction;
- Visual intrusion;
- Health, safety and security risks;
- Social Impact;
- Impact on tourism activities;
- Loss of high agricultural potential land; and
- Development on land with a historical value and heritage resources

The scoping process identified some of the potential impacts anticipated during the proposed construction of 400kV/50kV substation and the associated 400kV Loop-in and Loop-out lines in the project area. The identification of the potential impacts of an activity on the environment should include impacts that may occur during the commencement, operation and termination of an activity. The process of identifying and assessing the potential impacts includes the:

- Determination of the current environmental conditions in sufficient detail so that there is a baseline against which impacts can be identified and measured,

- Determination of future changes to the environment that will occur if the proposed activity does not take place,
- An understanding of the activity in sufficient detail to understand its consequences, and
- The identification of significant impacts which are likely to occur if the activity is undertaken.

The impacts described below are not exhaustive as the process is ongoing.

8.1.1 Biodiversity

Any alteration to the status quo in any bioregion will result in some form of impact on the biodiversity. The same applies to the proposed development. Vegetation will be cleared for the construction camps as well as for the servitude corridor and the substation site. This will result in loss of both fauna and flora species on affected areas. There will be habitat loss and degradation as a result of the vegetation clearance and natural environmental processes such as soil erosion will be affected.

As a result of increased human activities and noise during construction phase, animal species may migrate in search of other habitats consequently altering the existing ecosystem in the area. Birds may be electrocuted by powerlines in three possible ways: simultaneously touching an energised wire and a neutral wire. Simultaneously touching two live wires and an energised wire, and any other piece of equipment on a pole or tower that is bonded to the earth through a ground wire (Transmission Bird Collision Prevention Guide, 2005).

8.1.2 Land Use

Current or future land uses may be affected due to the proposed construction of the substation and powerlines. Loop-in and Loop-out lines usually run across various property boundaries and livestock camps. Boundary fences may temporarily be damaged during construction. In some instances, due to human error, farm access gates may be left open resulting in the unplanned integration of livestock. The land earmarked for the proposed development is currently used for livestock ranching and the proposed construction of the substation will result in changes of the spatial-temporal land use.

8.1.3 Visual Impact

All construction activities would involve the use of variety construction equipment, stockpiling of soils, materials and other visual signs. While evidence of such will be visual to the farm owners and others in the nearby vicinity, such visual disruptions will be short term and limited to the construction phase only. The final substation and the associated transmission loop-in and loop-out lines will leave long-term visual presence on the landscape that will last through out the life-cycle of the infrastructures to be installed. The project area may be described as having a moderate visual quality due to a lack of visual

diversity, but the area has a distinctive tranquil rural character and a low to moderate visual absorption capacity (a measure of the ability of a landscape to visually accept a land change or development).

8.1.4 Archaeological/Heritage Resources

Cultural heritage resources can be broadly defined as physical features, both natural and man-made, which are associated with human activity. Heritage resources would include both tangible and intangible resources such as archaeological resources, palaeontological remains, meteorites, historical sites and beliefs systems, religious practices, ideas and oral traditions respectively. The National heritage Resources Act (Act No.25 of 1999) regards the following as heritage resources:

- Places ,building structures and equipment,
- Places to which oral traditions are attached
- Places which are associated with living heritage
- Historical settlements and townscapes
- Landscapes and natural features
- Geological sites of scientific or cultural importance
- Graves and burial grounds.

Any development that alters the status quo has the potential to impact upon any of the listed heritage resources particularly during construction phase.

8.1.5 Water Resources

Construction grading and utility excavations for the substation site and pylons would increase the sediment load in storm water during rainfall events. Sediment sources created during construction include soil stockpiles and soil tracked across construction areas, debris resulting from the installation of electric pole foundation. These sediment loads could be deposited into the water bodies close to the site.

81.6 Soil

Soil has an important role in the environment as it supports biodiversity and provides for physical base for plants, buildings and other infrastructure. Soil structure will be disrupted during the digging of foundation for the new substation, pylons for the powerline and during any construction-related excavation works.

Continuous movement of heavy machinery to and from the construction sites will result in soil compaction thereby reducing its capacity to hold water which will in turn result in increased runoff during the rainy season. Fuel leakages and accidental oil spills from construction vehicles and machinery have the capability of contaminating soil once they infiltrate into the soil, this indirectly also affects plant

growth in the near future. Mixing of cement on unpaved surfaces during construction will result in change of soil chemical alkalinity/ acidity levels there creating disequilibrium in the soil fertility hence indirectly affecting flora.

Such an effect will be short term limited to the construction phase and to construction sites only. The significance of the impact can be minimised if mitigation measures are implemented.

8.1.7 Noise

Noise levels are expected to increase during the construction activities. The noise will be limited to the construction phase. The level of the noise impact can be minimised if mitigation measures are implemented.

8.1.8 Air Quality

The quality of the air will be impacted on and the sources are likely to emanate from: increased emission of exhaust gases from construction vehicles, dust during excavation works, digging of foundations, stock piled soils, unsealed access roads and open fires.

8.1.9 Health and Safety

There are construction related health and safety concerns usually associated with any kind of construction work. Exposing construction workers to excessive and continuous dust generated by construction-related activities, for example construction vehicles running on un-surfaced access roads and noise, will affect the workers' health. Such exposure to dust may aggravate conditions such as asthma. Exposure to excessive levels of noise may result in temporary deafness, shock and discomfort. From legislative perspective, the legislation requires that contractors to comply with the Occupational Health and Safety regulations (OHS Act), unemployment Insurance Fund (UIF) and employment equity principles.

8.1.10 Infrastructure and Services

Powerlines often intersect or are aligned in close proximity to existing infrastructure and services such as roads, railway lines, telecommunication lines and other existing powerlines. There could be temporary disruption of services during construction of the powerline and services.

8.1.11 Socio Economic

Employment opportunities may arise during the construction phase of the proposed project. However, by the technical and specialised nature of the proposed construction, most job opportunities will be in unskilled labour for activities that do not require the use of machinery. Nonetheless, job opportunities will be created in the pre-construction, construction, operation and maintenance phases of both the

substation and associated lines. From the expert and skilled labour perspective, Eskom contractors will have to bring required high skills from outside. The project area is situated in commercial farming and sparsely populated region making it difficult to recruit labour from project vicinity. Due to skills level required for the actual construction of the substation and the loop-in and loop-out lines, local are usually engaged in work does not require a substantial amount of skill, e.g. , manual activities, vegetation clearance, erection of gates and security guards.

There are business opportunities associated with the increased economic activities in the project area during construction, operation and maintenance of the proposed infrastructure development. However, it will be challenging for Eskom to identify qualifying contractors in the project area. Normally Eskom appoints specialised (national) contractors, and in some cases even international contractors due to the fact that local contractors do not have sufficient capacity to handle the workload. In view of the number of Eskom projects that have to be completed within the next years, the availability of qualifying local contractors is difficult.

8.1.12 Topography

The topography of the area will determine the level of visual exposure of the powerline and substation. The substation will be visible if it is located on an elevated landscape.

8.2 SPECIALIST STUDIES

The appointment of specialists to conduct specialist studies is done to fulfill the minimum requirements of Regulation 33 in the Government Notice No.R385 of April 2006. The contents of the specialist reports for this study were conducted in compliance with the requirements of Regulation 33(2) outlined in the same noticed referred to above. Nonetheless, the specialist studies for the proposed development will be presented in detail in Environmental Impact Assessment Report (EIAR) that will result from the EIA process. The following key environmental issues will be investigated in detail during the EIA phase:

- Noise Impacts
- Ecological impacts
- Change of the current land uses
- Cultural Heritage resources
- Visual impacts and landscape
- Air pollution sources (dust)
- Surface and ground water resources
- Agriculture and land capabilities

The following specialists were sub-contracted by Nzumbululo Heritage Solutions to investigate key potential impacts further (Table 8.1).

Table 8.1: List of Specialist Consultants

Area of specialisation	Name of specialist	Name of the specialist institutions
Public participation process	SHE Cape	SHE Cape
Avi-faunal studies	Jon Smalie	Endangered Wildlife Trust
Geo-technical studies	Eskom(internal)	Eskom
Ecological Studies	Dr Wynand Vlok	Specialist Consultant
Archaeological and Heritage studies	Dr Mc Edward Murimbika	Nzumbululo Heritage Solutions

8.3 ENVIRONMENTAL IMPACTS EVALUATION

Once potential impacts are identified, they will be measured, assessed and evaluated. The following rating measures will be used:

1. Duration
2. Extent
3. Intensity
4. Significance
5. Status of impact
6. Probability and
7. Degree of confidence

8.3.1: Duration

Duration of identified impacts are measured in line with the time period the impact is anticipated to last within the affected environment (Table 8.2).

Table 8.2: Impact duration rating

RATING	DESCRIPTION
Short term	0-5 years
Medium term	5-15 years
Long term	Where the impact will cease after the operational life of the activity
Permanent	The impact will occur even after the operational and decommissioning of the project has occurred.

8.3.2: Extent of the Impact

Extent defines the physical extent or spatial scale of the impact (Table 8.3).

Table 8.3: Impact extent rating

RATING	DESCRIPTION
Local	Limited to the site and its immediate surroundings
Regional	Impact extends beyond site boundary, it can affect the Province
National	Impact is widespread, it can be Countrywide

8.3.3: Intensity

Intensity establishes whether the impact would be destructive or benign and negligible (Table 8.3.3).

Table 8.4: Impact intensity rating

RATING	DESCRIPTION
Low	Where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected.
Moderate (Medium)	Where the affected environment is altered but natural, cultural and social functions and processes continue, although in a modified way.
High	Where natural, cultural and social functions or processes are altered to the extent that they will temporarily or permanently cease.

8.3.4: Significance

Significance evaluates the importance of a particular impact (Table 8.5).

Table 8.5: Impact Significance rating

RATING	DESCRIPTION
Very high	Impacts could either of high intensity at a regional or national level and last for a long time
High	These impacts could of high intensity at a regional level and last for a medium term or they could be of high intensity at a national level and go on for a short duration.
Moderate (Medium)	Impacts could be either of high intensity at a local level and endure in the medium term or of medium intensity at a regional level in the medium term.
Low	Impacts could both be of low intensity at a regional level and endure in the medium term or of low intensity at a national level in the short term.
Very low	Negligible

8.3.5: Status of the Impacts

The status of an impact is used to describe whether the impact would have a negative, positive or no effect on the affected or receiving environment.

8.3.6: Probability

Probability describes the likelihood of the impact occurring within the defined receiving environment during the proposed development and during operation phase of the development.

Table 8.6: Impact Probability rating

RATING	DESCRIPTION
Improbable	The possibility of the impact occurring is very low or unlikely
Probable	There is a possibility that the impact will occur.
Definite	The impact will definitely occur

8.3.7: Degree of Confidence

Degree of confidence indicates the level of impact predictions, based on the available information (see Table8.7)

Table 8.7: Degree of confidence

RATING	DESCRIPTION
High	Greater than 70% sure of impact prediction.
Medium	Between 35% and 70% sure of impact prediction.
Low	Less than 35% sure of impact prediction.

9 ENVIRONMENTAL IMPACT ANALYSIS AND STUDY METHODS

The detail of the impact assessment is given in the in Table 9.1. In order to effectively respond to potential environmental concerns or conflicts that may arise as a result of the proposed development, a systematic and comprehensive analysis of the environmental impacts needs be undertaken to guide society in resolving and addressing any environmental matters arising. Whereas environmental impact analysis includes specific statements, definitions, and delineation of specific environmental ‘problems or threats’, there are broad steps that may be defined as below.

9.1 SITE INSPECTION

A reconnaissance field survey and preliminary site inspections trips were made to the proposed project area. These field site visits were undertaken in order to obtain a general overview of the potential risks and key issues associated with the proposed development. Risks and key issues associated with the construction and operational phase were identified and addressed in consultation with the Interested and Affected Parties (I&APs) through an environmental screening process (using primary site data, GIS and other tools).

Potential risks and key issues identified include:

- Geotechnical suitability and stability;
- Destruction of habitat;
- Impacts on bird life;
- Increased surface water runoff;
- Floral destruction;
- Faunal displacement and destruction;
- Visual intrusion;
- Health, safety and security risks;
- Social Impacts;
- Impact on tourism activities;
- Loss of high agricultural potential land; and
- Development on land with a historical value and heritage resources

9.2 LITERATURE REVIEW

Secondary data exist on the project area’s environment. The following data sources have been sought as part of background review.

- Archaeological, palaeontological and heritage Databases from the Iziko Museums, SAHRA and Western Cape Heritage Council.
- Red Data Flora information.

9.3 GEOGRAPHIC INFORMATION SYSTEMS

There are several GIS data sources on the region in which the project area is situated. These provide known geographical data on affected natural and built environments. The following sources were consulted:

- Vegetation maps of South Africa
- Geological maps of Southern Africa
- Topographical maps
- Groundwater harvest potential of the Republic of South Africa
- Municipal demarcation board maps, etc.

9.4 PUBLIC PARTICIPATION PROCESS AND AUTHORITY CONSULTATION

The National Department of Environmental Affairs and Tourism (DEAT) is the competent authority for this project. An application form was submitted to DEAT on the 20th of March 2008 and an acknowledgement letter was received on the April with a reference number (12/12/20/1168). The reference letter required the Consultant to do the following:

To proceed with the scoping process required in terms of the Environmental Impact Assessment Regulations, 2006. It also indicated that the Applicant must ensure that all requirements of chapter II of the National Heritage Resources Act, Act 25 of 1999 are complied with in this EIA process and that the comments or recommendations of the relevant heritage resource authority responsible for the area in which the development is proposed are considered.

A comprehensive public participation programme has been designed and being undertaken in this study. It has been structured to encompass all elements of the project (including the access roads EIA, substation development and the auxiliary looping lines). The Public Participation process will continue through the EIA and EMP phases of this study. It is during the forthcoming EIA study phase that more matters from the public's perspectives on the project would be documented and addressed as appropriate. Thus a separate report on the public participation process will published in support of this Scoping Report on the Aurora-Juno Substation. The PPP include advertisements, public notices, public open meetings, focus group meetings, letters of notification and direct interaction with individuals, interest groups, government departments, public officials, local leaders, direct communication with landowners, community based organisations (CBOs) and non-governmental organisation (NGOs) and other specialists.

The PPP coordinator for this project identified Interested and Affected Parties (I&APs). A Background Information Document (BID) was distributed to the I&APs in June. Attached to it is the registration and comment sheet in order to capture I&APs' concerns about the proposed development. Newspaper

advertisements in English and Afrikaans were placed in the Rapport, Die Burger and Independent newspapers on the week of the 10-13th of June 2008. On site notices were also placed throughout the study area and individual letters of notification sent to listed I&APs (see Appendix X for I&APs database)

9.5 IMPACT ASSESSMENT

All identified impacts that have been documented have also been evaluated with regards to their significance as illustrated in Table 9.1).

Table 9.1: Summary of Impacts

ISSUE	DETAILS	PHASE OF CONCERN	POTENTIAL SIGNIFICANCE OF IMPACT	
			Before mitigation	After mitigation
1. ECONOMIC				
1.1 National and Provincial Impact	National and provincial importance of project in terms of promoting economic growth in the region and South Africa	Operation	High (positive)	High (positive)
1.2 Local Benefits	Economic benefits that the Substation and Loop-in and Loop-out Transmission line will bring to local communities	Construction & operation	Low to Moderate (positive)	Moderate (positive)
1.3 Job Creation	Employment of local labour (South African citizens and people local to the area) and preference given to a local contractor	Construction & operation	Low to Moderate (positive)	Moderate (positive)
1.4 Tourism	The substation and associated line will detract from the aesthetic appeal of the natural environment, and will therefore negatively impact on tourism activities	Operation	Low to moderate	Low to moderate
2. WELL BEING:				
2.1 Electro-magnetic fields	Impact of electromagnetic fields (EMFs) on animals, people and vegetation	Operation	Low	Low
2.2 Dust & Noise (within plant area)	Dust & noise control during construction	Construction	negligible	negligible
2.3 Corona noise	The effect of the corona (low "buzzing" noise) may be noticeable in properties immediately adjacent to the servitude.	Operation	negligible	negligible
2.4 Use of creosote poles	Creosote poles may be used during the project and may have a negative health implications and an ecological impact	Construction	Low	Low
2.5 Fire hazard	The construction and operation of the substation and power line may alter the occurrence and management of fires in the area. The change in the nature of fire hazards and events can have safety, economic and ecological implications.	Operation & Construction	Potentially High	Moderate to Low
3. AESTHETICS:				
3.1 Visual impact	Visual impacts will be significant in the local area	Operation	Moderate to high	Moderate to high
3.2 Sense of Place	Negative impact on the aesthetic qualities associated with the Karoo landscape in the project area in the vicinity of the substation and associated line	Operation	Low to Moderate	Low to Moderate
4. SOCIAL:				
4.1 Relocation of people	Will there be a need to relocate people, and their property/houses? What are the likely impacts? Will they be compensated?	Construction	Low	Low
4.2 Disruption of social networks and daily movement patterns	The social routine and social networks may be disrupted during the construction process.	Construction	Low	Low
4.3 Location of construction camps	The siting of construction camps	Construction	Potentially High	Potentially low (positive)
4.4 Gravesites	Protection of gravesites, disinterment disinterment of graves	Construction	Low	Low
4.5 Traffic Safety	Road traffic safety, particularly relating to	Construction	Low	Low

	construction traffic.			
5. LAND ISSUES				
5.1 Property value reduction	Negative impact on property values	Operation	Moderate (perceived)	Low (positive)
6.FARMING RELATED ISSUES				
6.1 Access to properties	The creation of new or improved access to properties, for access to the substation and Loop-in and Loop-out line, brings potential associated issues that need to be considered.	Construction & Operation	Moderate to High	Low
6.2 Access roads	The physical creation and use of new roads, or increased use of existing roads will also have associated impacts	Construction & Operation	Potentially High	Moderate to Low
6.3 Loss of agricultural potential	Restrictions on land use and activities will impact on the agricultural potential of the land.	Construction & Operation	Low	Low
6.4 Season for construction activities	Certain activities (construction and operation) may have greater impacts on the environment and agricultural activities at certain times of the year.	Construction	Moderate to Low	Low
7. NATURAL ENVIRONMENT:				
7.1 Erosion	Erosion on access roads may become a problem.	Construction & Operation	Moderate to low	Low
7.2 Impact on fauna	Impacts on the natural fauna in the area	Construction & Operation	Moderate	Low
7.3 Impacts on Avifauna (birds)	Impacts on birds.	Operation	Potentially high	Moderate
7.4 Impact on flora	General impacts on flora.	Construction & Operation	Moderate	Moderate to Low
7.5 Impact on wetlands	Potential damage to wetlands in during construction and maintenance	Construction & Operation	Potentially high	Moderate
7.6 Importation of alien vegetation	Importation of alien vegetation through building materials	Construction	Moderate to High	Low
7.8 Impact of construction camps	The construction camps may have an impact on the natural environment	Construction	Potentially High	Moderate to low
8. CULTURAL AND ARCHAEOLOGICAL SITES				
8.1 Palaeontological Sites	Impact on fossils.	Construction	negligible	Negligible
8.2 Archaeology	Impact on late stone age and possible iron age sites.	Construction	Moderate to Low	Low
8.3 Cultural, Historical and National Heritage Sites	De Beers Pass	Construction	Potentially high	Moderate
9. CONSTRUCTION CAMP ISSUES				
9.1 Immigration of construction workers	Immigration of construction workers may lead to social disruption, increased crime, sexually transmitted diseases.	Construction	Potentially moderate to high	Moderate to low

10 RECOMMENDATIONS

The proposed substation and associated auxiliary developments will take place in an area which was previously disturbed by other developments activities such as construction of the powerlines, substation, roads, boundary fence line, sheep farming among others.. No major or radical natural or human environmental impacts are anticipated during the construction and operational phases of the project given the fact that similar and other development already exists in the general project area. Furthermore, no sensitive sites or areas such as high significant historical building, grave yards, nature reserves and national parks were identified within the close vicinity of the study area.

However, a number of recommendations are set out in this report, and these are considered relevant to the future implementation of the project. Detailed specialist studies are recommended for this development as some of the impacts will emanate during the construction phase. A detailed Environmental Management Plan should be compiled to outline the mitigation measures for the anticipated impacts.

Further general recommendations are made here.

- It is recommended that Eskom clarify issues relating to servitude access, maintenance and fire management in the servitude and associated responsibilities. It is suggested these responsibilities are clearly set out in the servitude agreements. A greater level of integration with local fire fighting associations is also recommended.
- Construction camps for the project should also be located on sites recommended in the EMP to be compiled.
- The construction program should set out anticipated rehabilitation activities and timing. Emergency rehabilitation measures should also be identified (eg for spillage containment, erosion, plant damage, etc.).
- It is important that the PPP proceed as the EIA process move to a different Phase.

11 CONCLUDING REMARKS

These remarks are made pending any comments from the public on this Draft Scoping Report.

The substation site and the powerline route are located in an area of low to medium visual quality, and every effort should be made to minimise any further disturbances. However, given that other significant linear developments exist in the area (Sishen-Saldanah Transmission Powerline and Railway line, Distribution powerlines, etc), and that other substation site or route alternatives will result in similar impacts, it is expected to recommend the preferred substation site and loop-in and loop-out powerline route identified should be considered for approval. This option, in combination with the existing developments, is seen to offer the least impact on the receiving environment.

However, given the relative homogeneity of the area, local deviations are unlikely to affect the overall impact of the substation and associated loop-in and loop-out line. It is recommended, however, that more public input and that further specialist avifauna, terrestrial ecologists and archaeological and heritage specialists inputs be sought.

12: BIBLIOGRAPHY

- DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM. (2004) Criteria for determining alternatives in EIA. Integrated Environmental Management, Information Series 11. Pretoria: Republic of South Africa.
- DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM. (2006). Guideline 3: General guide to the Environmental Impacts assessment regulation.
- DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM (2006) Guideline 5: Assessment of alternatives and Impacts. Pretoria: Department of Environmental Affairs and Tourism.
- DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM. (1998). National Environmental Management Act (act 107 Of 1998). Republic of South Africa.
- DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM. (2006). Pretoria: Department of Environmental Affairs and Tourism.
- EIA REGULATIONS. (2006). Government Notice No.R386. Pretoria: Department of Environmental Affairs and Tourism.
- EIA REGULATIONS (2006). Government Notice No.R385. Pretoria: Republic of South Africa.
- MUCINA AND RUTHERFORD. (2003). Vegetation maps of South Africa. South Africa.
- LEDGER J. (1990), South African Threatened Wildlife. ,Johannesburg: Endangered Wildlife Trust.
- SEYMOUR, A AND SEWARD, P. 1995. Groundwater harvest potential map.
- SHE CAPE ENVIRONMENTAL CC, (2007), Exemption assessment report for Loop 7. (March 2007). Republic of South Africa.
- THERON. (1990). Geological maps of southern Africa.

APPENDIX 1: MAPS OF PROJECT AREA

APPENDIX 2: VISUAL PRESENTATION OF PROJECT SITES