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Eskom Holdings SOC Ltd

ERMELO-RICHARDS BAY COAL LINE UPGRADE PROJECT: PROPOSED UPGRADE OF THE 24 KM TWIN WOLF POWER LINES FROM NORMANDIE TO HLUNGWANA SUBSTATION IN MPUMALANGA AND KWAZULU-NATAL, SOUTH AFRICA.

Draft Basic Assessment Report

DEA Reference Number: 14/12/16/3/3/2/1103

Issue Date: 23 March 2015

Revision No.: 1

Project No.: 12133

BASIC ASSESSMENT REPORT

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Date:	23 March 2015
Document title:	DRAFT BAR: PROPOSED UPGRADE OF THE 24 KM TWIN WOLF POWER LINES FROM NORMANDIE TO HLUNGWANA SUBSTATION IN MPUMALANGA AND KWAZULU-NATAL, SOUTH AFRICA.
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EXECUTIVE SUMMARY OF THE CONTENT OF THE BASIC ASSESSMENT REPORT

INTRODUCTION AND PROJECT DESCRIPTION:

The Applicant, Eskom Holdings (SOC) Ltd. is making an Application for Environmental Authorisation to proposing the rebuild of a 24km long 88kV power line between Normandie and Hlungwana, KwaZulu-Natal Province, in terms of the National Environmental Management Act, Act No. 107 of 1998 (as amended). This Application for Environmental Authorisation is being made to the Competent Authority, namely, the National Department of Environmental Affairs (DEA). The proposed development requires compliance with the Environmental Impact Assessment (EIA) Regulations of 2010 (as amended), promulgated in terms of the National Environmental Management Act (No. 107 of 1998) (NEMA).

SiVEST Environmental has been appointed by Trans-Africa Projects Pty Ltd, on behalf of Eskom Holdings (SOC) Ltd (herein after referred to as the Applicant) to undertake a Basic Assessment Process for the above-mentioned project.

Background

The proposed development is part of a suite of projects collectively known as the Ermelo-Richards Bay Coal link Upgrade.

Transnet is South Africa's sole provider of rail transport infrastructure for coal transportation. One of South Africa's largest foreign exchange earners is the export of high quality coal products to China. The Transnet rail link between the coal fields in Mpumalanga Province and the export node, the Richards' Bay Coal Terminal, is one of the busiest railway links in South Africa.

The increase in demand for South Africa's high quality coal necessitates the increase in production, which in turn has demands on the railway network infrastructure. In response to the increased demand for South Africa's coal in the global market place, Transnet needs to increase the volume of coal that is being transported between the Mpumalanga coal fields and the Richard's Bay Coal Terminal. This increase will be facilitated through capital expenditure on two fronts, the supporting infrastructure, i.e. the electrical network supplying the locomotives and the locomotives themselves.

In order for Transnet to accomplish the above they need to upgrade their power supply to their various traction substations between Ermelo and Richards Bay to facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported. Eskom Holdings (SOC) Ltd being one of the main suppliers of electrical energy in South Africa has been tasked by Transnet to supply the additional energy requirements to these traction substations. In trying to meet the task Eskom Holdings (SOC) Ltd requires environmental authorisation from the Department of Environmental Affairs (DEA) to establish new substations and power lines.

Proposed Development

Eskom Holdings SOC Ltd is proposing the rebuild of a 24km long 88kV power line between Normandie and Hlungwana Substation. The power line to be rebuilt is situated 20km south-east of Piet Retief, Mpumalanga and approximately 7km east of the R33. The power line corridor terminates 7km north-east of Paulpietersburg, KwaZulu-Natal near the Hlungwana passenger railway station.

The proposed upgrade site is situated in Southern Mpumalanga, and runs from Piet Retief to Paulpietersberg which is situated in Kwa-Zulu Natal.

A corridor width of 250m on either side of the existing line (i.e. corridor width is 500m) is covered in the assessment.

The following construction strategies are proposed for the power line rebuild:

1. **Servitude Swap.** This will include:
 - Negotiating a new servitude within 250m of either side of the existing servitude with land owner/s (where possible);
 - Registering the new servitude;
 - Building a new line in the new negotiated servitude;
 - Energising the new line;
 - Dismantling the old line and rehabilitate the associated servitude; and
 - Handing over of the old servitude to land owner/s.

2. **Line Bypass.** This will include:
 - Building a line bypass within 25m of the existing servitude;
 - The bypass line should then span the entire length of the line that will be upgraded;
 - Dismantling of the old line;
 - Building a new line;
 - Energising the new line;
 - Dismantling the bypass line; and
 - Rehabilitating the temporary servitude (if needed).

3. **Line Section Bypass.** This will include:
 - Building a line section/s bypass within 25m of the existing servitude;
 - Bypassing line section/s will be limited to strain section/s of the line that will be upgraded;
 - Dismantling of the old line section/s;
 - Building the new line section/s;
 - Energising the new line section/s;
 - Dismantling the bypass line section/s;
 - Rehabilitating the temporary servitude (if needed); and
 - Proceeding to the next line section/s that needs to be upgraded.

4. **Servitude Widening.** This will include:
 - Widening the servitude by 25m

It is envisaged that any line rebuild may warrant a combination off all four construction strategies. It is therefore important to note that the environmental authorisation should not limit any of the above construction strategies. It is noted that all four construction strategies should not violate any environmental considerations / constraints within the 250m corridor. Such constraints can be managed via the detailed environmental management plan and policed by an environmental control office. These construction strategies will be informed by the public participation process and the land owner negotiations.

Where applicable the procedure for the recycling and rehabilitation of the dismantled line will be in line with the Eskom process.

The dismantled towers and line hardware will be stored at a local Eskom depot. All steel material and conductors will be removed by an accredited Eskom supplier and recycled. All non-ferrous material will be returned to the Eskom stores and disposed of from there by an accredited scrap dealer.

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A corridor width of 250m on either side of the existing line (i.e. corridor width is 500m) is covered in the assessment. The reason for this approach is to have an approval in place that would support any of the construction strategies that are being explored.

The proposed power line will be rebuilt at 132kV with steel lattice towers or monopole towers but operated at 88kV in order to ensure capacity reserve for the future.

Access to the site is present through a well-maintained gravel road at the Normandie substation (northern end of the power line) and at the Hlungwane substation west of the R33. Access roads along the power line may require upgrading or construction where no access roads are present. The exact position and type of road will be determined once the power line positions have been confirmed through the negotiation process.

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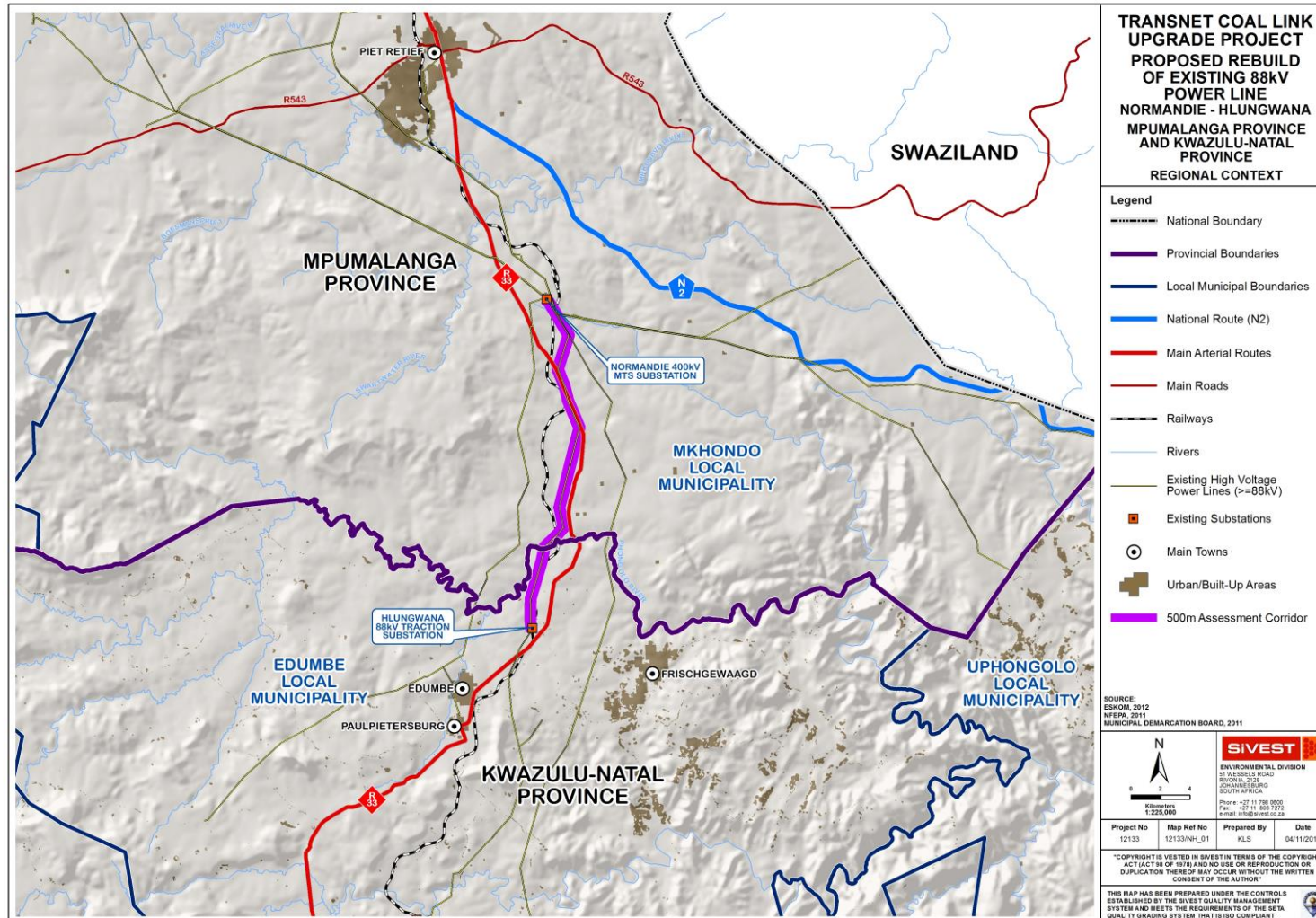


Figure 1: Site Locality Map

APPLICABILITY OF NEMA EIA REGULATIONS (2010):

The proposed development requires compliance with the Environmental Impact Assessment (EIA) Regulations of 2010, promulgated in terms of the National Environmental Management Act, Act 107 of 1998, as amended. The proposed activity requires a Basic Assessment Process be undertaken as listed **Activities 10(i), 11(xi) 16 (iv)(b)(ii)(ff) and 18(i)** under **Government Notice No R. 544** as well as listed **Activities 12(b), 13(a) and 14 (a)(i)** of **Government Notice No R. 546** of the EIA 2010 Regulations are triggered.

RECEIVING ENVIRONMENT:

The entire power line alignment falls within the vegetation unit Gm 15 Paulpietersburg Moist Grassland. The vegetation is therefore going to be similar along the entire alignment length, with the exception of where it has undergone some form of transformation, either through cultivation or degradation as a result of livestock utilisation or total loss as a result of afforestation.

Vegetation and landscape features

Mainly undulating with moderately steep slopes, but valley basins are wide and flat. Mountainous areas occur mostly along the northern and eastern boundary. The area is characteristic of tall grasslands. Evergreen woody vegetation is characteristic of rocky outcrops.

Climate

The area receives summer rainfall with a mean annual precipitation of 900 mm. The area is characteristic of warm-temperate climate with a mean annual temperatures close to 17° C with fairly frequent frosts.

Slope

The majority of the study area is characterised by flat and gently sloping topography with an average gradient of less than 10 %. The topography is ideal for intensive agriculture with a high potential for large-scale mechanisation. From a developmental perspective, the flat topography will also allow for minimal earthworks and tower footprint preparation. Steeper slopes, limiting to arable agriculture, are expected near river crossings and incised valleys.

Geology

The study area is underlain by a mix of Dolerite and Granite geologic materials. Granite, a large grained igneous rock dominates the assessment corridor. Granite is high in silica and contains both feldspar and quartz. A small area, near the centre of the route is underlain by dolerite, an intrusive igneous rock and is typically dark grey and hard.

Conservation

This grassland type is considered vulnerable. The national preservation target is 24 %. Around one third of the grassland type has already been transformed to plantations or cultivated land. Heavy livestock grazing and altered fire regimes have greatly reduced the area of grasslands of high conservation value. Alien species, such as species commercially grown timber that are also considered to be invasive species, such as Acacia, Eucalyptus and Pinus are a major concern in places. Erosion was not seen to be a problem.

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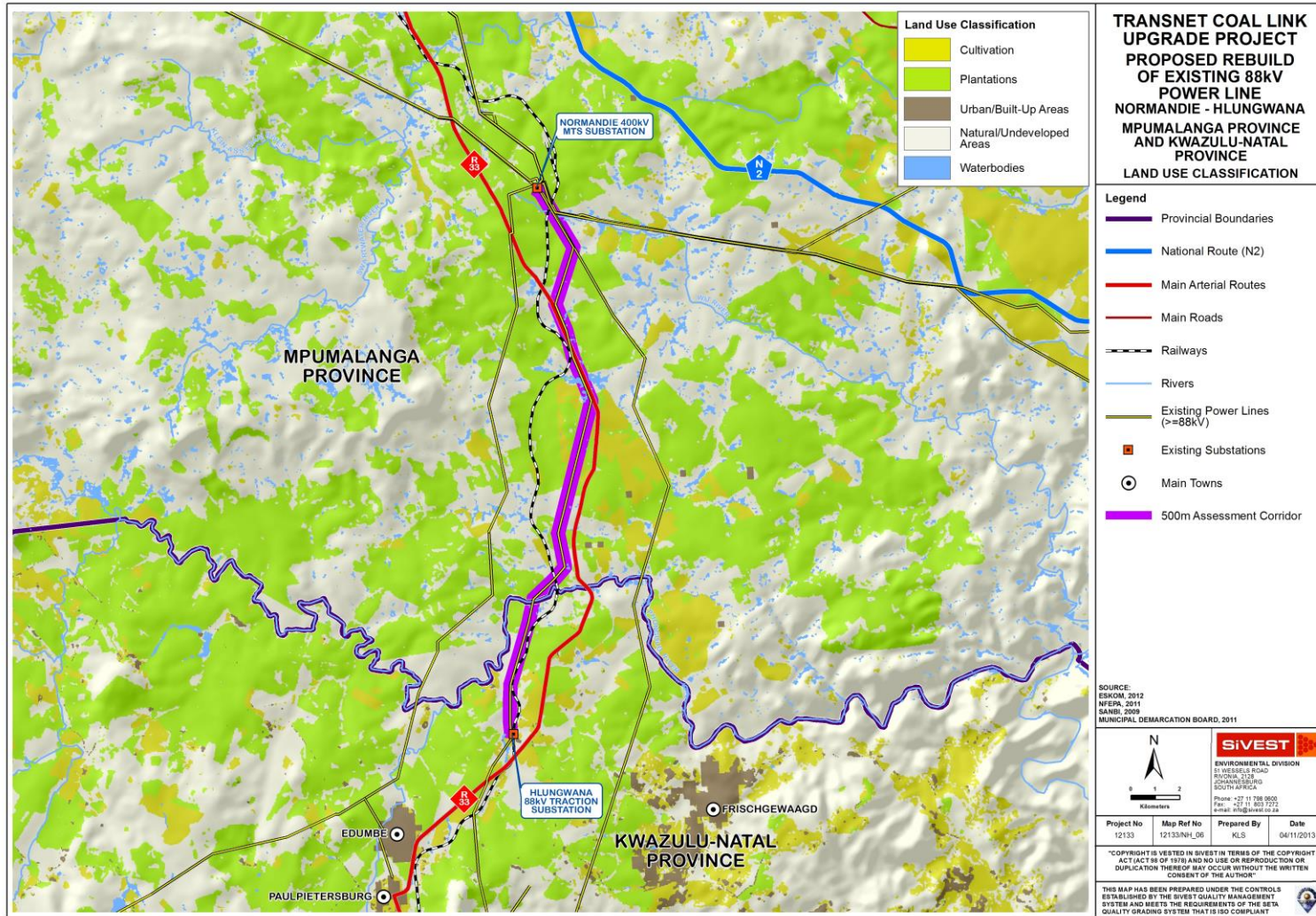


Figure 2: Land Use Map

ALTERNATIVES:

Alternatives are defined in the NEMA EIA Regulations (2010) as “different means of meeting the general purpose and requirements of the activity, which may include alternatives to: (a) the property on which or location where it is proposed to undertake the activity; (b) the type of activity to be undertaken; (c) the design or layout of the activity; (d) the technology to be used in the activity; and (e) the operational aspects of the activity and (f) the option of not implementing the activity”.

For the purpose of this Application, the following Alternatives were investigated:

IMPORTANT: Motivation for No Alternatives

The specific purpose of the proposed development is to supply additional energy to Eskom Holding's (SOC) various traction substations between Ermelo and Richards Bay. Transnet requires additional energy to facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported.

This is necessary as the increase in demand for South Africa's high quality coal necessitates the increase in production, which in turn has demands on the railway network infrastructure. In response to the increased demand for South Africa's coal in the global market place, Transnet needs to increase the volume of coal that is being transported between the Mpumalanga coal fields and the Richard's Bay Coal Terminal. This increase will be facilitated through capital expenditure on two fronts, the supporting infrastructure, i.e. the electrical network supplying the locomotives and the locomotives themselves. In order for Transnet to accomplish the above they need to upgrade their power supply to their various traction substations between Ermelo and Richards Bay to facilitate the demand.

As per Chapter 1 of the EIA regulations (2010), feasible and reasonable alternatives are required to be considered during the BA process. Alternatives are defined as “different means of meeting the general purpose and requirements of the activity” These alternatives may include:

- a) The property on which or location where it is proposed to undertake the activity;
- b) The type of activity to be undertaken;
- c) The design or layout of the activity;
- d) The technology to be used in the activity;
- e) The operational aspects of the activity; and
- f) The option of not implementing the activity.

Each of these alternatives are discussed in relation to the proposed project in the sections below.

The property on which or location where it is proposed to undertake the activity:

No site alternatives have been considered for this project as the placement of the proposed power line is dependent on a number of considerations, all of which have been identified as being favourable at the proposed site location. These considerations include the existing operational power lines in the area, grid connections, existing substations and access to the site. In addition, Transnet have identified traction substations and associated power lines that need to be upgraded in order to facilitate the high demand for coal exports which directly places increased demand on the countries energy supply.

Considering that the proposed development is a power line rebuild the proposed development site is the only feasible option as it is a minor section of the existing line that will be upgraded. The project site also has advantageous grid connection potential through the existing Normandie and Hlungwana Substation. The site is also easily accessible from the well-maintained gravel road at the Normandie

substation (northern end of the power line) and at the Hlungwane substation west of the R33. Access roads along the power line may require upgrading or construction where no access roads are present. The existing power line corridor is therefore considered highly suitable for the proposed development and no other locations or corridors are being considered. It must be noted that the 500m wide corridor forms part of the assessment of the proposed power line rebuild to allow for some maneuverability where required.

The type of activity to be undertaken:

No feasible and reasonable activity alternative exists therefore this cannot be considered. The proposed activity is the rebuild of an existing power lines in order to meet the energy required by Transnet to increase their coal output. The proposed development is activity specific in that power lines are required to transmit and distribute electricity,

The design or layout of the activity:

Various environmental specialists have assessed the site within the 500m assessment corridor and have included the identification of sensitive areas. The identified sensitive areas will be used to guide the exact location of the power line rebuild in conjunction with, landowner negotiations and technical constraints. Additionally, there are various tower types being considered for the proposed development. Each tower design type will have very little to no variation in environmental impacts between the different tower design types, as they will occupy relatively the same footprint size and have the same tower height. Additionally, the type of towers to be used will be determined by technical constraints and ultimately determined by the engineers. Therefore no feasible or reasonable design or layout alternatives were assessed in this BA.

The technology to be used in the activity;

There are four (4) construction strategies being applied for in this BA. The technology options include a servitude swap; line bypass, line section bypass or a servitude widening. The choice of technology used will ultimately be determined by the land owner / servitude negotiations process and technological constraints at a later stage. As it is envisaged that any power line rebuild may warrant a combination off all four construction strategies based on the land owner / servitude negotiation process and technical constraints. It is therefore important to note that the environmental authorisation should not limit any of the above options. It is noted that all four construction strategies would need to be considered within the environmental considerations / constraints occurring within the 500m corridor. Such constraints can be managed via the site specific EMPr and implemented by an environmental control officer. The selection of the four construction strategies will be informed by the public participation process and the land owner negotiations. Therefore no technology alternatives were assessed as part of this BA.

The operational aspects of the activity; and

The proposed development is operationally specific in that the operation of power lines are required for the proposed development

The option of not implementing the activity.

The option of not implementing the activity, or **the 'no-go' alternative, has been considered in this BA.** The No-Go Alternative refers to the option of not implementing the proposed infrastructure development and ultimately the continuation of the current *status quo*. In order for Transnet to accomplish the increased demand for coal and the associated mining activities they need to upgrade their power supply to their various traction substations between Ermelo and Richards Bay. This will facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported. Should this development not proceed, this will result in the

electricity demands not being met. This would be detrimental as South Africa is under immense pressure to provide electricity to meet the currently growing electricity demand in the country. Although the potential environmental issues, such as habitat destruction, would not occur if the project did not go ahead, the socio economic benefit of the proposed project should not be overlooked. The project would assist in achieving South Africa's goals in terms of energy security which in turn would promote local economic development.

Conclusion:

Given the above motivation, no feasible and reasonable alternatives other than '(f) the option of not implementing the activity' could be proposed for assessment. However, a 500m corridor was provided to specialists for assessment. The reason being, that it is likely that the proposed power line may need to be shifted for the final route selection due to environmental, social and technical reasons. The "No-go" option has however been assessed, but due to the need of the proposed project this has been ruled out.

No-Go Alternative:

The No-Go Alternative refers to the option of not implementing the activity (no upgrade of the line between Hlungwana and Normandie) and ultimately the continuation of the current *status quo*.

The proposed upgrade of the twin kingbird line is necessary to provide sufficient electricity capacity for the rail transport infrastructure for coal transportation. The Transnet rail link between the coal fields in Mpumalanga Province and the export node, the Richards Bay Coal Terminal, is one of the busiest railway links in South Africa.

The increase in demand for South Africa's high quality coal necessitates the increase in production, which in turn has demands on the railway network infrastructure. In response to the increased demand for South Africa's coal in the global market place, Transnet needs to increase the volume of coal that is being transported between the Mpumalanga coal fields and the Richard's Bay Coal Terminal. This increase will be facilitated through capital expenditure on two fronts, the supporting infrastructure, i.e. the electrical network supplying the locomotives and the locomotives themselves.

In order for Transnet to accomplish the above they need to upgrade their power supply to their various traction substations between Piet Retief and to facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported. Eskom Holdings (SOC) Ltd being one of the main suppliers of electrical energy in South Africa has been tasked by Transnet to supply the additional energy requirements to these traction substations. In trying to meet the task Eskom Holdings (SOC) Ltd requires environmental authorisation from the Department of Environmental Affairs (DEA) to upgrade the power line. The project is, therefore regarded as a vital infrastructure component to sustain economic and social development in the area.

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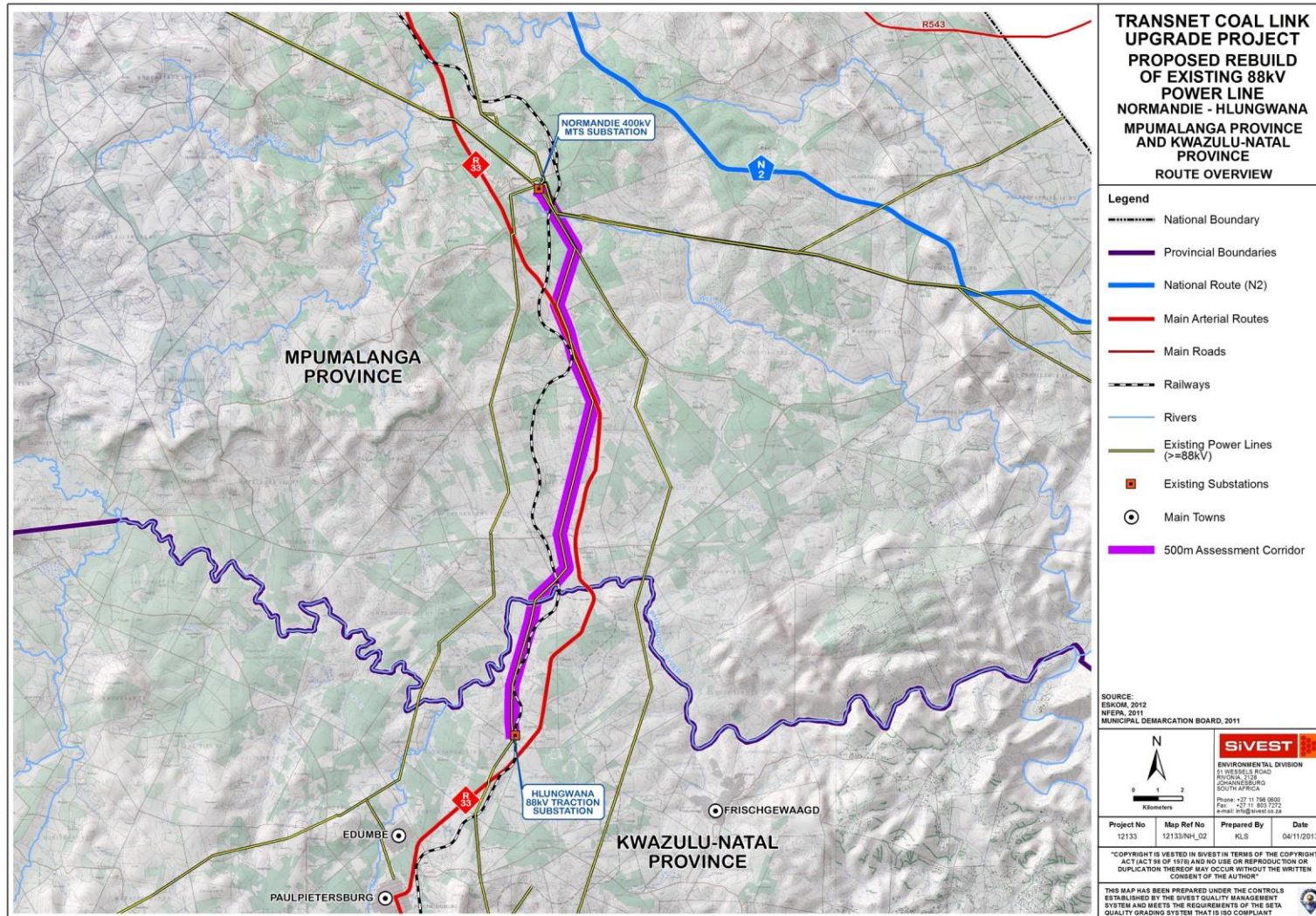


Figure 3: Route Overview

PUBLIC PARTICIPATION

A public participation process will be undertaken in accordance with the NEMA EIA 2010 Regulations and in terms of the Department of Environmental Affairs Companion to the EIA Regulations 2010, Integrated Environmental Management Guideline Series 5, October 2012.

Draft BAR Notification

Interested and Affected Parties (I&AP's) will be identified and provided with an opportunity to register their interest in the application process. The Draft Basic Assessment Report will be submitted for review and comment by any interested and affected parties.

The following parties will be notified of the Basic Assessment Process and the availability of the Background Information Document (BID), Draft Basic Assessment Report (DBAR) and Environmental Management Programme (EMPr) for review and comment:

- Department of Environmental Affairs
- Department of Economic Development, Tourism and Environmental Affairs (KZN-EDTEA)
- Department of Water and Sanitation
- Department of Agriculture, Forestry and Fisheries
- KZN Heritage Agency / SAHRA
- Zululand District Municipality
- Gert Sibande District Municipality
- Edumbe Local Municipality
- Mkhondo Local Municipality
- NGO and Ratepayers Association of the Area
- Adjacent landowners
- Ward Councillor of the area

In addition to this, newspaper advertisements will be published between the 23rd March 2015 – 3rd April 2015 in the Sowetan Newspaper, Ermelo Tribune, Zululand Observer and the Paulpietersburg Advertiser. Due to the high likelihood of overlapping stakeholders, all 8 Ermelo-Richards Bay Coal Link Upgrade projects are being advertised together.

Additionally, site notices will be placed on the site (along route alternatives and at the substation sites); and the BID, Draft BAR and Draft EMPr were delivered to:

- Ulundi Community Library (Cnr. King Zwelithini and Princess Magogo Street, Ulundi 6650, Tel: 035 874 5215)

The documents were also made available on SiVEST's website (www.sivest.co.za) for review and comment. Stakeholders were given the opportunity to review and comment on the Draft BAR for a period of **40 days (26th March 2015 – 8th May 2015)**. All comments received or responses sent during the public comment period for the Draft BAR are recorded in a Comments and Responses Report (to be included in Appendix E3 of the Final BAR)

Additional public participation, other than required by Regulation 54(2) of GN R. 543, dated June 2010, includes one (1) Open House Day.

Any concerns or issues that are raised during the Open House Day and review period for the Draft BAR will be addressed by the Environmental Assessment Practitioner in a Comments and Responses

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Report of the Final BAR and the Basic Assessment Report will be amended as necessary based on issues or concerns raised.

The Final BAR and the Comments and Responses Report will be submitted to register I&AP's for a final round of review before being submitted to the DEA for a decision.

As such, the Basic Assessment process allows an opportunity for registered I&AP's to inform the development application process; as well as to inform the DEA's decision-making process.

ENVIRONMENTAL IMPACT STATEMENT

The impact statements for the proposed power line is listed below. The impact statements for the route and substation site can be found in Appendix F (Impact Assessment Report) of this report.

The impacts rated for the CONSTRUCTION PHASE:

Impact rating summary for all the power line and substation alternatives during the construction phase.

Type of Impact	Description	Status	Significance Rating Pre-Mitigation	Status after mitigation
Botanical	Impact on rare and endemic plant species	Negative	Low	Low
Botanical	Impact on natural vegetation	Negative	Low	Low
Botanical	Impact on sensitive vegetation types	Negative	Low	Low
Botanical	Impact on natural systems and their potential fragmentation	Negative	Low	Low
Botanical	Impact on Conservation Areas	Negative	Low	Low
Fauna	Vegetation clearing, disturbance and the use of heavy machinery and human presence along the power line route during construction is likely to negatively affect resident fauna directly and through habitat loss.	Negative	Medium	Low
Surface Water	Pre-Construction Lay-down area potential impacts: drainage lines and watercourse riparian habitat degradation	Negative	Medium	Low
Surface Water	Towers in Surface Water Resources and Removal of Vegetation for the Stringing of Power lines through Watercourse Riparian Habitat: Drainage Line and Watercourse Riparian Habitat Loss	Negative	High	Medium
Surface Water	Vehicle and Machinery Impacts: drainage lines and watercourse compaction/degradation	Negative	Medium	Medium
Surface Water	Human degradation impacts: surface water resource fauna and flora physical degradation	Negative	Medium	Low
Surface Water	Erosion, increased run-off and sedimentation impacts	Negative	Medium	Medium
Surface Water	Degradation Impacts: stringing of power lines through surface water resources	Negative	Medium	Low
Physical and Geographical	Soil erosion through vegetation clearance and soil compaction by	Negative	Low	Low

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Type of Impact	Description	Status	Significance Rating Pre-Mitigation	Status after mitigation
	heavy duty construction vehicles.			
Physical and Geographical	Contamination of soils through indiscriminate disposal of construction waste and accidental spillage of petroleum products.	Negative	Low	Low
Soil and Agriculture	Loss of agricultural land and / or production as a result of the proposed construction	Negative	Medium	Low
Avifauna	Disturbance of birds during construction of project	Negative	Low Medium (in areas close to wetlands)	Low
Avifauna	Destruction and alteration of habitat available to birds and the area during construction of the proposed project	Negative	Low Medium (in areas close to wetlands)	Low
Visual	Large construction vehicles and equipment during the construction phase may change the visual character of the study area and expose sensitive receptors to visual impacts associated with the construction phase.	Negative	Low	Low
Heritage	No heritage impacts occur near the proposed development site	Negative	High	N/A
Dust	Dust impacts on surrounding environment associated with construction activities.	Negative	Low	Low
Noise	Noise impacts on surrounding environment associated with construction activities.	Negative	Low	Low
Waste	Generating of additional waste / Litter and building rubble or hazardous material during the construction phase.	Negative	Medium	Low

The impacts rated for the OPERATIONAL PHASE

Impact rating summary for the proposed power line and substation alternatives during the operational phase.

Type of Impact	Description	Status	Significance Rating Pre-Mitigation	Status after mitigation
Botanical	Impact of maintenance activities on sensitive environments and vegetation	Negative	Low	Low
Botanical	Impact resulting from rehabilitation during decommissioning phase	Positive	Medium	Medium
Botanical	Impact associated with potential alien plant species infestations during decommissioning phase	Negative	Medium	Low
Surface Water	Service Road Establishment and Subsequent Vehicle Degradation Impacts to Riparian Habitats	Negative	High	Low
Avifauna	Electrocution of birds by pylons/towers	Negative	Medium	Low
Avifauna	Collision of birds with overhead power line cables	Negative	High	Low
Visual	Change to the visual character of the	Negative	Low	Low

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Type of Impact	Description	Status	Significance Rating Pre-Mitigation	Status after mitigation
	surrounding area on potentially sensitive receptors			
Socio - Economic	Positive socio-economic impacts as a result of constant, adequate, reliable supply of electricity to the area, thereby contributing positively to the expansion and strengthening of local economic activities.	Positive	High	High

The impact rated for the **NO-GO Alternative:**

Type of Impact	Description	Status	Significance Rating Pre-Mitigation	Status after mitigation
Socio - Economic	Negative socio-economic impacts as a result of inadequate supply of electricity to the Transnet railway system thereby preventing an increased export tonnage of coal. This will prevent job creation in the area and hinder South Africa's economic growth in the coal export sector.	Negative	High	High

To summarise, the negative environmental impacts associated with the proposed development (Preferred Substation Site and Route Alternatives) are generally considered to be local of nature and can be mitigated to a low level of significance in accordance with the detailed EMPr (Appendix G). The project will however, result in positive cumulative impacts on a national, regional and local level as a result of increased economic output in the coal export sector as well as temporary and permanent job creation.

Given the above motivation, no feasible and reasonable alternatives other than '(f) the option of not implementing the activity' could be proposed for assessment. However, a 500m corridor was provided for assessment. The reason being, that it is likely that the proposed power line may need to be shifted for the final route selection due to environmental, social and technical reasons. The "No-go" option has however been assessed. It is recommended that the proposed 500m corridor be preferred over the no-go alternative, allowing the developer to utilise any of the construction strategies mentioned above.

CONCLUSION AND RECOMMENDATIONS

The findings of the specialist studies undertaken within this BA provide an assessment of both the potential benefits and potential negative impacts anticipated as a result of the proposed development. The findings conclude that there are no environmental fatal flaws that should prevent the proposed project from proceeding. Areas of special concern have however been identified which will require site specific mitigation measures. These are included within the EMPr to ensure that these areas receive special attention.

The proposed development has an overall positive benefit to the socio-economic development of the region as well potential botanical advantages through alien clearing along the proposed power line route. The project is aligned with the objectives of the policies and frameworks at both Provincial and local level.

It is envisaged that any line rebuild may warrant a combination of all four construction strategies. It is therefore important to note that the environmental authorisation should not limit any of the above construction strategies. It is noted that all four construction strategies should not violate any environmental considerations / constraints within the 500m corridor. Such constraints can be managed via the detailed environmental management plan and policed by an environmental control officer. These construction strategies will be informed by the public participation process and the land owner negotiations.

Given the above motivation, no feasible and reasonable alternatives other than '*(f) the option of not implementing the activity*' could be proposed for assessment. However, a 500m corridor was provided for assessment. The reason being, that it is likely that the proposed power line may need to be shifted for the final route selection due to environmental, social and technical reasons. The "No-go" option has however been assessed. It is recommended that the proposed 500m corridor be preferred over the no-go alternative, allowing the developer to utilise any of the construction strategies mentioned above.

The Environmental Assessment Practitioner is therefore of the opinion that the negative environmental impacts associated with the proposed preferred route can be mitigated in accordance with the detailed EMPr (Appendix G).



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:

14/12/16/3/3/1/1103

Application Number:

Date Received:

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **1 August 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of “not applicable” in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

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14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included in the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?

YES

If YES, please complete the form entitled “Details of specialist and declaration of interest” for the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

a) Describe the project associated with the listed activities applied for

Background

SiVEST Environmental Division has been appointed by Trans-Africa Projects, the implementation agents for Eskom Holdings (SOC) Ltd, to undertake the Environmental Authorisation Process for the proposed project. The project is part of a suite of projects collectively known as the Ermelo-Richards Bay Coal link Upgrade.

Transnet is South Africa’s sole provider of rail transport infrastructure for coal transportation. One of South Africa’s largest foreign exchange earners is the export of high quality coal products to China. The Transnet rail link between the coal fields in Mpumalanga Province and the export node, the Richards’ Bay Coal Terminal, is one of the busiest railway links in South Africa.

The increase in demand for South Africa’s high quality coal necessitates the increase in production, which in turn has demands on the railway network infrastructure. In response to the increased demand for South Africa’s coal in the global market place, Transnet needs to increase the volume of coal that is being transported between the Mpumalanga coal fields and the Richard’s Bay Coal Terminal. This increase will be facilitated through capital expenditure on two fronts, the supporting infrastructure, i.e. the electrical network supplying the locomotives and the locomotives themselves.

In order for Transnet to accomplish the above they need to upgrade their power supply to their various traction substations between Ermelo and Richards Bay to facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported. Eskom Holdings (SOC) Ltd being one of the main suppliers of electrical energy in South Africa has been tasked by Transnet to supply the additional energy requirements to these traction substations. In trying to meet the task Eskom Holdings (SOC) Ltd requires environmental authorisation from the Department of Environmental Affairs (DEA) to establish new substations and power lines.

Proposed Development

Eskom Holdings SOC Ltd is proposing the rebuild of a 24km long 88kV power line between Normandie and Hlungwana Substations. The power line to be rebuilt is situated 20km south-east of Piet Retief, Mpumalanga and approximately 7km east of the R33. The power line corridor terminates 7km north-east of Paulpietersburg, KwaZulu-Natal near the Hlungwana passenger railway station.

The proposed upgrade sites are situated in Southern Mpumalanga, and runs from Piet Retief to Paulpietersberg which is situated in KwaZulu Natal.

A corridor width of 250m on either side of the existing line (i.e. corridor width is 500m) is covered in the assessment.

The following construction strategies are proposed for the power line rebuild:

- 1. Servitude Swap.** This will include:
 - Negotiating a new servitude within 250m of either side of the existing servitude with land owner/s (where possible);
 - Registering the new servitude;
 - Building a new line in the new negotiated servitude;
 - Energising the new line;
 - Dismantling the old line and rehabilitate the associated servitude; and
 - Handing over of the old servitude to land owner/s.

- 2. Line Bypass.** This will include:
 - Building a line bypass within 25m of the existing servitude;
 - The bypass line should then span the entire length of the line that will be upgraded;
 - Dismantling of the old line;
 - Building a new line;
 - Energising the new line; Dismantling the bypass line; and
 - Rehabilitating the temporary servitude (if needed).

- 3. Line Section Bypass.** This will include:
 - Building a line section/s bypass within 25m of the existing servitude;
 - Bypassing line section/s will be limited to strain section/s of the line that will be upgraded;
 - Dismantling of the old line section/s;
 - Building the new line section/s;
 - Energising the new line section/s;
 - Dismantling the bypass line section/s;
 - Rehabilitating the temporary servitude (if needed); and
 - Proceeding to the next line section/s that needs to be upgraded.

- 4. Servitude Widening.** This will include:
 - Widening the servitude by 25m

It is envisaged that any line rebuild may warrant a combination off all four construction strategies. It is therefore important to note that the environmental authorisation should not limit any of the above construction strategies. It is noted that all four construction strategies should not violate any environmental considerations / constraints within the 250m corridor. Such constraints can be managed via the detailed environmental management plan and policed by an environmental control office. These construction strategies will be informed by the public participation process and the land owner negotiations.

Where applicable the procedure for the recycling and rehabilitation of the dismantled line will be in line with the Eskom process.

The dismantled towers and line hardware will be stored at a local Eskom depot. All steel material and conductors will be removed by an accredited Eskom supplier and recycled. All non-ferrous material will be returned to the Eskom stores and disposed of from there by an accredited scrap dealer. Concrete foundations will be broken down to at least 500mm below ground level and the concrete will be disposed of at a registered landfill site.

A corridor width of 250m on either side of the existing line (i.e. corridor width is 500m) is covered in the assessment. The reason for this approach is to have an approval in place that would support any

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of the construction strategies that are being explored.

The proposed power line will be rebuilt at 132kV with steel lattice towers but operated at 88kV in order to ensure capacity reserve for the future.

Access to the site is present through a well-maintained gravel road at the Normandie substation (northern end of the power line) and at the Hlungwane substation west of the R33. Access roads along the power line may require upgrading or construction where no access roads are present. The exact position and type of road will be determined once the power line positions have been confirmed through the negotiation process.

b) Provide a detailed description of the listed activities associated with the project as applied for

Listed activity as described in GN R.544, 545 and 546	Description of project activity
<p>GN R544, Activity 10 (i): The construction of facilities or infrastructure for the transmission and distribution of electricity</p> <p>-</p> <p>(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts</p>	<p>The capacity of the new distribution lines is 88kV. The construction of the distribution lines will occur outside an urban area.</p>
<p>GN R544, Activity 11 (xi): The construction of:</p> <p>(xi) infrastructure covering 50 square metres or more</p> <p>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.</p>	<p>The surface water assessment identified 30 surface water features. The erection of the pylons may fall within 32m of a watercourse.</p>
<p>GN R546, Activity 12 (b): The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation:</p> <p>(b) Within critical biodiversity areas identified in bioregional plans;</p>	<p>The botanical assessment identified that the proposed power line passes through Critical Biodiversity Areas due to the presence of <i>Doratogonus falcatus</i>; Paulpietersburg Moist Grassland; <i>Transvaaliana draconis</i> and <i>Whitea alticeps</i> on site. The construction of the substation and/or power lines may require the clearance of an area of 300 square metres where 75% of the vegetation is indigenous</p>
<p>GN R546, Activity 13 (2)(a): The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for:</p>	<p>The botanical assessment identified that the proposed power line passes through Critical Biodiversity Areas due to the presence of <i>Doratogonus falcatus</i>; Paulpietersburg Moist Grassland; <i>Transvaaliana draconis</i> and <i>Whitea</i></p>

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<p>(2) the undertaking of a linear activity falling below the thresholds mentioned in Listing Notice 1 in terms of GN No. 544 of 2010.</p> <p>(a) Critical biodiversity areas and ecological support areas as identified in systematic biodiversity plans adopted by the competent authority.</p>	<p><i>alticeps</i> on site. The construction of the substation and/or power lines may require the clearance of an area of 1 hectare where 75% of the vegetation is indigenous</p>
<p>GN R546, Activity 14 (3)(a)(i): The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for:</p> <p>(3) the undertaking of a linear activity falling below the thresholds in Notice 544 of 2010.</p> <p style="padding-left: 40px;">(e) In Eastern Cape, Free State, KwaZulu-Natal, Gauteng, Limpopo, Mpumalanga, Northern Cape, Northwest and Western Cape:</p> <p>i. All areas outside urban areas.</p>	<p>The botanical assessment identified that the proposed power line passes through Critical Biodiversity Areas due to the presence of <i>Doratogonus falcatus</i>; Paulpietersburg Moist Grassland; <i>Transvaaliana draconis</i> and <i>Whitea alticeps</i> on site. The construction of the substation and/or power lines in Mpumalanga and KwaZulu-Natal provinces may require the clearance of an area of 5 hectares where 75% of the vegetation is indigenous</p>
<p>GN R546, Activity 16 (iv)(a)(ii)(ff): The construction of:</p> <p>(vi) infrastructure or structures covering 10 square metres or more</p> <p>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.</p> <p style="padding-left: 40px;">(e) In Eastern Cape, Free State, KwaZulu-Natal, Gauteng, Limpopo, Mpumalanga, Northern Cape, Northwest and Western Cape:</p> <p>(ii) Outside urban areas, in:</p> <p>(ff) Critical biodiversity areas or ecosystem service areas identified in systematic biodiversity plans adopted by the competent authority or in biological plans.</p>	<p>The surface water assessment identified 30 surface water features. The erection of the pylons may fall within 32m of a watercourse. The botanical assessment identified that the proposed power line passes through Critical Biodiversity Areas due to the presence of <i>Doratogonus falcatus</i>; Paulpietersburg Moist Grassland; <i>Transvaaliana draconis</i> and <i>Whitea alticeps</i> on site.</p>

2. FEASIBLE AND REASONABLE ALTERNATIVES

“**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—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity; (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Regulation 22(2)(h) of GN R.543. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

IMPORTANT: Motivation for No Alternatives

The specific purpose of the proposed development is to supply additional energy to Eskom Holding’s (SOC) various traction substations between Ermelo and Richards Bay. Transnet requires additional energy to facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported.

This is necessary as the increase in demand for South Africa’s high quality coal necessitates the increase in production, which in turn has demands on the railway network infrastructure. In response to the increased demand for South Africa’s coal in the global market place, Transnet needs to increase the volume of coal that is being transported between the Mpumalanga coal fields and the Richard’s Bay Coal Terminal. This increase will be facilitated through capital expenditure on two fronts, the supporting infrastructure, i.e. the electrical network supplying the locomotives and the locomotives themselves. In order for Transnet to accomplish the above they need to upgrade their power supply to their various traction substations between Ermelo and Richards Bay to facilitate the demand.

As per Chapter 1 of the EIA regulations (2010), feasible and reasonable alternatives are required to be considered during the BA process. Alternatives are defined as “different means of meeting the general purpose and requirements of the activity” These alternatives may include:

- a) The property on which or location where it is proposed to undertake the activity;

- b) The type of activity to be undertaken;
- c) The design or layout of the activity;
- d) The technology to be used in the activity;
- e) The operational aspects of the activity; and
- f) The option of not implementing the activity.

Each of these alternatives are discussed in relation to the proposed project in the sections below.

The property on which or location where it is proposed to undertake the activity:

No site alternatives have been considered for this project as the placement of the proposed power line is dependent on a number of considerations, all of which have been identified as being favourable at the proposed site location. These considerations include the existing operational power lines in the area, grid connections, existing substations and access to the site. In addition, Transnet have identified traction substations and associated power lines that need to be upgraded in order to facilitate the high demand for coal exports which directly places increased demand on the countries energy supply.

Considering that the proposed development is a power line rebuild the proposed development site is the only feasible option as it is a minor section of the existing line that will be upgraded. The project site also has advantageous grid connection potential through the existing Normandie and Hlungwana Substation. The site is also easily accessible from the well-maintained gravel road at the Normandie substation (northern end of the power line) and at the Hlungwane substation west of the R33. Access roads along the power line may require upgrading or construction where no access roads are present. The existing power line corridor is therefore considered highly suitable for the proposed development and no other locations or corridors are being considered. It must be noted that the 500m wide corridor forms part of the assessment of the proposed power line rebuild to allow for some maneuverability where required.

The type of activity to be undertaken:

No feasible and reasonable activity alternative exists therefore this cannot be considered. The proposed activity is the rebuild of an existing power lines in order to meet the energy required by Transnet to increase their coal output. The proposed development is activity specific in that power lines are required to transmit and distribute electricity,

The design or layout of the activity:

Various environmental specialists have assessed the site within the 500m assessment corridor and have included the identification of sensitive areas. The identified sensitive areas will be used to guide the exact location of the power line rebuild in conjunction with, landowner negotiations and technical constraints. Additionally, there are various tower types being considered for the proposed development. Each tower design type will have very little to no variation in environmental impacts between the different tower design types, as they will occupy relatively the same footprint size and have the same tower height. Additionally, the type of towers to be used will be determined by technical constraints and ultimately determined by the engineers. Therefore no feasible or reasonable design or layout alternatives were assessed in this BA.

The technology to be used in the activity;

There are four (4) construction strategies being applied for in this BA. The technology options include a servitude swap; line bypass, line section bypass or a servitude widening. The choice of technology used will ultimately be determined by the land owner / servitude negotiations process and technological constraints at a later stage. As it is envisaged that any power line rebuild may warrant a combination off all four construction strategies based on the land owner / servitude negotiation process and

technical constraints. It is therefore important to note that the environmental authorisation should not limit any of the above options. It is noted that all four construction strategies would need to be considered within the environmental considerations / constraints occurring within the 500m corridor. Such constraints can be managed via the site specific EMPr and implemented by an environmental control officer. The selection of the four construction strategies will be informed by the public participation process and the land owner negotiations. Therefore no technology alternatives were assessed as part of this BA.

The operational aspects of the activity; and

The proposed development is operationally specific in that the operation of power lines are required for the proposed development

The option of not implementing the activity.

The option of not implementing the activity, or **the ‘no-go’ alternative, has been considered in this BA.** The No-Go Alternative refers to the option of not implementing the proposed infrastructure development and ultimately the continuation of the current *status quo*. In order for Transnet to accomplish the increased demand for coal and the associated mining activities they need to upgrade their power supply to their various traction substations between Ermelo and Richards Bay. This will facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported. Should this development not proceed, this will result in the electricity demands not being met. This would be detrimental as South Africa is under immense pressure to provide electricity to meet the currently growing electricity demand in the country. Although the potential environmental issues, such as habitat destruction, would not occur if the project did not go ahead, the socio economic benefit of the proposed project should not be overlooked. The project would assist in achieving South Africa’s goals in terms of energy security which in turn would promote local economic development.

Conclusion:

Given the above motivation, no feasible and reasonable alternatives other than '(f) *the option of not implementing the activity*' could be proposed for assessment. However, a 500m corridor was provided to specialists for assessment. The reason being, that it is likely that the proposed power line may need to be shifted for the final route selection due to environmental, social and technical reasons. The “No-go” option has however been assessed, but due to the need of the proposed project this has been ruled out.

Ultimately, the following impacts for each phase of the proposed development are likely to take place but the severity has been limited in most instances, should the proposed mitigation measures be implement

e) a) Site alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

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N/A		
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In the case of linear activities:

Alternative:

Latitude (S):

Longitude (E):

Alternative S1 (preferred)

- Starting point of the activity (**Normandie Substation**)
- Middle/Additional point of the activity
- End point of the activity (**Hlungwana Substation**)

27° 00' 42.354" S	30° 53' 36.703" E
27° 01' 43.745" S	30° 53' 35.959" E
27° 02' 48.773" S	30° 52' 0.275" E

Alternative S2 (if any) **N/A**

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

Alternative S3 (if any) **N/A**

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A.

Refer to Appendix J3. As a result of the length of the line, coordinates of the bend points of the line have been included in the place of coordinates at 250m intervals.

b) Lay-out alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		

c) Technology alternatives

Alternative 1 (preferred alternative)
N/A
Alternative 2
N/A
Alternative 3
N/A

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternative 1 (Preferred alternative)
Alternative 2
Alternative 3

e) No-go alternative

The No-Go Alternative refers to the option of not implementing the activity (no upgrade of the line between Hlungwana and Normandie) and ultimately the continuation of the current *status quo*.

The proposed upgrade of the twin kingbird line is necessary to provide sufficient electricity capacity for the rail transport infrastructure for coal transportation. The Transnet rail link between the coal fields in Mpumalanga Province and the export node, the Richards Bay Coal Terminal, is one of the busiest railway links in South Africa.

The increase in demand for South Africa's high quality coal necessitates the increase in production, which in turn has demands on the railway network infrastructure. In response to the increased demand for South Africa's coal in the global market place, Transnet needs to increase the volume of coal that is being transported between the Mpumalanga coal fields and the Richard's Bay Coal Terminal. This increase will be facilitated through capital expenditure on two fronts, the supporting infrastructure, i.e. the electrical network supplying the locomotives and the locomotives themselves.

In order for Transnet to accomplish the above they need to upgrade their power supply to their various traction substations between Piet Retief and to facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported. Eskom Holdings (SOC) Ltd being one of the main suppliers of electrical energy in South Africa has been tasked by Transnet to supply the additional energy requirements to these traction substations. In trying to meet the task Eskom Holdings (SOC) Ltd requires environmental authorisation from the Department of Environmental Affairs (DEA) to establish new substations and power lines.

The project is, therefore regarded as a vital infrastructure component to sustain economic and social development in the area.

Paragraphs 3 – 13 below should be completed for each alternative.

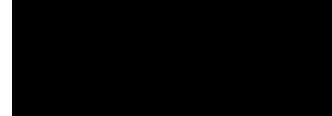
3. PHYSICAL SIZE OF THE ACTIVITY

a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:

Alternative A1¹ (preferred activity alternative)
 Alternative A2 (if any) **N/A**
 Alternative A3 (if any) **N/A**

Size of the activity:



or, for linear activities:

Alternative:

Alternative A1 (preferred activity alternative)
 Alternative A2 (if any) **N/A**
 Alternative A3 (if any) **N/A**

Length of the activity:

24138 m

b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:

Alternative A1 (preferred activity alternative)
 Alternative A2 (if any) **N/A**
 Alternative A3 (if any) **N/A**

Size of the site/servitude:

500 m

4. SITE ACCESS

Does ready access to the site exist?

If NO, what is the distance over which a new access road will be built

✓ YES

Describe the type of access road planned:

Access to the site is to comprise of a well-maintained single-lane gravel access road at the Normandie substation (northern end of the power line) and at the Hlungwane substation west of the R33. Access roads along the power line may require upgrading or construction where no access roads are present. The potential impacts associated mitigation measures with the creation of access roads are addressed in the EMPr (Appendix G). The exact position and type of access roads cannot be determined until the power line positions have been confirmed through the servitude negotiation process. It is therefore recommended that the final road and power line alignments are submitted to the competent authority once these are confirmed and prior to construction.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

¹ "Alternative A.." refer to activity, process, technology or other alternatives.

5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s);
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

A locality map is included in Appendix A.

6. LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

A Site Layout may indicating the route alignment is included Appendix A.

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;
- cultural and historical features;

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- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

Various sensitivity maps for the proposed site are included in Appendix A.

8. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

Site Photographs taken along the route corridor for the power line is included in Appendix B. Key features of the site are depicted in the site photographs.

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

A schematic drawings of the proposed tower types is included in Appendix C.

10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?

✓YES

The proposed power line is a rebuild of an existing line for which the land use permits the activity

2. Will the activity be in line with the following?	
(a) Provincial Spatial Development Framework (PSDF)	✓YES
<p>The KwaZulu-Natal PSDF (2011) indicates in Section 1 Introduction, that the PSDF (2011) serves as a spatial expression to the Provincial Growth and Development Strategy (PGDS) (2011). The PGDS (2011) states under 3.7.2 Strategic Objective 4.2.: Development of Road and Rail Networks that <i>“Freight will continue to be transported via a combination of road and rail...The development of nodes in the interior of the Province and the enhancement of rail, airfields and corridors will be crucial in this development.”</i> The Coal Rail Link is identified as one of the existing infrastructures that “greatly complement and expand existing opportunities for manufacturing and trade” if upgraded and further developed. The proposed Normandie-Hlungwane Powerline is considered an upgrade of the Coal Link railway line by improving the electrical infrastructure. This will ensure the operational capacity of the railway line.</p> <p>The Strategic Objectives of the PGDS (2011) are directly in line with the 18 identified Strategic Integrated Projects (SIP) of the South African National Infrastructure Plan (2012). The proposed Coal Link Upgrade project is considered a SIP project and satisfies the conditions of SIP 2 and SIP 10 (refer to question 14 in this section for more information).</p>	
(b) Urban edge / Edge of Built environment for the area	✓NO
<p>The existing structures are not situated in close proximity to urban areas.</p>	
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	✓YES
<p>The proposed development is aimed at increasing the export capacity of South African coal to international consumers.</p> <p>The Edumbe Spatial Development Framework (February 2013) identifies the coal line corridor, which runs from Richards Bay through Vryheid and Paulpietersburg and on to the mining areas of Mpumalanga, as an important route in the national rail and road network. The coal mining sector has been identified as one of the key economic sectors due to the high demand of coal nationally and internationally. The development of a mining sector plan is a top priority in the municipality.</p>	
(d) Approved Structure Plan of the Municipality	✓NO
N/A	

<p>(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)</p>	<p>✓YES</p>	
<p>An EMF is not available for this area however reference is made to the Zululand District Municipality Environmental Management Plan (2006) where in Section 4.13 Alien Invasive Weeds it states alien vegetation invasion as a major environmental and fire hazard and that “all new developments within the municipal area should be required to submit an EMP in which the alien invasive plant removal plan / policy is outlined.” The Power line corridors can be used as effective conservation corridors as alien vegetation is cleared and selective vegetation removal is only conducted when vegetation encroaches the safety clearance area. The Power line corridors can therefore encourage ecological connectivity between biodiversity corridors and, indirectly, contribute to prevent the further loss of biodiversity in the area while controlling alien vegetation on a local scale. Please refer to the EMP (Appendix G) for vegetation management.</p>		
<p>(f) Any other Plans (e.g. Guide Plan)</p>		<p>✓NO</p>
<p>N/A – No other plans are available for these areas</p>		
<p>3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?</p>	<p>✓YES</p>	
<p>The proposed project consists of a rebuild of the existing power line. This will in turn assist in the eDumbe Municipality’s vision of a liveable, economically progressive municipality by 2030. The power line will also contribute to economic progression through job creation during the construction and operational phase as well as providing opportunities for transport and trade etc.</p> <p>The Provincial Growth and Development Strategy (PGDS) (2011) as the supporting document of the KwaZulu-Natal PSDF (2011) identifies enhancement of rail infrastructure as a crucial development. The proposed Normandie-Hlungwana power line would enhance the Coal Link railway traversing the province, within the specified timeframes, by providing additional electricity capacity to increase the function of the railway line.</p> <p>Further, the proposed development is part of the SIP’s which are of national importance, providing large capital input and economic growth on a local, regional and national level by increasing the national export capacity within the South African coal mining sector. This will provide employment opportunities throughout construction and operation of the proposed development. The proposed Coal Link Normandie-Hlungwana Power line are considered within the timeframe of the SIP’s as per the South African National Infrastructure Plan (2012).</p>		

BASIC ASSESSMENT REPORT

<p>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</p>		✓NO	
<p>The proposed Normandie-Hlungwana power line are not a societal priority, however the proposed development, as part of the overall Coal Link Upgrade, will contribute substantially to increase the national revenue, which will benefit all citizens. Additionally, the proposed development may create job opportunities on a local and regional level.</p>			
<p>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>		✓YES	
<p>The proposed development will require a limited amount of water and electricity, however these services will be supplied through portable water and diesel-powered generators.</p> <p>The only municipal service required will be waste disposal. Construction waste will be generated during the construction phase. Construction waste which is not suitable for re-use (approximately 10m³) will be disposed at a licensed landfill site. Hazardous material generation is not anticipated. Proof of capacity for waste disposal will be obtained from the Municipality and included in the Final BAR.</p>			
<p>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>		✓YES	
<p>Transnet need to upgrade their power supply to their various traction substations between Ermelo and Richards Bay to facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported. The municipality will have improved access to the railway lines and the development will not have an impact on other infrastructure planning within the municipality.</p>			
<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>		✓NO	
<p>This project forms part of a suite of projects throughout Mpumalanga and Kwazulu-Natal, collectively known as the Ermelo-Richards Bay Coal Link Upgrade Project. This project will significantly increase the volume of coal that South Africa can export, meeting the international demand for South African coal. This suite of projects are further considered to form part of the National Strategic Infrastructure Projects and falls within the parameters of SIP 2 and SIP 10, thus this proposed development is considered to be of national importance. The proposed development is further in line with the National Spatial Development Perspective which states that “South Africa will become a nation in which investment in infrastructure...support government’s growth and development objectives: by focusing economic growth...in areas where it is most effective and sustainable; by fostering development on the basis of local potential...”</p>			

BASIC ASSESSMENT REPORT

<p>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</p>	<p>✓YES</p>	
<p>The proposed re-build of the existing 88kV power line will be within an existing corridor and near existing power lines. Therefore, based on the existing power line infrastructure in the area, the location factors favour the land use of in terms of the development and upgrade of the Normandie-Hlungwana power lines.</p>		
<p>9. Is the development the best practicable environmental option for this land/site?</p>	<p>✓YES</p>	
<p>The activity being applied for is the rebuild of an existing line. Given that the line is already there, it is the best practicable environmental option. The environmental impacts associated with the proposed development are projected to be low after implementation of mitigation measures (refer to EMP, Appendix G) making it the best practicable environmental option for the land.</p>		
<p>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</p>	<p>✓YES</p>	
<p>The negative impacts of the proposed development are low due to the location in a rural area on low grade agricultural land as well as the presence of an existing servitude. Any residual environmental impacts will be mitigated based on the EMP (Appendix G). The proposed project is necessary to increase the electricity capacity of the Transnet railway between Richards Bay and Mpumalanga to respond to increased coal transport demands. This project is designated as part of a “Strategic Infrastructure Project” to aid in the continued development of the mining and export industry of South Africa. Therefore, this project will impact positively on the local, provincial and national economies and ensure that South Africa continues to improve its national transport system, hereby increasing economic output and revenue</p>		
<p>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</p>		<p>✓NO</p>
<p>The proposed project aims to increase the electricity supply to the various existing traction substations as part of Transnet’s goal to increase the volume of coal that is being transported between the Mpumalanga coal fields and the Richard’s Bay Coal Terminal. The negative impacts associated with the proposed development are generally low. However, no precedent is set for future development as the proposed development will increase electrical input into the existing Transnet railway line to transport coal for export.</p>		
<p>12. Will any person’s rights be negatively affected by the proposed activity/ies?</p>		<p>✓NO</p>
<p>The line is a rebuild of an existing line and is therefore already in constructed. There will be no additional negative affect on any individual rights.</p>		
<p>13. Will the proposed activity/ies compromise the “urban edge” as defined by the local municipality?</p>		<p>✓NO</p>
<p>The location of the existing lines to be upgraded are not in close proximity to an urban area and will require no additional urban services other than the formalisation of existing dirt roads.</p>		

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14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPs)?	✓ YES	
<p>The proposed development will contribute to two (2) SIP namely: SIP 2 on “strengthening the logistics and transport corridor between SA’s main industrial hubs” and SIP 10: Electricity Transmission and Distribution for all – <i>“Align the 10-year transmission plan, the services backlog, the national broadband roll-out and the freight rail line development to leverage off regulatory approvals, supply chain and project development capacity.”</i></p>		
15. What will the benefits be to society in general and to the local communities?	✓ Please explain	
<p>This proposed development will increase South Africa’s national capacity to export coal internationally, increasing national revenue and benefitting all South African Citizens including the local communities. Local communities will further benefit during the construction and operational phases of the proposed development through an increase in employment opportunities within the area. This will assist in alleviating the high unemployment levels found within the affected local municipal areas.</p>		
16. Any other need and desirability considerations related to the proposed activity?	✓ Please explain	
<p>All need and desirability aspects have been identified and considered.</p>		
17. How does the project fit into the National Development Plan for 2030?	✓ Please explain	
<p>With reference to Chapter 4 – Economic infrastructure, sub-chapter “The energy reality” (pg. 164) the NDP notes that “The quality of market competition and regulation in the energy sector has been far from optimal” and that the “crippling [rail] transport constraints” result in “the lack of rail capacity that constrain[s]...the expansion of coal exports.” It is further noted that the export capacity at the Richard’s Bay coal terminal is one third higher than the rail capacity from the coal fields. Therefore, the proposed Normandie-Hlungwane power line upgrade, as part of the Ermelo-Richards bay Coal Link Upgrade Project, directly contribute to alleviating the identified coal export constraints outlined in the NDP for 2030.</p>		

18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.

- a) *Promote the integration of the principles of environmental management set out in section 2 into the making of all decisions which may have a significant effect on the environment;*
- **This Basic Assessment process takes into account all the general objectives of Integrated Environmental Management. The social, economic, cultural and biophysical impacts have been considered and evaluated. The impacts will be mitigated and managed according to a detailed Environmental Management Programme.**
- b) *Identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits and promoting compliance with the principles of environmental management set out in section 2;*
- **Impacts associated with the proposed development (construction and operational phases and decommissioning where applicable) have been identified, assessed and mitigation measures provided (detailed in Section D of this BAR).**
- c) *Ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them;*
- **This Application is being undertaken in accordance with the NEMA EIA Regulations (2010), the provisions of which themselves take into account the general objectives of Integrated Environmental Management in Section 23 of the NEMA**
 - **Please also refer to the attached Environmental Management Programme (Appendix G)**
- d) *Ensure that adequate and appropriate opportunity for public participation in decisions that may affect the environment;*
- **This Application has been undertaken in accordance with the Public Participation Requirements (and proposed deviations) set out in the NEMA EIA Regulations (2010).**
 - **Please refer to Section C of this BAR for details relating to PPP.**
- e) *Ensure the consideration of environmental attributes in management and decision-making which may have a significant effect on the environment; and*
- **This Basic Assessment process takes into account all the general objectives of Integrated Environmental Management. The social, economic, cultural and biophysical impacts have been considered and evaluated. The impacts will be mitigated and managed according to a detailed Environmental Management Programme.**
- f) *Identify and employ the modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with the principles of environmental management set out in section*
- **This Basic Assessment process takes into account all the general objectives of Integrated Environmental Management. The social, economic, cultural and biophysical impacts have been considered and evaluated. The impacts will be mitigated and managed according to the detailed Environmental Management Programme attached at Appendix G.**

19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.

The principles of environmental management as set out in section 2 of the NEMA require that environmental management must place people and their needs at the forefront of development and that development must be socially, environmentally and economically sustainable. As described above; these principles have been taken into account by undertaking a thorough PPP in order to ensure that all Interested and Affected Parties (I&APs) are given the opportunity to be involved in the BA process and ultimately that their comments are taken into consideration by the DEA when reviewing the application. Several specialist studies were also undertaken to ensure that the development is sustainable and that disturbance to the environment is avoided where possible, minimised through appropriate mitigation measures and remedied via appropriate measures.

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
National Environmental Management Act, 107 of 1998. NEMA EIA Regulations (Government Notices 543; 544; 546)	Identification of activities triggered by the proposed project for a Basic Assessment/Environmental Authorisation	Department of Environmental Affairs	1998 2010
National Water Act, 36 of 1998	A General Authorisation may be required for the altering or temporary impedance of watercourses during the construction phase.	Department of Water Affairs	1998
National Heritage Act, 25 of 1999	Authorisation from Amafa for commencement of construction and for a permit if required	Amafa	1999
The Vegetation of South Africa, Lesotho and Swaziland. Mucina & Rutherford (2006). SANBI, Pretoria	Utilised as a reference guide for the identification of upgrade-specific environmental information.	SANBI	2006
Provincial Growth and Development Strategy	Used as a supporting document for the activity motivation	KZN Provincial Planning Commission	2011
eDumbe Spatial Development Framework	Used as a supporting document for the activity motivation	eDumbe Municipality	2013
Zululand District Municipality Environmental Management Plan	Used as a supporting document for the activity motivation	Zululand Municipality	2006

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South African National Infrastructure Plan	Used as a supporting document for the activity motivation	Department of Economic Development	2012
National Spatial Development Perspective	Used as a supporting document for the activity motivation	The Presidency Republic of South Africa	2003
National Development Plan	Used as a supporting document for the activity motivation	National Planning Commission	2011
eDumbe Local Municipality IDP	Used as a supporting document for the activity motivation	eDumbe Local Municipality	2012/2013
Mkhondo Local Municipality IDP	Used as a supporting document for the activity motivation	Mkhondo Local Municipality	2010/2011

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

✓ YES	
10m ³	

If YES, what estimated quantity will be produced per month?

How will the construction solid waste be disposed of (describe)?

Solid waste (minimal construction waste and regular household waste) will be collected by independent contractors and disposed of at a registered licensed municipal landfill site with proof of safe disposal required.

Where will the construction solid waste be disposed of (describe)?

Solid waste (construction waste and regular builders rubble) will be collected by independent contractors and disposed of at a registered licensed municipal landfill site with proof of safe disposal required.

Will the activity produce solid waste during its operational phase?

	✓ NO
--	------

If YES, what estimated quantity will be produced per month? **N/A**

How will the solid waste be disposed of (describe)?

N/A

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

N/A

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

N/A

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

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Can any part of the solid waste be classified as hazardous in terms of the NEM:WA? **NO**
 If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility? **NO**
 If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system? **NO**
 If YES, what estimated quantity will be produced per month? **N/A** m³
 Will the activity produce any effluent that will be treated and/or disposed of on site? **NO**
 If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility? **NO**
 If YES, provide the particulars of the facility:

Facility name:	N/A		
Contact person:	N/A		
Postal address:	N/A		
Postal code:	N/A		
Telephone:	N/A	Cell:	N/A
E-mail:	N/A	Fax:	N/A

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities? **NO**
 If YES, is it controlled by any legislation of any sphere of government? **N/A**

YES	NO
-----	----

 If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.
 If NO, describe the emissions in terms of type and concentration:

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA? **NO**

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If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?

✓YES	
	✓NO

If YES, is it controlled by any legislation of any sphere of government?

Describe the noise in terms of type and level:

Noise, during normal working hours associated with the construction phase of the project is anticipated. Any equipment used during the construction or operational phase will not exceed a noise level of 80 decibel amperes (dbA).

13. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal	Water board	Groundwater	River, stream, dam or lake	Other	✓The activity will not use water
-----------	-------------	-------------	----------------------------	-------	---

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

N/A	
✓YES	

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

Awaiting comments from Department of Water and Sanitation (DWS) on the Draft BAR to confirm if a water use authorisation is required for construction activities at/near watercourses. Should an application be necessary, proof of submission to DWS will be provided in due course. A minimal amount of water may be required during the construction phase, this water will be supplied by the Municipality and will be trucked to the site. The amount of water is assumed to be negligible and only required for the foundations. The Municipality will be consulted in this regard through the Public Participation Process.

14. ENERGY EFFICIENCY

Describe the design measures, if any, which have been taken to ensure that the activity is energy efficient:

Conductor cables are designed to transmit electivity as efficiently as possible i.e. minimal loss of electricity during the transmission process from one substation to the next.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

Electricity disturbed throughout South Africa originates mainly from coal-powered generating stations.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A):

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section? **✓YES**
 If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/physical address:

Province	KwaZulu Natal Province/Mpumalanga	
District Municipality	Zululand District Municipality/Gert Sibande Municipality	
Local Municipality	Edumbe (KZN) and Mkhondo (Mpumalanga)	
Ward Number(s)	8 (KZN), 9 and 15 (Mpumalanga)	
Farm name and number	Please refer to the full list in Appendix E.	
Portion number	Please refer to the full list in Appendix E.	
SG Code	Please refer to the full list in Appendix E.	

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

Agriculture	
--------------------	--

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required? **✓NO**

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1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat	✓ 1:20 1:15	–	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative S2 (if any): N/A

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative S3 (if any): N/A

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	-------------	-------------	-------------	--------------	-------------	------------------

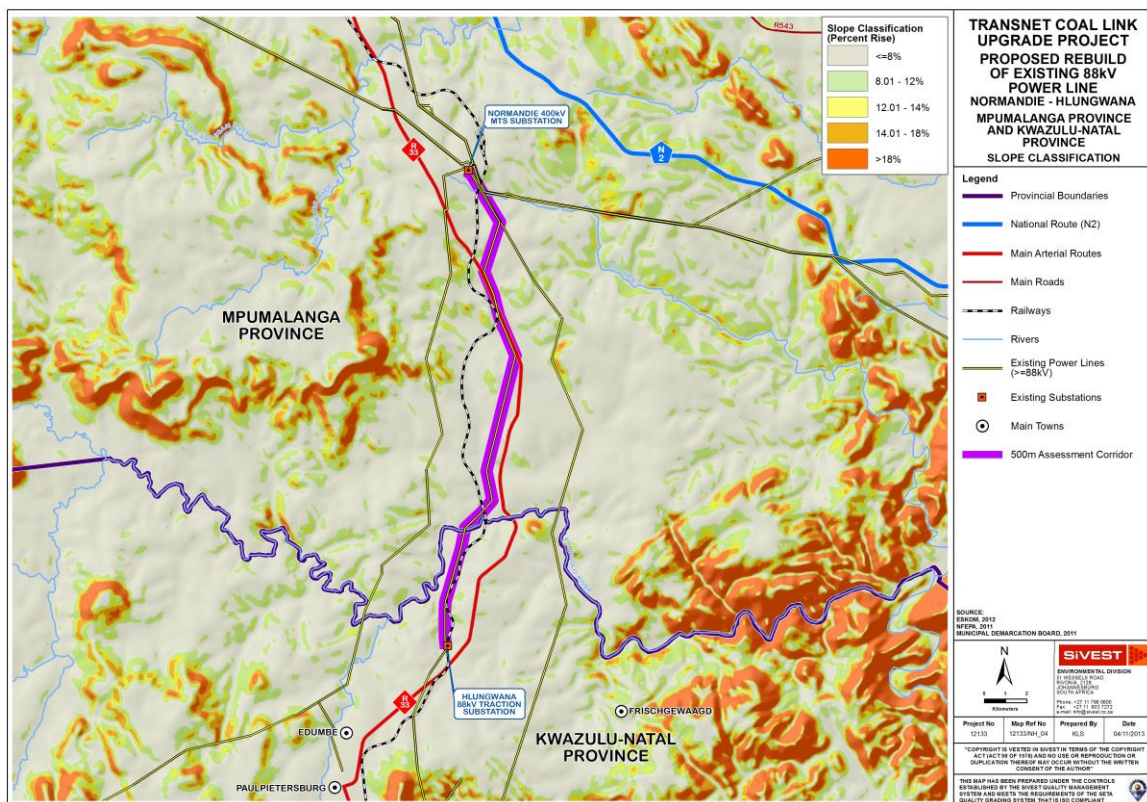


Figure 4: Slope classification Map

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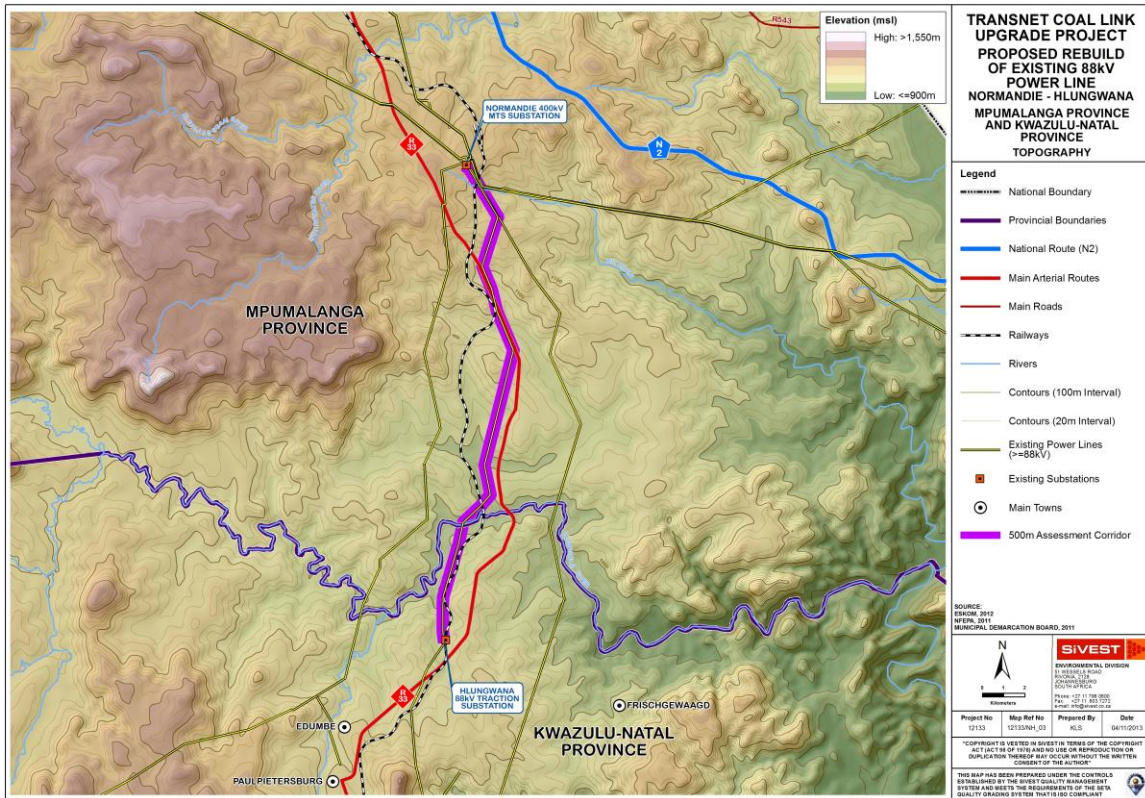


Figure 5: Topography Map

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input checked="" type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input type="checkbox"/>	2.6 Plain	<input type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>
2.10 At sea	<input type="checkbox"/>				

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative S1:	Alternative S2 (if any): N/A	Alternative S3 (if any): N/A
Shallow water table (less than 1.5m deep)	<input type="checkbox"/>	YES	YES
Dolomite, sinkhole or doline areas	<input type="checkbox"/>	NO	NO
Seasonally wet soils (often close to water bodies)	<input checked="" type="checkbox"/>	YES	YES
Unstable rocky slopes or steep slopes with loose soil	<input type="checkbox"/>	NO	NO
Dispersive soils (soils that dissolve in water)	<input type="checkbox"/>	YES	YES
	<input checked="" type="checkbox"/>	NO	NO
	<input checked="" type="checkbox"/>	NO	NO

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Soils with high clay content (clay fraction more than 40%)
 Any other unstable soil or geological feature
 An area sensitive to erosion

✓YES	
	✓NO
✓YES	

YES	NO
YES	NO
YES	NO

YES	NO
YES	NO
YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

4. GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition ^E	Natural veld with scattered aliens ^E	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an “^E” is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn’t have the necessary expertise.

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	✓YES	
Non-Perennial River		✓NO
Permanent Wetland	✓YES	
Seasonal Wetland	✓YES	
Artificial Wetland		✓NO
Estuarine / Lagoonal wetland		✓NO

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If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

Thirty wetlands were found in the study area:

- **Nine (9) hillslope seep wetlands**

Characterised mainly by gently sloping hills towards the north to more moderately sloping hills in the southern half of the proposed corridor. The condition of the wetlands varied from most that were eroded to few wetlands that were in an un-degraded and generally good condition. Gully and/or head-cut erosion was therefore a common characteristic for most of the hillslope seep wetlands, with some being moderately to seriously affected.

- **Eleven (11) channelled valley bottom wetlands;**

The channelled valley bottom wetlands could be easily identified in the low lying areas between hills in the landscape, along with the presence of a distinct channel whether in flow or not. The size of the channels associated with the wetlands varied as some could be associated with minor tributaries flowing into bigger systems downstream, whilst other constituted larger systems with channel widths of approximately 30m. Erosion was a prominent feature for many of the channelled valley bottom wetlands.

- **Nine (9) un-channelled valley bottom wetlands;**

The un-channelled valley bottom wetlands were relatively constrained by the surrounding topography with the exception of un-channelled valley bottom wetland 6 which has been identified as a wetland where towers might need to be located in. In some areas of the wetlands, erosion had set in either upstream or downstream of the delineated wetland. Effectively, erosion had in some instances eroded away much of the wetland in the affected areas.

- **One (1) floodplain wetland**

The floodplain wetland is situated in a wide valley bottom adjacent a secondary tributary of the Phongola River. The floodplain can be expected to be driven by overbank flooding in the form of lateral and horizontal water inputs. However, water input from the adjacent landscape can also be expected. Soils at the outer edges of the floodplain indicated that the inundation is likely to be seasonal with soils reflecting Plinthic characteristics with mottling evident in soil samples. The Westliegh Soil Form could therefore be attributed to the wetland indicating a seasonal inundation cycle. The floodplain was noted to be inundated at the time of the field visit.

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

✓ Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station ^H
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential ^A	Church	✓ Agriculture
Retail commercial & warehousing	Old age home	✓ River, stream or wetland
Light industrial	Sewage treatment plant ^A	Nature conservation area
Medium industrial ^{AN}	Train station or shunting yard ^N	Mountain, koppie or ridge

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Heavy industrial ^{AN}	✓ Railway line ^N	Museum
Power station	Major road (4 lanes or more) ^N	Historical building
Office/consulting room	Airport ^N	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam ^A	Sport facilities	✓ Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

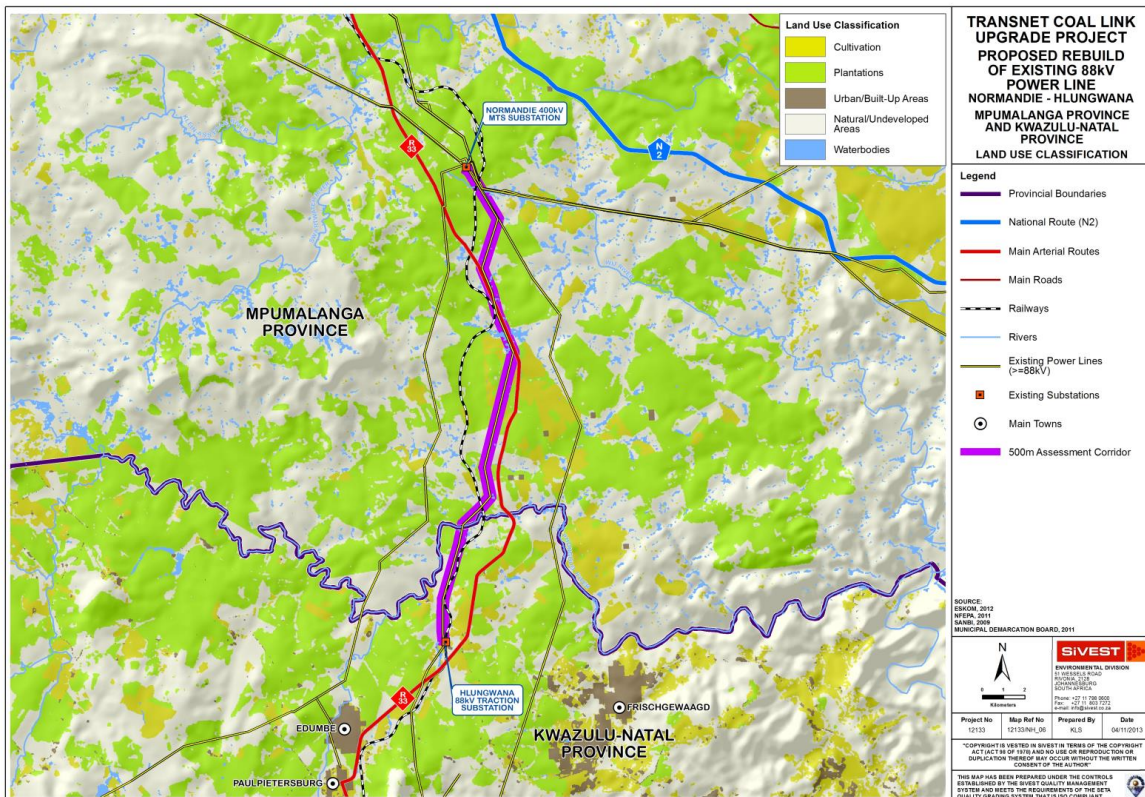


Figure 7: Land use Map

If any of the boxes marked with an "N" are ticked, how will this impact / be impacted upon by the proposed activity?

There will be no impact on the Railway line as the project activities include the upgrade of an existing line.

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

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Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	✓YES	
Core area of a protected area?		✓NO
Buffer area of a protected area?		✓NO
Planned expansion area of an existing protected area?		✓NO
Existing offset area associated with a previous Environmental Authorisation?		✓NO
Buffer area of the SKA?		✓NO

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:

✓YES

As per the Heritage Impact Assessment completed by Frans Prins (Active Heritage CC) (refer to Appendix D), one Later Iron Age Site was located during the survey. The footprint does not form part of any known cultural landscape. The Later Iron Age Site has been rated as Local Grade 111B. This site is considered to be of high significance locally. It should be mitigated, and part retained as a heritage site before destruction. The recommendations of the specialist are to maintain a buffer zone of at least 50m around the identified Later Iron Age Site. The power line should be shifted 40 m to the west of its present trajectory.

A second phase Heritage Impact Assessment will be necessary and a permit must be obtained from SAHRA to allow possible rescue excavation and/or grave relocation.

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

Will any building or structure older than 60 years be affected in any way?

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

✓NO

✓YES

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

Refer to above and the specialist report in Appendix D.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

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Level of unemployment:

Edumbe Local Municipality

According to the eDumbe Local Municipality IDP 2012/2013 (Section C3) eDumbe municipality currently has a population of 101 607 people of which 11 229 are employed in the formal and informal sectors. Of the 11 229 people employed in eDumbe, 8 550 are employed in the formal sector and 2 679 are employed in the informal sector. Most of the employed workers in the formal sector are either semi or unskilled labourers. Highly skilled workers are only about 800 people, which is a small proportion of the total employed persons in the municipality.

Mkhondo Local Municipality

According to the Mkhondo Local Municipality IDP 2010/2011 (Section 2.1.8), although the area has a large economically active population (56 %), unemployment figures are relatively high at 43 %. This is however does show a reduction of 3 % from 2001.

Gender	Male / Female	47 : 53		46 : 54		% Males decreased.
Employment Status	Not Economically Active Population (incl <15 and >65)	98,159	↑ 69%	71,094	↓ 67%	The % of economically active population increased.
	Economically Active Population	44,737	↓ 31%	35,362	↑ 33%	
	Total Population	142,896	100%	106,456	100%	
	Employed	24,251	↓ 54%	20,053	↑ 57%	% Unemployment decreased.
	Unemployed	20,486	↑ 46%	15,309	↓ 43%	
	Total Economically Active	44,737	100%	35,362	100%	

Economic profile of local municipality:

Edumbe Local Municipality

Employment per sector data indicates that majority of the employed belong to the agricultural sector followed by community, social and personal services sector (eDumbe Municipality IDP 2012/2013, Section C6). The agricultural sector employs about 1700 people, which accounts for 10 % of the total population in eDumbe and 20 % of the formal employment total working population.

The area has a number of tourist attractions mainly the nine hot and cold mineral water pools at Natal Spa just outside town, Fort Clergy in Luneburg, the village of Luneburg which is the original settlement of German Lutheran missionaries and Mkuze Game Reserve which is close by and easily accessible.

Mkhondo Local Municipality

In terms of Gross Geographical Product (Mkhondo Local Municipality IDP 2010/2011; Section 2.1.8) the two most important employment sectors are agriculture at 36 % and community services at 18 %. These sectors are followed by trade at 13 % and manufacturing at 12 %. It is evidence that the economy is not very diversified still being highly reliant on the agricultural sector. This reinforces the fact that forestry is and will remain an important asset in the region. Reliance on the community services sector is high, and thus indicative of the social needs provision in the region.

Level of education:

Edumbe Local Municipality

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The Edumbe IDP indicates that 17 % of residents over the age of 20 have no schooling at all, only 5 % have a matric, and 1.5 % some form of higher education qualification.

Mkhondo Local Municipality

There are several primary schools distributed widely throughout the area. These are not only centred in the urban areas, but generally also cover the rural areas, which is appropriate given the high percentage of rural based people residing in the Mkhondo area. There are 15 secondary schools in the municipal area which are located and scattered across the wards, however as the population grows the need for more arises.

Gender	Male / Female	47 : 53		46 : 54		% Males decreased.
Highest Education	No schooling	↑ 31,419	22%	↓ 12,681	12%	A definite increase in the number of people with a Tertiary education occurred.
	Primary School	↑ 53,736	38%	↓ 35,158	33%	
	Secondary School	↑ 36,543	26%	↓ 36,275	34%	
	Certificate / Diploma	↓ 2,032	1%	↑ 4,480	4%	
	Degree	↓ 575	0%	↑ 886	1%	
	Not applicable	↑ 18,584	13%	↓ 16,970	16%	
	Total	142,889	100%	106,450	100%	

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?

What is the expected yearly income that will be generated by or as a result of the activity?

Will the activity contribute to service infrastructure?

Is the activity a public amenity?

How many new employment opportunities will be created in the development and construction phase of the activity/ies?

What is the expected value of the employment opportunities during the development and construction phase?

What percentage of this will accrue to previously disadvantaged individuals?

How many permanent new employment opportunities will be created during the operational phase of the activity?

What is the expected current value of the employment opportunities during the first 10 years?

What percentage of this will accrue to previously disadvantaged individuals?

R 79 000 000
Transnet will be able to increase their export tonnage.
✓YES
✓NO
Unknown at this stage
R 790 000
80 %
Unknown at this stage
Unknown
80 %

9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

BASIC ASSESSMENT REPORT

a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
✓Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	The power line passes through CBA 3 areas; the reasons for their designation as such are: FEATURE 1 Doratogonus falcatus FEATURE 2 Paulpietersburg Moist Grassland FEATURE 3 Transvaalana draconis FEATURE 4 Whitea alticeps

b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	0 %	
Near Natural (includes areas with low to moderate level of alien invasive plants)	15 %	These areas are usually associated with wetland areas and the terrestrial areas directly adjacent thereto
Degraded (includes areas heavily invaded by alien plants)	10 %	Some areas are highly degraded particularly the northerly section where the power line runs adjacent to and crosses the R 33
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	75 %	Forestry and cultivation dominate nearly the entire proposed route, as do roads and other infrastructure such as power lines and railway lines

c) Complete the table to indicate:

- (i) the type of vegetation, including its ecosystem status, present on the site; and
- (ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems								
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)	Estuary				Coastline			
	Endangered									
	✓Vulnerable									
	Least Threatened									
	✓YES	NO	UNSURE	YES	NO	YES	NO			

- d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

Gladiolus aurantiacus, was the only protected plant species that was commonly occurring within the existing servitude. The grassland areas however, have all been exposed to significant disturbance and have limited or no conservation significance.

Please refer to the Biodiversity Assessment Report included in Appendix D1 of this report.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Sowetan Newspaper	
	Ermelo Tribune	
	Zululand Observer	
	Paulpietersburg Advertiser	
Date published	Adverts will be published between the 23 rd March – 3 rd April 2015 (Final Date will be included in the FBAR)	
Site notice position	Latitude	Longitude
	To be included in the FBAR	
Date placed	Site Notices will be placed between the 23 rd March – 3 rd April 2015 (Final Date will be included in the FBAR)	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 54(2)(e) and 54(7) of GN R.543.

Key stakeholders (other than organs of state) identified in terms of Regulation 54(2)(b) of GN R.543:

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Refer to Appendix E for all key stakeholder information.		

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
<p>The Public Participation Process for the Draft BAR is still to be completed. Comments and issues raised by Interested and Affected Parties, as well as responses sent by the EAP during the Public Participation Process will be incorporated into the Final Basic Assessment Report and the Comments and Responses chapter (Appendix E3) for review by all registered stakeholders and for submission to the Department of Environmental Affairs.</p>	

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Please refer to Appendix E4.					

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, 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.

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

Activity	Impact summary	Significance	Proposed mitigation
Biodiversity	Direct impacts:		
	Impact on rare and endemic plant species	Low Negative	<ul style="list-style-type: none"> - In the event that a protected, rare or endemic plant is encountered during the construction of the power line or access roads, then the plants will be identified and uplifted and replaced in areas adjacent the disturbance. - Obtain a permit for the upliftment or damage, destruction of the plants. - Roads may be re-directed if required. - Tower positions can be moved to accommodate these species if so determined by the specialist or CA.
	Impact on Natural Vegetation	Low negative	<ul style="list-style-type: none"> - Placement of the new line within the existing servitude or the 500 metre wide corridor will not result in any sensitive vegetation being impacted upon. - Access to the new line will be simple, as most roads exist and thus access is readily available and will not result in the need to create new roads. - Roads may be re-directed if required. - No development of roads must occur through wetland areas, and where possible new roads must not be created. - Opportunity exists to double circuit existing power line and utilise existing tower positions and temporary lines to rebuild line while still supplying the required electrical supply.
	Impact on Sensitive vegetation types	Low negative	<ul style="list-style-type: none"> - Try to maintain the power line within the original alignment and servitude through double circuiting and temporary line building. - Don't create new access roads, utilise existing roads - Should the need arise to obtain permits, this process needs to be undertaken
	Impact on natural systems and their potential fragmentation	Low negative	<ul style="list-style-type: none"> - Power lines and other linear infrastructural features exist; therefore an additional feature within this corridor of linear development will not impact on the landscapes and its fragmentation, so long as it's contained within the existing linear feature corridor that comprises, roads, railway and electrical infrastructure.
	Impact on Conservation	Low negative	<ul style="list-style-type: none"> - Maintenance of the power line within the predefined corridor will result in the power line not impacting any conservation

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
	Areas		areas.
	Indirect impacts:		
	Impact of maintenance activities on sensitive environments and vegetation	Low negative	<ul style="list-style-type: none"> - Utilise helicopters and camera technology to check the power lines. - Maintain an alien free servitude - Prevent regular driving within the servitude and restrict driving to existing roads. t driving to existing roads.
	Impact resulting from rehabilitation	Medium Negative	<ul style="list-style-type: none"> - Rehabilitation utilizing plant species indigenous to the surrounding area, following removal of a substation and or roads. - Removal of an ongoing disturbance as a result of the roads removal.
	Impact associated with potential alien plant species infestations	Medium Negative	<ul style="list-style-type: none"> - The control and management of alien invasive plant species through a management plan to be created, once the decision to decommission is made. - Provide budget to manage the alien plant species for a period of no less than 5 yrs post decommissioning - Set aside a budget to rehabilitate areas with natural vegetation as a preventative measure to stop alien infestations and establishment. - Prevent livestock from entering areas where infrastructure has been decommissioned. - Should the need arise to obtain permits, this process needs to be undertaken
	Cumulative impacts:		
	None identified.		
Desktop Faunal	Direct impacts:		
	Vegetation clearing, disturbance and the use of heavy machinery and human presence along the power line route and at substation locations during construction is likely to negatively affect resident fauna directly and through habitat loss.	Medium Negative	<ul style="list-style-type: none"> - Construction staff should undergo environmental induction to ensure that they are aware of fauna-related issues and that no fauna are harmed during construction. This pertains especially to fauna such as snakes which are persecuted regardless of the threat they may or may not pose. - The footprint of the development in the vicinity of the rivers should be kept as low as possible and existing access roads should be used wherever possible so that new river crossings are not required. - All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill. - No fires should be allowed within the site as there is a risk of runaway veld fires. - If any parts of site such as construction camps must be lit at night, this should be done with low-UV type lights (such as most LEDs), which do not attract insects and which should be directed downwards. - An ECO should be present during construction to ensure compliance as well as ensure that any affected fauna can be removed to safety. - Any active burrows within the footprint should be checked for fauna before construction commences and should it not be possible to adjust the footprint to avoid such features, then the resident fauna should be relocated or excluded from the burrows so that they are not impacted by construction activities. - All construction vehicles should adhere to a low speed limit

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Activity	Impact summary	Significance	Proposed mitigation
			<p>(30 km/h) to avoid collisions with susceptible species such as snakes and tortoises.</p> <ul style="list-style-type: none"> - Regular dust suppression during construction, especially along access roads which are used frequently. - No activity should be allowed at the site between sunset and sunrise. - Any dangerous fauna (snakes, scorpions etc) that are encountered during construction should not be handled or molested by the construction staff and the ECO or other suitably qualified persons should be contacted to remove the animals to safety. - Holes and trenches should not be left open for extended periods of time and should only be dug when needed for immediate construction. Trenches that may stand open for some days, should have places where the loose material has been returned to the trench to form an escape ramp present at regular intervals to allow any fauna that fall in to escape.
	Indirect impacts:		
	None identified.		
	Cumulative impacts:		
	None Identified		
Surface Water	Direct impacts:		
	Construction Lay-down Area Potential Impacts: Drainage Line and Watercourse Riparian Habitat Degradation	Medium Negative	<ul style="list-style-type: none"> - Seasonal scheduling of the construction process: It is important that construction activities must be scheduled to take place over the dry winter season when there is little rainfall and flows are low (June/July/August). - Location of the lay-down area: The location of the lay-down area is not to be within 100m of a drainage line, watercourse or the associated buffer zone. All materials, machinery and vehicles are to be kept in a designated area that is located outside and at least 100m away from the identified surface water resources and the associated buffer zones.
	Towers in Surface Water Resources and Removal of Vegetation for the Stringing of Power lines through Watercourse Riparian Habitat: Drainage Line and Watercourse Riparian Habitat Loss	High Negative	<ul style="list-style-type: none"> - Avoid Delineated Wetlands and the Associated Buffer Zone. To prevent this potential impact, all delineated wetlands and the associated buffer zones must be avoided as far as possible to minimise wetland habitat loss. This can be achieved mainly with the careful and strategic placement of the proposed power line outside of the wetland and buffer zone areas. - Obtaining Relevant Environmental Authorisation and Water Use License/General Authorisations. Many of the identified wetlands span the width of the corridor and will need to be crossed, thereby potentially resulting in the need for the clearance of vegetation within the servitude of the proposed power lines. Additionally, un-channelled valley bottom wetland 6 and floodplain wetland 1 are relatively extensive and too wide for the spanning ability of the proposed power lines. Towers will therefore need to be placed within these wetlands. Given this, the necessary environmental authorisation and water use license/general authorisation (whichever is applicable after consultation with DWA) will need to be obtained prior to any construction activities being undertaken within these wetlands. - Minimal Clearance of Vegetation. Where vegetation is to be cleared within wetlands, this must be undertaken by hand and no vehicles are to be allowed within the wetlands. The

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Activity	Impact summary	Significance	Proposed mitigation
			<p>area where vegetation is to be removed must be clearly demarcated to limit impact to the required construction areas. Additionally, the clearance of vegetation is only to take place within the servitude area. No vegetation is to be removed when clearing vegetation. Vegetation is only to be trimmed so that it can re-establish. This is to be undertaken in consideration of Eskom's vegetation clearance policy.</p> <ul style="list-style-type: none"> - Minimising Impacts in Wetlands when Erecting Towers. Towers are to be placed at the outer most edges of the wetlands to ensure that the cores of the wetlands are not affected. Additionally, the fewest number of towers possible are to be permitted within the wetlands. Suitable tower locations are to be stipulated in the final wetland walk-down assessment. Where towers are to be erected within wetlands, site specific mitigation measures as stipulated in the sections below are to be undertaken.
	Human Degradation Impacts: Surface Water Resource Fauna and Flora Physical Degradation	Medium negative	<ul style="list-style-type: none"> - Minimising Human Physical Degradation. Construction workers are not allowed in the demarcated wetland and the associated buffer zone areas unless it is in the authorised RoW areas. - Preventing Loss or Harm to Fauna and Flora. No animals are to be hunted, captured, trapped, removed, injured, killed or eaten. Additionally, no wetland vegetation is to be removed, harvested or damaged. Should any party be found guilty of such offences, stringent penalties should be imposed. The appointed ECO is to be contacted should the possible removal of any fauna be required during the construction phase. - Preventing the Usage of Wetlands for Sanitation Purposes. No "long drop" or chemical toilets are allowed in the wetlands and the associated buffer zones. Wetlands may also not be allowed to be used for sanitation purposes. Suitable temporary chemical sanitation facilities are to be provided. Temporary chemical sanitation facilities must be placed at least 100 meters from any of the wetlands and the associated buffer zones. Temporary chemical sanitation facilities must be placed over a bunded or a sealed surface area and adequately maintained to prevent pollution impacts. - Preventing Water Extraction from Wetlands. No water is to be extracted unless a water use license is granted for specific quantities and access into wetlands has been granted within the environmental authorisation and/or the water use license.
	Service Road Establishment and Subsequent Vehicle Degradation Impacts to Riparian Habitats	High negative	<ul style="list-style-type: none"> - Preventing Vehicle Degradation Impacts. Service roads must not be planned through wetlands unless it is to the permitted tower locations. In this instance, access roads may only be permissible to the tower locations and not entirely through the surface water resources. Alternative routes must be planned and established that circumvent surface water resources completely as far as possible. No bridges or culverts are to be constructed within and through wetlands.
Indirect impacts:			
	Vehicle and Machinery Impacts: Drainage Line	Medium Negative	<ul style="list-style-type: none"> - Prevention of Vehicles and Machinery in Surface Water Resources. To prevent this potential impact, existing roads that are present should be utilised. Depending on the location of the towers, additional access routes from the

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
	and Watercourse Compaction and Degradation		<p>existing access roads may potentially need to be established. New access routes must not be established in the wetlands and the associated buffer zones. Should access be required to towers either side of a particular wetland, the wetland is to be circumvented. Access will therefore need to be established around the delineated wetlands and the associated buffer zones (with the exception of un-channelled valley bottom wetland 6 and floodplain wetland 1 and where existing towers are currently within wetlands). Similarly, no machinery is to be brought into or allowed to operate in a wetland or the associated buffer zone. All surface water resources and the associated buffer zones within close proximity (200m) of construction areas are to be demarcated as “highly sensitive” areas and must be avoided. The only exception will be for towers that are to be removed from wetlands as well as un-channelled valley bottom wetland 6 and floodplain wetland 1 as the towers will not be able to span these two wetlands and tower(s) will most likely need to be located within the wetlands. In this instance, a “Right of Way” (Row) will need to be established. This will only be allowed where the relevant environmental authorisation and water use license/general authorisation has been obtained. Any areas outside the demarcated RoW must be considered no-go areas.</p> <ul style="list-style-type: none"> - Establishment of “Right of Way” Construction Areas. Should the relevant environmental authorisation and water use license be obtained for construction in certain wetlands where existing towers are to be removed (including but not limited to un-channelled valley bottom wetland 6 and floodplain wetland 1), a single access route or RoW is to be established to the desired construction area in the wetland (including the buffer zone). The width of the RoW must be limited to the width of the vehicles required to enter the wetland (no more than a 3m width). An area around the location where the tower will need to be placed will also need to be established. This too must be limited to the smallest possible area (no bigger than 20m²) to prevent unnecessary degradation. The RoW areas are to be clearly demarcated. The Environmental Control Officer (ECO) must monitor the RoW areas to ensure that no transgression into the surrounding wetland system has taken place. Penalties are to be imposed should transgression occur. Furthermore, construction workers are also only to be allowed access to the RoW areas and not into the surrounding wetland and the associated buffer zone system. - The number and type of permissible vehicles or machinery into or near to the sensitive areas must be limited to the bare minimum. Preferably light vehicles are to be utilised where possible. - Preventing Soil Contamination. All vehicles and machinery are to be checked for oil, fuel or any other fluid leaks before entering the construction areas (RoW). All vehicles and machinery must be regularly serviced and maintained before being allowed to enter the construction areas. No fuelling, re-fuelling, vehicle and machinery servicing or maintenance is to take place in the highly sensitive areas. The construction site is to contain sufficient safety measures

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Activity	Impact summary	Significance	Proposed mitigation
			<p>throughout the construction process. These include, but are not limited to, oil spill kits and fire extinguishers. Fuel, oil or hazardous substances storage areas must be bunded to prevent oil or fuel contamination of the ground and/or wetlands or associated buffer zones.</p> <ul style="list-style-type: none"> - Prevention of Hazardous Materials in Surface Water Resources. No hazardous materials are to be stored or brought into the highly sensitive areas. Should a designated storage area be required, the storage area must be placed at the furthest location from the wetlands. Appropriate safety measures as stipulated above must be implemented. - Post-construction Rehabilitation of RoW Areas. All RoW areas are to be inspected by the ECO and suitable rehabilitation measures are to be stipulated, implemented and enforced for the rehabilitation of the affected RoW areas.
	<p>Erosion, Increased Run-off and Sedimentation to Surface Water Resources</p>	<p>Medium Negative</p>	<ul style="list-style-type: none"> - Preventing Increased Run-off and Sedimentation Impacts. Vegetation clearing is to take place in a phased manner, only clearing areas that will require construction immediately. Vegetation clearing must not take place in areas where construction will only take place in the distant future. Vegetation must not be completely removed and must be undertaken according to standard Eskom vegetation clearance standards and policies. - Adequate structures must be put into place (temporary or permanent where necessary in extreme cases) to deal with run-off and sediment volumes. The use of silt fencing and potentially sandbags or hessian "sausage" nets can be used to prevent erosion in susceptible construction areas near wetlands. - All impacted construction areas near and in surface water resources are to be adequately sloped to prevent the onset of erosion. - Limiting Removal of Excavated Soils in Wetlands. Where the existing towers are to be removed and the new towers are to be constructed in the identified wetlands and the associated buffer zone, excavated topsoils should be stockpiled separately from subsoils so that it can be backfilled in the correct order for rehabilitation purposes. Wetland soils must not be removed unless there is a surplus. The soils are to be re-used when back filling. Should there be a surplus of soils that are excavated, these should be taken to a registered landfill site that has sufficient capacity to assimilate the spoil. The topsoil is to be used for rehabilitation purposes and must not be removed. It is critical that when the soils are reinstated, the subsoils are to be backfilled first followed by the topsoil. The topsoil contains a natural seedbank from which the affected wetlands and buffer zone can naturally rehabilitate. - Where the soils are excavated from the sensitive areas, it is preferable for them to be stockpiled adjacent to the excavation pit to limit vehicle and any other movement activities around the excavation areas. - Preventing Pollution Impacts. Cement mixing should take place over a bin lined (impermeable) surface or alternatively in the load bin of a vehicle to prevent the direct mixing of cement with the soils of the wetlands and/or the associated buffer zones. Importantly, no mixing of cement directly in the

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
			<p>wetland or the associated buffer zones is allowed, as well as in the RoW areas.</p> <ul style="list-style-type: none"> - Protection of Stockpiled Soils. Stockpiled soils will need to be protected from wind and water erosion. Stockpiled soils are not to exceed a 2m height and are to be bunded by suitable materials. Stacked bricks surrounding the stockpiled soils can be adopted. Alternatively, wooden planks pegged around the stockpiled soils can be used.
	Vehicle Degradation Impacts: stringing of power lines through surface water resources	Low negative	<ul style="list-style-type: none"> - Preventing Vehicle Degradation Impacts: Previously, recommendations to prohibit vehicle access into wetlands must be upheld. For the stringing process specifically, stringing of the power lines must be undertaken by hand and a maximum of fifteen (15) workers are allowed to cross through surface water resources. Once this has been undertaken, access must be strictly prohibited in the highly sensitive areas unless a RoW has been established allowing limited access during the construction phase only. The ECO must be on site to observe the stringing process through the surface water resources to ensure that potential impacts are minimised and where required, adequate mitigation measures to address impacts are undertaken.
Cumulative impacts:			
	Wetland Reliant Avifauna Power Line Collision and Electrocutation Impacts	High Negative	<ul style="list-style-type: none"> - Preventing Avi-fauna Collisions and Electrocutations. During the construction phase, it is critical that the stretches of power lines that are within or in close proximity (approximately 200m) to any riparian habitat are fitted with flight deviators or bird anti-collision devices (whichever is more appropriate – refer to Avi-fauna Specialist Study) to prevent impacts to avi-fauna. The fitment of the devices or deviators must take place on the ground before stringing the power lines takes place. Sufficient insulation must also be fitted to the towers structures and the proposed substation to prevent electrocution. Finally, bird friendly tower structures as per Eskom's designs can be considered to further mitigate collision and electrocution impacts
Geographical and physical Aspects	Direct Impacts		
	None identified.		
	Indirect Impacts		
	Soil erosion through vegetation clearance and soil compaction by heavy duty construction vehicles	Low negative	<p>Refer to EMPr attached in Appendix G:</p> <ul style="list-style-type: none"> - All vehicles to remain within the designated vehicle tracks; and - Minimum / no movement in areas already eroded.
Contamination of soils through indiscriminate disposal of construction waste and accidental spillage of petroleum products.	Low negative	<p>Refer to EMPr in Appendix G:</p> <ul style="list-style-type: none"> - Storage of any materials shall not take place within 32m of any watercourses or sensitive environments. - Fuel, oil and any other hazardous substances and harmful materials shall be stored in suitable containers within adequately bunded areas (with 110% of the capacity of the volume of the container) in a dry, secure environment, with concrete or sealed flooring. - Material Safety Data Sheets shall be kept for all hazardous materials and substances and a copy of the Material Safety Data sheets shall be made available to all workers to ensure that the required safe handling and necessary 	

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
			<p>precautions are taken when using the materials.</p> <ul style="list-style-type: none"> - The PC will ensure that materials storage facilities are cleaned/ maintained on a regular basis, and that leaking containers are disposed of in a manner that allows no spillage onto the bare soil or surface water.
Cumulative Impact			
None identified.			
Agricultural Potential and Soils	Direct impacts:		
	Loss of agricultural land and / or production as a result of the proposed substation construction	Medium Negative	<ul style="list-style-type: none"> - Plan detail routing options to minimise the need for removal of forested areas - Due to the overarching route characteristics, and the nature of the proposed development, viable mitigation measures are limited and will most likely revolve around erosion control: - Clearing activities should be kept to a minimum. - In the unlikely event that heavy rains are expected, activities should be put on hold to reduce the risk of erosion. - If additional earthworks are required, any steep or large embankments that are expected to be exposed during the 'rainy' months should be armoured with fascine like structures. - If earth works are required then storm water control and wind screening should be undertaken to prevent soil erosion. - Interact with landowners during the routing process. - The utilisation of existing towers will further reduce potential impacts. - Following the existing servitude as far as possible is highly recommended due to the existing impacts associated with these areas.
	Indirect impacts:		
	None identified.		
Cumulative impacts:			
None identified.			
Avifauna Impacts	Direct impacts:		
	Collision of birds with overhead power line cables, in particular the earth wire.	High Negative	<ul style="list-style-type: none"> - It will be important for a suitably qualified avifaunal specialist to conduct an avifaunal walk through assessment just before construction in order to identify the exact spans of line requiring collision mitigation measures. The high risk areas have been roughly identified by this report but this should be refined when final tower/pylon positions are available. - High risk sections of line should be fitted with the best Eskom approved anti bird collision line marking device available at the time of construction. These devices should be installed on the earth wire according to Eskom standards. - It will be important for Eskom to report all bird collisions detected during maintenance line patrols, so that the significance of this impact and the effectiveness of mitigation can be accurately evaluated.
	Electrocution of birds on pylons/towers and in substation yard	Medium Negative	<ul style="list-style-type: none"> - It is essential that the lattice tower used provides at least 2 000mm of clearance between phase-phase and phase-earth. There is no doubt that White-backed Vultures in particular and large eagles will perch on the towers/pylons and will be at risk of electrocution if these clearances are smaller. - It will be important for Eskom to report all bird electrocutions detected during maintenance line patrols, so that the significance of this impact and the effectiveness of mitigation

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
			<p>can be accurately evaluated.</p> <ul style="list-style-type: none"> - Within the substation yard there are numerous hardware components which could electrocute birds. However due to the complexity of this hardware, and the species likely to frequent substation yards (mostly non Red-Listed) it is recommended that mitigation only be considered if a problem is detected once the substation is operational.
	Indirect impacts:		
	Disturbance of birds in the area during construction of the proposed project	Medium to low negative	<ul style="list-style-type: none"> - It will be important for a suitably qualified avifaunal specialist to conduct an avifaunal walk through assessment just before construction in order to determine whether any Red-Listed bird species are breeding on the servitude. This could include breeding on the existing power line tower structures. If such breeding birds are identified case specific management recommendations will be developed by the specialist. - In addition to the above exercise, general environmental best practices should suffice for reducing the disturbance as far as possible. These include; strict management of staff, vehicles and machinery on site; and completing construction within the shortest possible time.
	Destruction and alteration of habitat available to birds in the area during construction of the proposed project	Medium - Low negative	<ul style="list-style-type: none"> - All of the natural vegetation along the servitude and on the substation site should be protected as far as possible, although it is acknowledged that some removal is inevitable. It is recommended that vegetation removal is kept to an absolute minimum however. - In addition to the above exercise, general environmental best practices should suffice for reducing the disturbance of vegetation as far as possible. These include; strict management of staff, vehicles and machinery on site
	Cumulative impacts:		
	None Identified		
Heritage	Direct impacts:		
	One Later Iron Age site occurs on the footprint	High Negative	Not applicable in this instance as it would be possible to shift the powerlines slightly in order to accommodate heritage conservation principles. However, the South African Heritage Act requires that any operations exposing archaeological and historical residues should cease immediately pending an evaluation by the heritage authorities.
	Indirect impacts:		
	None Identified. No heritage sites occur on or near footprint		
	Cumulative impacts:		
	None Identified. No heritage sites occur on or near footprint		
Visual	Direct Impacts		
	Large construction vehicles and equipment during the construction phase may change the visual character of the study area and expose sensitive receptors to	Low Negative	<ul style="list-style-type: none"> - Carefully plan to reduce the construction period. - Locate construction camp and storage areas in zones of low visibility i.e. behind tall trees or in lower lying areas. - Minimise vegetation clearing and rehabilitate cleared areas as soon as possible. - Maintain a neat construction site by removing rubble and waste materials regularly. - Make use of existing gravel access roads where possible.

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Activity	Impact summary	Significance	Proposed mitigation
	visual impacts associated with the construction phase.		
	Indirect impacts:		
	None Identified		
	Cumulative impacts:		
	Change to the visual character of the surrounding area and visual impact on potentially sensitive visual receptors that may perceive the substation to be an unwelcome intrusion.	Low Negative	<ul style="list-style-type: none"> - Align the power line as far away from sensitive receptor locations as possible. - Align the power line to run parallel to existing power lines and other linear impacts such as roads and the existing railway line. - Align the power line within the tall commercial forestry plantation, where possible.
Socio-economic	Direct Impacts		
	Positive economic impacts as a result of higher coal export tonnage, as well as temporary and permanent employment opportunities, thereby contributing positively to the expansion and strengthening of local economic activities.	High Positive	N/A: Mitigation not required.
	Indirect impacts:		
	None identified.		
Dust	Cumulative impacts:		
	None identified.		
	Direct impacts:		
	None identified.		
Dust	Indirect impacts:		
	Dust impacts on surrounding environment associated with construction activities	Low negative	<ul style="list-style-type: none"> - Generation of dust shall be minimised and dust nuisance for the surrounding areas shall be kept to a minimum wherever possible. - Dust from exposed soil surfaces shall be minimised at all times, only using water spray during extremely windy conditions - Reasonable measures must be undertaken by the contractor to ensure that any exposed areas and material stockpiles are adequately protected against the wind. - Dust screens of a suitable height should be erected wherever required and possible. - All exposed surfaces should be minimised in terms of

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Activity	Impact summary	Significance	Proposed mitigation
			duration of exposure to wind and stormwater.
	Cumulative impacts:		
	None identified.		
Noise	Direct impacts:		
	None identified.		
	Indirect impacts:		
	Noise impacts on surrounding environment associated with construction activities (Construction vehicles and equipment)	Low Negative	<ul style="list-style-type: none"> - The contractor shall adhere to the local by-laws and regulations regarding the noise and associated hours of operations. - The contractor shall limit noise levels (e.g. install and maintain silencers on machinery). The provisions of sans 1200a sub-clause 4.1 regarding “built-up” area shall apply to all areas within audible distance of residents whether in urban, peri-urban or rural areas. - Construction and demolition activities generating output of 85db or more, shall be limited to normal working hours and not allowed during weekends. - Should the contractor need to work outside normal working hours, any affected individuals shall be informed prior to the work taking place. - No amplified music shall be allowed on site.
	Cumulative impacts:		
None identified.			
Waste	Direct impacts:		
	None identified.		
	Indirect impacts:		
	Generation of additional waste/ litter and building rubble/hazardous materials during the construction phase	Medium Negative	Waste management mitigation measures as detailed in the EMPr (attached in Appendix G) includes: <ul style="list-style-type: none"> - Solid waste (construction waste and builders rubble) will be collected by independent contractors and disposed of at the registered licensed municipal landfill site in with proof of safe disposal as required. - The contractor shall ensure that all litter is collected daily from the work area. Similarly, all bins shall be emptied daily and the waste disposed of at a permitted landfill site. - The contractor shall ensure that the construction site, working and eating areas are maintained in a clean, hygienic and orderly state. - Separate bins should be provided for various materials to facilitate recycling. The bins should have liner bags for easy control and safe disposal of waste. - The excavation and use of rubbish pits on site is forbidden. - The burning of waste is forbidden. - All vehicles and equipment must be maintained in a good condition in order to minimise the risk of leakage and possible contamination of the soil or storm water by fuels, oils and hydraulic fluids. - Sufficient quantities of suitable hydrocarbon absorption or remediation materials must be present on site at all times.
	Cumulative impacts:		
None identified.			
No-go option			
Socio-economic	Direct impacts:		
	Socio - Economic	High Negative	Negative socio-economic impacts as a result of inadequate supply of electricity to the Transnet railway system thereby preventing an increased export tonnage of coal. This will prevent job creation in the Ulundi area and hinder South Africa's

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Activity	Impact summary	Significance	Proposed mitigation
			economic growth in the coal export sector
	Indirect impacts:		
	None identified.		
	Cumulative impacts:		
	None identified.		

A complete impact assessment in terms of Regulation 22(2)(i) of GN R.543 must be included as Appendix F.

2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

On-site and off-site alternatives have also not been assessed. The main reasons for not evaluating on-site and off-site alternatives include:

The property on which or location where it is proposed to undertake the activity:

No site alternatives have been considered for this project as the placement of the proposed power line is dependent on a number of considerations, all of which have been identified as being favourable at the proposed site location. These considerations include the existing operational power lines in the area, grid connections, existing substations and access to the site. In addition, Transnet have identified traction substations and associated power lines that need to be upgraded in order to facilitate the high demand for coal exports which directly places increased demand on the countries energy supply.

Considering that the proposed development is a power line rebuild the proposed development site is the only feasible option as it is a minor section of the existing line that will be upgraded. The project site also has advantageous grid connection potential through the existing Normandie and Hlungwana Substation. The site is also easily accessible from the well-maintained gravel road at the Normandie substation (northern end of the power line) and at the Hlungwane substation west of the R33. Access roads along the power line may require upgrading or construction where no access roads are present. The existing power line corridor is therefore considered highly suitable for the proposed development and no other locations or corridors are being considered. It must be noted that the 500m wide corridor forms part of the assessment of the proposed power line rebuild to allow for some maneuverability where required.

The type of activity to be undertaken:

No feasible and reasonable activity alternative exists therefore this cannot be considered. The proposed activity is the rebuild of an existing power lines in order to meet the energy required by Transnet to increase their coal output. The proposed development is activity specific in that power lines are required to transmit and distribute electricity,

The design or layout of the activity:

Various environmental specialists have assessed the site within the 500m assessment corridor and

have included the identification of sensitive areas. The identified sensitive areas will be used to guide the exact location of the power line rebuild in conjunction with, landowner negotiations and technical constraints. Additionally, there are various tower types being considered for the proposed development. Each tower design type will have very little to no variation in environmental impacts between the different tower design types, as they will occupy relatively the same footprint size and have the same tower height. Additionally, the type of towers to be used will be determined by technical constraints and ultimately determined by the engineers. Therefore no feasible or reasonable design or layout alternatives were assessed in this BA.

The technology to be used in the activity;

There are four (4) construction strategies being applied for in this BA. The technology options include a servitude swap; line bypass, line section bypass or a servitude widening. The choice of technology used will ultimately be determined by the land owner / servitude negotiations process and technological constraints at a later stage. As it is envisaged that any power line rebuild may warrant a combination off all four construction strategies based on the land owner / servitude negotiation process and technical constraints. It is therefore important to note that the environmental authorisation should not limit any of the above options. It is noted that all four construction strategies would need to be considered within the environmental considerations / constraints occurring within the 500m corridor. Such constraints can be managed via the site specific EMPr and implemented by an environmental control officer. The selection of the four construction strategies will be informed by the public participation process and the land owner negotiations. Therefore no technology alternatives were assessed as part of this BA.

The operational aspects of the activity; and

The proposed development is operationally specific in that the operation of power lines are required for the proposed development

The option of not implementing the activity.

The option of not implementing the activity, or the **'no-go' alternative, has been considered in this BA.** The No-Go Alternative refers to the option of not implementing the proposed infrastructure development and ultimately the continuation of the current *status quo*. In order for Transnet to accomplish the increased demand for coal and the associated mining activities they need to upgrade their power supply to their various traction substations between Ermelo and Richards Bay. This will facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported. Should this development not proceed, this will result in the electricity demands not being met. This would be detrimental as South Africa is under immense pressure to provide electricity to meet the currently growing electricity demand in the country. Although the potential environmental issues, such as habitat destruction, would not occur if the project did not go ahead, the socio economic benefit of the proposed project should not be overlooked. The project would assist in achieving South Africa's goals in terms of energy security which in turn would promote local economic development.

Conclusion:

Given the above motivation, no feasible and reasonable alternatives other than *'(f) the option of not implementing the activity'* could be proposed for assessment. However, a 500m corridor was provided to specialists for assessment. The reason being, that it is likely that the proposed power line may need to be shifted for the final route selection due to environmental, social and technical reasons. The "No-go" option has however been assessed, but due to the need of the proposed project this has been ruled out.

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Ultimately, the following impacts for each phase of the proposed development are likely to take place but the severity has been limited in most instances, should the proposed mitigation measures be implemented.

Power Line																	
Botanical	<p>Given that the proposed power line will be rebuilt within the existing servitude, the impact will be less than having to create a whole new servitude. The vegetation in this area is quite well preserved, particularly north of the railway line away from any local communities. Access is limited and thus the vegetation is still relatively intact. The nature of the rebuild will determine the impacts that are to be associated with this proposed project. The simple re-stringing option is the preferred option as many of the construction related impacts will not be realized. The rebuilding using new towers and thus new tower positions will result in significantly higher impacts and at a larger scale than the restringing option and it is for this reason that it is not preferred. The need for a permit to remove protected tree species will potentially be required and this must be resolved and obtained prior to any construction commencing.</p> <p>The cumulative impact of Option 2 would be of high significance as grassland areas containing sensitive vegetation may be transformed. Further the woody vegetation removal may result in the establishment of alien infestations as well as increase the chances of erosion occurring. Access will be required and this may have far reaching consequences in so much as the area will be opened” up and allow human interference as well as impacts associated with livestock grazing. Permits to remove protected tree species will be required. There will be a need for a botanist to be on site to establish the best possible access routes as well as to undertake a walk-through of the power line prior to finalization and construction to ascertain the presence and the abundance of Protected tree and herbaceous plant species protected under National and Provincial legislation.</p>																
Fauna	<p>Given the sensitivity of the remaining grassland fragments, the option of building the new line within the servitude of the existing line is identified as the preferred solution in ensuring a minimal impact on the receiving environment. With the application of standard mitigation and avoidance measures as outlined in the report, the significance of impacts on fauna would be of low significance and there do not appear to be any impacts which cannot be mitigated or which pose a ‘red flag’ for the development.</p>																
Surface Water	<p>Ultimately, it was found that the desktop results needed major refinement and there weren’t any wetlands <i>per se</i>. Rather, thirty seven (37) watercourses were identified within the proposed development corridor which included thirty four (34) drainage lines, one (1) man-made impoundment, and two (2) watercourses. All watercourses (including drainage lines) were associated with riparian habitat.</p> <p>Foreseen potential negative impacts in terms of the pre-construction, construction, operation and decommissioning phases of the proposed development were identified and assessed. The impacts for each phase of the proposed development are summarised as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: left;">PRE-CONSTRUCTION PHASE</th> </tr> <tr> <th style="width: 60%;">Site Specific Impacts</th> <th style="width: 20%;">Pre-mitigation Rating</th> <th style="width: 20%;">Pre-mitigation Rating</th> </tr> </thead> <tbody> <tr> <td>Construction Lay-down Area</td> <td>Medium – Low</td> <td>Low</td> </tr> <tr> <th colspan="3" style="text-align: left;">CONSTRUCTION PHASE</th> </tr> <tr> <th>Generic Impacts</th> <th>Pre-mitigation</th> <th>Pre-mitigation</th> </tr> </tbody> </table>		PRE-CONSTRUCTION PHASE			Site Specific Impacts	Pre-mitigation Rating	Pre-mitigation Rating	Construction Lay-down Area	Medium – Low	Low	CONSTRUCTION PHASE			Generic Impacts	Pre-mitigation	Pre-mitigation
PRE-CONSTRUCTION PHASE																	
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CONSTRUCTION PHASE																	
Generic Impacts	Pre-mitigation	Pre-mitigation															

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		Rating	Rating
	Drainage Line and Watercourse Riparian Habitat Loss	- High	- Low
	Site Specific Impacts	Pre-mitigation Rating	Pre-mitigation Rating
	Vehicle and Machinery Degradation	- Medium	- Medium/Low
	Human Degradation of Riparian Flora and Fauna	- Medium	- Low
	Erosion, Increased Run-off and Sedimentation	- Medium	- Low
	Stringing Power Lines through Riparian Habitat	- Medium	- Low
	OPERATION PHASE		
	Impact	Pre-mitigation Rating	Pre-mitigation Rating
	Service Roads through Riparian Habitat	- High	- Low
	Site Specific Impacts	Pre-mitigation Rating	Pre-mitigation Rating
	Power Line Collision and Electrocuting Impacts to Avi-fauna	- High	- Low
	<p>Decommissioning of the existing power line will be required during the construction phase. The same impacts identified for the construction phase of the proposed development can be anticipated. This includes riparian habitat loss, vehicle and machinery degradation to riparian habitats, human degradation of riparian flora and fauna, degradation and removal of riparian soils and vegetation, as well as increased run-off, erosion and sedimentation impacts to riparian habitats. Similar impacts are expected to occur and the stipulated mitigation measures where relevant must be employed as appropriate to minimise impacts. This will also be applicable should future decommissioning of the new proposed power line will be required.</p>		
Agricultural Potential and Soils	<ul style="list-style-type: none"> - The results of the desktop study, field verification and agricultural assessment indicate that agriculture (unimproved grazing and subsistence cultivation) is the dominant land use but that high value agricultural resources are absent from the assessment area. Essentially the Umfolozi Sub-Project does not influence any important or high value agricultural areas. This fact allows for easier and a low impact agricultural routing. - The majority of land influenced by the 500 m power line corridors is classified, at best, as moderate value grazing land. While the larger subsistence fields, classified as having moderate agricultural value, can easily be avoided. - There are no centre pivots, irrigation schemes or active agricultural fields which will be influenced by the proposed developments, and as such, there are no fatal flaw areas for the assessment corridors. - Due to current agricultural value and practices the crossing of agricultural land by the power line will have a minor impact on agricultural production as normal crop production / grazing can continue take place under the power lines. This is due to the fact that most of the land is used for grazing and where subsistence cultivation is taking place the crops grown are under dry land conditions, and are all below 4 m in height at maturity. This type of activity is permitted in power line servitudes. 		

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	<ul style="list-style-type: none"> - The post mitigation significance impact scores for both power line rebuilds is classified as low negative. If the recommendations and mitigation measures outlined in this report are implemented then the proposed developments will have a very limited impact on agricultural production.
Heritage	<ul style="list-style-type: none"> - One Later Iron Age site occurs on the footprint - Therefore there are no major concerns or preferences.
Avifauna	<p>The proposed project is situated in an area with a broad diversity of micro habitats available to birds. These include grassland, wetland, arable land and rivers or streams. A reasonable number of Red Listed bird species occur in the broader area and most of these can be expected on site. Most of these species are particularly susceptible to collision with overhead lines. Fortunately this can be mitigated for by conducting an avifaunal walk through prior to construction to accurately identify the high risk sections of line. These sections of line will then need to be marked with anti bird-collision marking devices on the earth wire. Electrocuting of birds on the towers is also a risk and this can be mitigated for by building a structure with sufficient phase-phase and phase-earth clearance for birds to perch safely.</p>
Visual	<p>The overall significance of the visual impacts as a result of the proposed power line was assessed according to SiVEST's impact rating matrix. The assessment revealed that from a visual perspective the significance of the impact would be low, as rebuilding the existing 88kV power line would impact the area in a way that is barely perceptible as the rebuilt line would either be routed to follow the existing alignment or it would be aligned within relatively close proximity to the existing power line within the 500m wide corridor.</p>
Socio-Economic	N/A

No-go alternative (compulsory)

Socio Economic	<ul style="list-style-type: none"> - Negative socio-economic impacts as a result of inadequate supply of electricity to the Transnet railway system thereby preventing an increased export tonnage of coal. This will prevent job creation in the Ulundi area and hinder South Africa's economic growth in the coal export sector.
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SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?



If “NO”, indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

If “YES”, please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

Recommendations of the Biodiversity Specialist

- In the event that a protected, rare or endemic plant is encountered during the construction of the power line or access roads, then the plants will be identified and uplifted and replaced in areas adjacent the disturbance.
- Obtain a permit for the upliftment or damage, destruction of the plants.
- Roads may be re-directed if required.
- Tower positions can be moved to accommodate these species if so determined by the specialist or CA.
- Placement of the new line within the existing servitude or the 500 metre wide corridor will not result in any sensitive vegetation being impacted upon.
- Access to the new line will be simple, as most roads exist and thus access is readily available and will not result in the need to create new roads.
- No development of roads must occur through wetland areas, and where possible new roads must not be created.
- Opportunity exists to double circuit existing power line and utilise existing tower positions and temporary lines to rebuild line while still supplying the required electrical supply.
- Try to maintain the power line within the original alignment and servitude through double circuiting and temporary line building.
- Don't create new access roads, utilise existing roads
- Power lines and other linear infrastructural features exist; therefore an additional feature within this corridor of linear development will not impact on the landscapes and its fragmentation, so long as it's contained within the existing linear feature corridor that comprises, roads, railway and electrical infrastructure.
- Maintenance of the power line within the predefined corridor will result in the power line not impacting any conservation areas.
- Utilise helicopters and camera technology to check the power lines.
- Maintain an alien free servitude
- Prevent regular driving within the servitude and restrict driving to existing roads.
- Rehabilitation utilizing plant species indigenous to the surrounding area, following removal of a substation and or roads.
- Removal of an ongoing disturbance as a result of the roads removal.
- The control and management of alien invasive plant species through a management plan to be created, once the decision to decommission is made.
- Provide budget to manage the alien plant species for a period of no less than 5 yrs post decommissioning
- Set aside a budget to rehabilitate areas with natural vegetation as a preventative measure to stop alien infestations and establishment.

- Prevent livestock from entering areas where infrastructure has been decommissioned.

Recommendations of the Surface Water Specialist:

- The overarching recommendation is that the final proposed power line route is to avoid wetlands as far as possible to prevent the unnecessary placement of towers within wetlands and the associated buffer zones. However, this will most likely be unavoidable since several wetlands will need to be accessed where existing towers are located within wetlands and where wetland areas exceed the spanning length of the power lines thereby requiring towers to be located inside particular wetlands (including but not limited to un-channelled valley bottom wetland 6 and floodplain wetland 1). In this case, the mitigation measures stipulated in this report must be strictly implemented, monitored and enforced.
- Since it will be required that the various wetlands will have some degree of potential impact, consultation with the Department of Water Affairs will be required to determine the need for any authorisations (for example, a General Authorisation) or licenses (for example, a Water Use License) that will be required once the final tower positions have been determined for specific wetlands. Given the above, it will be likely that a follow-up wetland specialist assessment will need to be undertaken that meets with the requirements of the required authorisation or license.
- In terms of EIA Regulations promulgated under NEMA (1998), the proposed development is likely to trigger Activity 11 and 18 as listed in Government Notice R. 544 (Listing Notice 1) as towers are likely to be removed and placed within several wetlands, thereby requiring Environmental Authorization. With regards to the NWA, a WUL or a GA may be required once the final power line route (along with tower positions) have been determined. All of the above however, should be confirmed in consultation with the DEA and DWA as relevant.

Recommendations of the Agricultural Potential and Soils Specialist

- Storage of any materials shall not take place within 32m of any watercourses or sensitive environments.
- Fuel, oil and any other hazardous substances and harmful materials shall be stored in suitable containers within adequately bunded areas (with 110% of the capacity of the volume of the container) in a dry, secure environment, with concrete or sealed flooring.
- Material Safety Data Sheets shall be kept for all hazardous materials and substances and a copy of the Material Safety Data sheets shall be made available to all workers to ensure that the required safe handling and necessary precautions are taken when using the materials.
- The PC will ensure that materials storage facilities are cleaned/ maintained on a regular basis, and that leaking containers are disposed of in a manner that allows no spillage onto the bare soil or surface water.
- If active subsistence fields are encountered they should be spanned as far as possible. Towers should be positioned at the edge of active fields. Following existing roads and utilising the edge of road servitudes is highly recommended due to the existing impacts associated with these areas.
- Attempt to use fire breaks and existing servitudes to reduce the loss of timber production.
- Interact with landowners during the routing process.
- The utilisation of optimal tower designs can further reduce the potential impacts.
- Due to the overarching route characteristics, and the nature of the proposed development, the remaining viable mitigation measures are limited and will most likely revolve around erosion control:
 - Clearing activities should be kept to a minimum.
 - In the unlikely event that heavy rains are expected, activities should be put on hold to reduce the risk of erosion.
- If additional earthworks are required, any steep or large embankments that are expected to be exposed during the 'rainy' months should be armoured with fascine like structures.

- If earth works are required then storm water control and wind screening should be undertaken to prevent soil erosion.
- Interact with landowners during the routing process.
- The utilisation of existing towers will further reduce potential impacts.
- Following existing the servitude is highly recommended due to the existing impacts associated with these areas.
- Plan detail routing options to minimise the need for removal of forested areas

Recommendations of the Avifauna Specialist

- It will be important for a suitably qualified avifaunal specialist to conduct an avifaunal walk through assessment just before construction in order to determine whether any Red-Listed bird species are breeding on the servitude. This could include breeding on the existing power line tower structures. If such breeding birds are identified case specific management recommendations will be developed by the specialist.
- In addition to the above exercise, general environmental best practices should suffice for reducing the disturbance as far as possible. These include; strict management of staff, vehicles and machinery on site; and completing construction within the shortest possible time.
- All of the natural vegetation along the servitude and on the substation site should be protected as far as possible, although it is acknowledged that some removal is inevitable. It is recommended that vegetation removal is kept to an absolute minimum however.
- It is essential that the lattice tower used provides at least 2 000mm of clearance between phase-phase and phase-earth. There is no doubt that White-backed Vultures in particular and large eagles will perch on the towers/pylons and will be at risk of electrocution if these clearances are smaller.
- Within the substation yard there are numerous hardware components which could electrocute birds. However due to the complexity of this hardware, and the species likely to frequent substation yards (mostly non Red-Listed) it is recommended that mitigation only be considered if a problem is detected once the substation is operational.

Recommendations of the Heritage Specialist

- Maintain a buffer zone of at least 50m around the identified Later Iron Age Site.
- Shift the associated power line at least 40m to the west of its present trajectory.

Recommendations of the Visual Specialist

- Carefully plan to reduce the construction period.
- Locate construction camp and storage areas in zones of low visibility i.e. behind tall trees or in lower lying areas.
- Minimise vegetation clearing and rehabilitate cleared areas as soon as possible.
- Maintain a neat construction site by removing rubble and waste materials regularly.
- Make use of existing gravel access roads where possible.
- Align the power line as far away from sensitive receptor locations as possible.
- Align the power line to run parallel to existing power lines and other linear impacts such as roads and the existing railway line.
- Align the power line within the tall commercial forestry plantation, where possible.

General Recommendations of the EAP

- All feasible mitigation measures recommended by the various specialists should be strictly implemented, where applicable to the authorised power line alignment.
- Final EMPr should be approved by DEA prior to construction.
- It is recommended that a five (5) year validity period be granted for the Environmental Authorisation.

Is an EMPr attached?

✓YES

The EMPr must be attached as Appendix G.

BASIC ASSESSMENT REPORT

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

Jenny Barnard - **SiVEST (Pty) Ltd**

NAME OF EAP



SIGNATURE OF EAP

23 March 2015

DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix D1: Biodiversity Impact Assessment

Appendix D2: Desktop faunal Review

Appendix D3: Surface Water Impact Assessment

Appendix D4: Agricultural Potential and Soils Assessment

Appendix D5: Avifauna

Appendix D6: Heritage Impact Assessment

Appendix D7: Visual Impact Assessment

Appendix E: Public Participation

Appendix E1: Proof of Advertisements and Site Notices

Appendix E2: Proof of Written Notification to Stakeholder

Appendix E3: Comments and Response Report **(To be included in the FBAR)**

Appendix E4: Proof of Written Notification to Authorities and Organs of State

Appendix E5: I&APs Database

Appendix E6: Correspondence and Meeting Minutes **(To be included in the FBAR)**

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information

Appendix J1: Competent Authority Consultation

Appendix J2: Coordinate Spreadsheets

Appendix J3: Eskom Guideline Documents

List of abbreviations

BA	Basic Assessment
BAR	Basic Assessment Report
BSA	Basic Social Assessment
C&RR	Comments and Response Report
CBA	Critical Biodiversity Area
ESA	Ecological Support Area
DAFF	Department of Agriculture, Forestry and Fisheries
DBAR	Draft Basic Assessment Report
DS	Distribution Station
DWA	Department of Water Affairs
EMF	Electric and Magnetic Fields
EMPr	Environmental Management Programme
FBAR	Final Basic Assessment Report
GIS	Geographic Information System
GN	Government Notice
HIA	Heritage Impact Assessment
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
kV	Kilovolt
MTS	Main Transmission Substation
NCDTEC	Northern Cape Department of Environmental Affairs and Nature Conservation National Environmental Management Act, 1998 (Act No.107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NFA	National Forests Act, 1998 (Act No. 84 of 1998)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NNR	No Natural Area Remaining
NPAES	National Protected Area Expansion Strategy
NWA	National Water Act, 1998 (Act No. 36 of 1998)
ONA	Other Natural Area
PPP	Public Participation Process
PV	Photovoltaic
REIPPP	Renewable Energy Independent Power Producer Programme
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute

BASIC ASSESSMENT REPORT

SANRAL	South African National Roads Agency SOC Limited
SDF	Spatial Development Framework
SG	Surveyor General
SOC	State Owned Company