# PROPOSED EXPANSION OF THE EXISTING WESGLASS SUBSTATION AND ASSOCIATED POWER LINE UPGRADE, CITY OF TSHWANE, GAUTENG PROVINCE.

## DEA REF NUMBER: 14/12/16/3/3/1/1749

## FINAL BASIC ASSESSMENT REPORT

**May 2017**

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environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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| | |
|---|---|
| **File Reference Number:** | |
| **Application Number:** | |
| **Date Received:** | |

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

**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, 2014 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 **08 December 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.

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.

## PROJECT DETAILS

| | | |
|---|---|---|
| **Title** | : | Environmental Impact Assessment Process for Proposed Expansion of the existing Wesglass Substation and Associated Power Line Upgrade, City of Tshwane, Gauteng Province. |
| **Report compiled by** | : | Company Name: Envirolution Consulting<br>Author: Mr Thabang Sekele<br>Postal Address: P.O.Box 1898, Sunninghill, 2157<br>Telephone Number: 0861 44 44 99<br><br>Fax Number: 0861 62 62 22<br>Email: thabang@envirolution.co.za |
| **Client** | : | Eskom Holdings SOC Ltd |
| **Report Status** | : | Final Basic Assessment Report for Authority decision |

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## APPENDICES

The following appendixes must be attached:

Appendix A: Maps

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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

## DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

| | | | |
|---|---|---|---|
| **Environmental Assessment Practitioner (EAP):** | Envirolution Consulting (Pty) Ltd | | |
| **Contact person:** | Gesan Govender | | |
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| **E-mail:** | gesan@envirolution.co.za | Fax: | (086) 162 62 22 |
| **EAP Qualifications** | BSc (Hons) | | |
| **EAP Registrations/ Associations** | Registered with the South African Council for Natural Scientific Professions (No: 400049/12) | | |

**Details of the EAP's expertise to carry out Basic Assessment procedures**

Envirolution Consulting Pty Ltd is contracted by Eskom as the independent environmental consultant to undertake the Environmental Basic Assessment process for the proposed project. Envirolution Consulting Pty Ltd is not a subsidiary of or affiliated to Eskom. Furthermore, Envirolution Consulting does not have any interests in secondary developments that may arise out of the authorisation of the proposed project.

Envirolution Consulting is a specialist environmental consulting company providing holistic environmental management services, including environmental impact assessments and planning to ensure compliance with environmental legislation and evaluate the risk of development; and the development and implementation of environmental management tools. Envirolution Consulting benefits from the pooled resources, diverse skills and experience in the environmental field held by its team.

The Envirolution Consulting team have considerable experience in environmental impact assessments and environmental management, and have been actively involved in undertaking environmental studies, for a wide variety of projects throughout South Africa, including those associated with linear developments.

The EAPs from Envirolution Consulting who are responsible for this project are (refer to **Appendix H** for CVs):

- Gesan Govender – The principle environmental assessment practitioner (EAP) for this project is a registered Professional Natural Scientist and holds an Honours Degree in Botany. He has over 15 years of experience within the field of environmental management. His key focus is on strategic environmental assessment and advice; management and co-ordination of environmental projects,

which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; compliance reporting; the identification of environmental management solutions and mitigation/risk minimising measures; and strategy and guideline development. He is currently responsible for the project management of EIAs for several diverse projects across the country.

- Mr. Thabang Sekele forms part of the project team and acts as the Project Manager for all phases of the project. Thabang holds a Bachelor's degree in Environmental Management from University of South Africa Thabang's key focus is on strategic environmental assessment and advice; management and co-ordination of environmental projects, which include integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; environmental auditing and compliance reporting; the identification of environmental management solution and mitigation/risk minimising measures; environmental auditing, monitoring and reporting compliance. Thabang is currently an Environmental Consultant at Envirolution Consulting (Pty) Ltd. He is currently involved in several Environmental Impact Assessments for energy projects across the country.

## SECTION A: ACTIVITY INFORMATION

| Has a specialist been consulted to assist with the completion of this section? | YES✔ | NO |
|---|---|---|

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

**1.1 Background Information**

Eskom proposes to expand the existing Wesglass substation (SS Alternative 1) (25°33'49.778"S 27°59'24.796"E) (Red square) from a physical footprint of 35 m x 45 m to a physical footprint of 150 m x 100 m (15 000 m$^{2)}$ where the capacity will also be increased from 33 kV to 132 kV on **Portion 28 of Ga-Rankuwa Industrial**, within the boundaries of City of Tshwane Metropolitan Municipality, Gauteng Province. The existing Wesglass substation is the preferred location alternative for the expansion. Two other substation site locations [SS Alternative 2 (Green square) & SS Alternative 3 (Yellow square)] are proposed as alternatives for the existing Wesglass substation expansion of which both lie approximately 750m and 950m westward of the existing Wesglass substation respectively. The two alternatives for the substation expansion will entail the construction of an entirely new substation altogether for each substation alternative (SS Alternative 2 & SS Alternative 3). (Please refer to **Figure 1**).

In addition, Eskom proposes the upgrade of the existing 33 kV overhead power line (Red) that will span for approximately 2.6 km from the existing Wesglass substation to connect to the authorised line of Ga-Rankuwa-Dipompong (Dotted Orange) to the south as shown in Figure 1. This line traverses **Portion 28, 29, 30, 31 of Ga-Rankuwa Industrial and Portion 2 & Portion 3 of Farm Sjambok Zyn Oude Kraal 258 JR**. It is important to note that Ga-Rankuwa-Dipompong line has been authorised by DEA (Ref: 14/12/16/3/3/1/1038), however, this line is yet to be constructed. Two other alternative power line routes are proposed (Alternative 2 & Alternative 3) as shown in Figure 1, the two proposed alternatives will entail the construction of an entirely new power line altogether of which will each span from the SS Alternative 2 & SS Alternative 3 respectively to extend parallel to the no longer existing train track servitude and join the Ga-Rankuwa-Dipompong line. Alternative 2 line (Green line) is approximately 1.5 km in length and Alternative 3 line (Yellow line) is approximately 1.7 km in length. (Please refer to Figure 1).

The following farms, main suburbs/areas and roads form part of the study area that will be affected by the proposed substation and power line expansion, including the alternative substations and alternative power line alignments:

- Farm Sjambok Zyn Oude Kraal 258 JR, Portion 2 & 3
- Ga-Rankuwa Industrial, Portion 28, 29, 30, 31, 80 and 388
- Ga-Rankuwa Cemetery
- Third Street in Ga-Rankuwa Industrial
- Fourth Street in Ga-Rankuwa Industrial
- Ga-Rankuwa Unit 24 & 25 Township

In summary, the proposed development for which application is being made therefore entails the following:

- The expansion of the existing Wesglass substation from a footprint of 35 m x 45 m to a footprint of 150 m x 100 m (15 000 m2) footprint where the capacity will also be increased from 33kV to 132kV.
- The expansion and/or upgrade of the existing 33 kV overhead power line (Red) that will span for approximately 2.6 km from the existing Wesglass substation to the authorised line of Ga-Rankuwa-Dipompong (Dotted Orange) to the south of which is yet to be constructed.

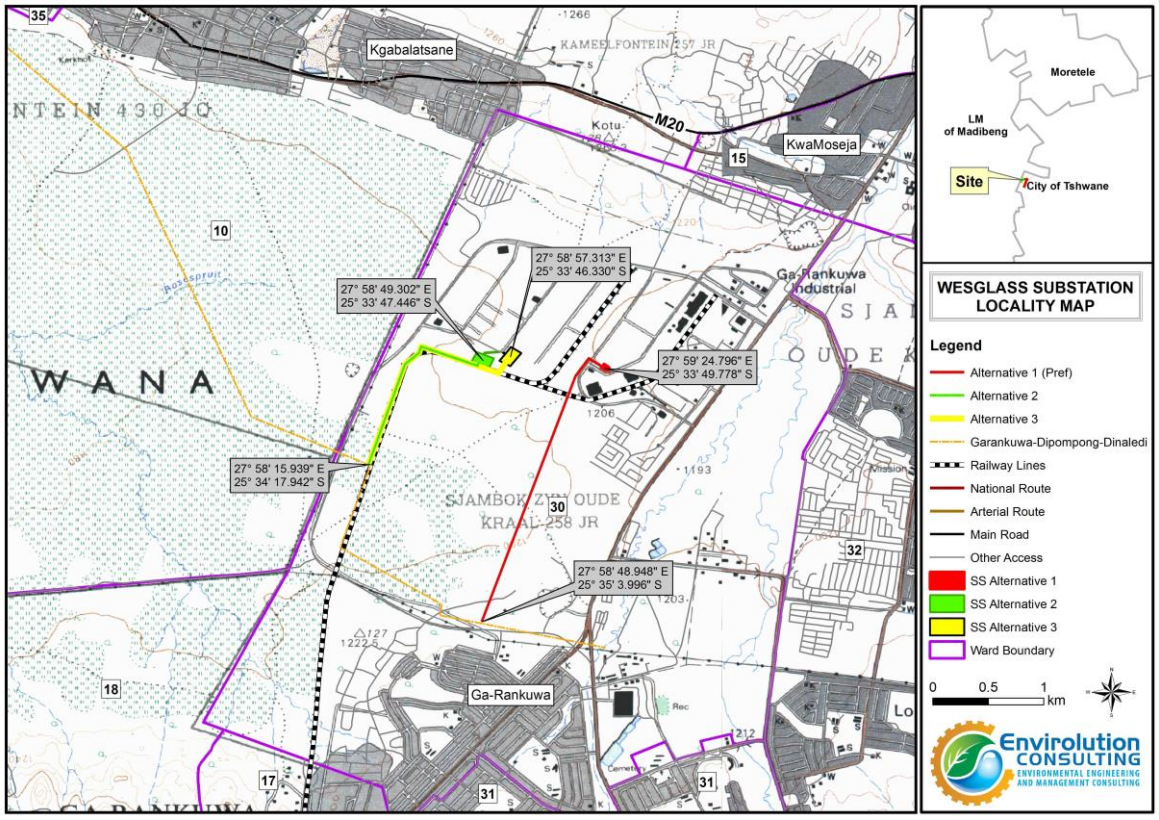


**Figure 1**: Map indicating the locality of the study area

*It must be noted that the above map indicates a railway track within the study area, however, on site there is no evidence of an existing rail way track as it is now covered by soil and vegetation and some development has since taken place over it. Thus this railway track indicated on the map (figure 1)can be classified as a historical rail way track that no longer exists or functions today.*

A brief description of the substation expansion alternatives is stated below:

**Wesglass Substation expansion**

***(SS Alternative 1) – Preferred location***

The expansion will be of the existing Wesglass substation to a 132kV specification located on **Portion 3 of Farm Sjambok Zyn Oude Kraal 258 JR.** This expansion will also be of a physical nature where the substation will be expanded from 35m x 45m to 100m x 150m (15 000 $m^{2)}$. The existing Wesglass substation is located within the Ga-Rankuwa Industrial area where the immediate surroundings to the north is disturbed open bush veld with scattered trees dominated by vegetation is mostly *Combretum* woodland on shallow rocky soil. Overall the Wesglass substation is surrounded by a number of industrial complexes and factory houses.

***(SS Alternative 2 ) location***

This site is located on open bushveld and shrubland with scattered *Acacia tortilis* trees and some *Hyparrhenia hirta* shrubland vegetation approximately 950m west of the existing. Wesglass substation. The site is disturbed and degraded due to human impacts such as borrow pits, dumping of solid waste in the borrow pits, vehicle tracks; footpaths, frequent fires, grazing, etc. The clearing of all vegetation to a footprint of 100m x 150m will have to take place if any of these alternatives are to be selected.

***(SS Alternative 3) location***

Equally as SS Alternative 2, this site is approximately 750m west of the existing Wesglass substation. This site is also disturbed and degraded due to anthological activities such as solid waste dumping, vehicle tracks, footpaths and grazing. The site area is characterised by scattered *Acacia tortilis* trees and some *Hyparrhenia hirta* shrubland vegetation.

A brief description of the power line upgrade alternatives is stated below:

**Power line expansion/upgrade**

***(Alternative 1) – Preferred route plan***

The upgrade will be of the existing 33kV power line that spans for approximately 2.6 km from the existing Wesglass substation to the authorised line of Ga-Rankuwa-Dipompong (Dotted Orange) to the south of which is yet to be constructed. This existing power line starts off at the existing Wesglass substation between Fourth and Third Street in Ga-Rankuwa Industrial, where it exits the substation in a western direction, after crossing Fourth Street it then turns south towards Main Street where it connects with the Ga-Rankuwa-Dipompong and that is characterised as a simple gum pole structure. This line traverses Ga-Rankuwa Unit 24 & 25 Township and a small section over an open disturbed area south of the Ga-Rankuwa Township.

***(Alternative 2) route plan***

The length of power line Alternative 2 is approximately 1685 m and It exits the SS Alternative 2 and heads into a western direction along the northern boundary of Ga-Rankuwa Unit 24. The alignment turns south at the northern corner of the cemetery and runs between the cemetery and Ga-Rankuwa Unit 24 and 25 towards the western entrance road to Ga-Rankuwa Unit 24 and 25.

***(Alternative 3) route plan***

The length of power line Alternative 2 is approximately 1960 m and it follows the same path as Alternative 2 but starts at SS Alternative 3 which is located north east from substation site 2. The alignment is approximately 300 m longer than Alternative 2.

**1.2. Need and desirability**

The need for the proposed power line and substation development is to strengthen the current network capacity as well as to decrease overloading on other substation networks and to improve the quality of supply in the surrounding areas.

Weglass substation is currently a 33/11kV substation. The substation is supplying the Industrial areas in the study area. There are low voltage problems that the customers had complained about since 2010. This was

shown by the voltage dips from quality of supply. The customers also complained about the supply interruptions. However, the substation will then be upgraded to 132kv network and a loop-in loop-out will be created from the Kgabalatsane substation. This will improve the customer interruptions and also the performance of the supply.

Also, the proposed development will bring about employment creation and small business procurement opportunities both during the construction and operation phase. This in result will contribute to the stimulation of the local economy and contribute to the improvement of quality of life for the local communities.

**1.3. Environmental Setting**

The environmental sensitivities on site were evaluated by various specialists. The information pertaining to the biophysical environment (geotechnical conditions, soils, drainage and ecology) has been supplemented with the results of the Specialist Geotechnical, Ecological (Flora, Fauna and Wetland), Heritage and Visual Assessments (Refer to **Appendix D** for Specialist reports).

The climate of the area can be described as a humid subtropical climate with long hot rainy summers and short cool to cold, dry winters. Most of the rainfall (84.4%) falls between October and March, and frost is common, especially in the lower-lying parts.

**1.4. Specialist Studies**

Several specialist studies have been undertaken to provide more detailed information on the environment aspects that may be affected by the proposed project. Specialist Ecological (Flora, Fauna), Wetland Opinion, Visual, Heritage and Geotechnical Assessments were undertaken during the Basic Assessment and their reports are attached as Appendices to this BAR.

**1.5 Required Services**

**1.5.1. Access Routes**

For construction purposes most areas along the route can be reached via the existing public roads and access roads. The use of roads on landowner property is subject to the Environmental Management Programme (EMPr) and will be determined based on discussions with landowners during the negotiation process. Storm water will be managed according to the Eskom Guidelines for Erosion Control and Vegetation Management as well as the EMPr that has been compiled for the construction and operational phase.

**1.5.2 Construction Site Camps**

Normally the contractor would set up at least one site camp but this does not necessarily need to be near the substation site. The contractor may however prefer to use a fully serviced site in another location. The exact location of the construction camps and material stockyards are yet to be determined.

**1.5.3 Sewage**

A negligible sewage flow is anticipated for the duration of the construction period. Onsite treatment will be undertaken through the use of chemical toilets. The toilets will be serviced periodically by the supplier and effluent will be collected for disposal into the registered Waste Water Treatment Works by the appointed

service provider.

### 1.5.4 Solid Waste Disposal

All solid waste will be collected at a central location at each construction site and will be stored temporarily until removal to a registered permitted landfill site.

### 1.5.5 Electricity

Diesel generators will be utilised for the provision of electricity where electricity connection is not readily available.

### 1.5.6 Construction Process

Generally, the construction of the power line and substation is expected to consist of the following sequential phases:

- Feasibility and identification of line alternatives.
- Basic Assessment input and environmental permitting.
- Negotiation of final route with affected landowners.
- Survey of the proposed route.
- Selection of structures suited to the terrain and ground conditions.
- Final design of the distribution line and placement of towers.
- Issuing of tenders and eventually appointment of contractors for the project.
- Vegetation clearance and construction of access roads (if required).
- Pegging of structures.
- Construction of foundations.
- Assembly and erection of structures.
- Stringing of conductors.
- Rehabilitation of disturbed areas and protection of erosion sensitive areas.
- Testing and commissioning.
- Operation and routine maintenance.

It is estimated that the construction period for this project will be **18-24 months**.

### 1.5.7 Operation Phase.

The proposed new power line and power line expansion will require routine maintenance work throughout the operation phase. The servitude of 36m will be registered (a right of way) along the length of the power line. During this operation phase, vegetation within the servitude will require management if it occurs, only if it impacts on the maintenance of the power line. Minimal maintenance will also be required at the substation.

### 1.5.8 Decommissioning Phase.

It must be noted that, decommissioning and closure phase has not been considered as part of this application as the end use of the site and required decommissioning activities are not known at this time. If decommissioning phase is considered in future, the developer will undertake the required actions as prescribed by the legislation at the time and comply with all relevant requirements administered by any relevant authority and competent authority at that time.

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

| **Listed activity** | **Description of project activity** |
|---|---|
| R983 Listing 1 Activity 11 (i) | |
| The development of facilities or infrastructure for the transmission and distribution of electricity – (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts. | The proposed development will be constructed outside the urban area and will transmit electricity of up to 132 kilovolts. |
| R983 Listing 1 Activity 12 (xi) | |
| The development of<br>(xii) infrastructure or structures covering 50 square metres or more<br>Where such construction occurs within a watercourse or within 32 metres of a watercourse | Alternative 2 &3 pylon structures covering 50 more than square metres will be located within 32 metres of a watercourse. |
| R983 Listing 1 Activity 19 (i) | |
| The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shell grit, pebbles or rock of more than 5 cubic metres from –<br><br>(i) a watercourse | Alternative 2 &3 power lines pylon structures will interact with the artificial wetland on site. Excavations and depositing of concrete of more than 5 cubic metres will take place for pylon foundations that interact with the watercourse and its buffer zone. |
| R983 Listing 1 Activity 27 | |
| The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for- (i) the undertaking of a linear activity. | The proposed development requires the clearance of indigenous vegetation of more than 1 hectare but less than 20 hectares. |
| R985 Listing 3 Activity 14 (xii) (a) (b) (iv) | |
| The development of –<br>(x) buildings exceeding 10 square metres in size<br>(xii) infrastructure or structures with a physical footprint of 10 square metres or more<br><br>(a) within a watercourse<br>(b) In Gauteng<br><br>(iv) Sites identified as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans. | Electrical infrastructure with a physical footprint of more than 10 square metres will be developed in Gauteng Province in an area identified as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) in the Gauteng Conservation Plan. |

## 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 Appendix 1 (3)(h), Regulation 2014. 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.

### a) Site alternatives

**SUBSTATION**

As already mentioned, the proposed development will entail the expansion of the existing Wesglass substation (SS Alternative 1). The substation is located on Portion 3 of Farm Sjambok Zyn Oude Kraal 258 JR.

| **SS Alternative 1 (preferred alternative)** | | |
|---|---|---|
| Description | Lat (DDMMSS) | Long (DDMMSS) |
| Centre coordinates of the existing Wesglass (SS Alternative 1) substation. The expansion of the existing Wesglass substation presents optimal grid connection in relation to the power line upgrade.<br><br>The expansion will be of the existing Wesglass substation to a 132kV specification located on Portion 3 of Farm Sjambok Zyn Oude Kraal 258 JR. This expansion will also be of a physical nature where the substation will be expanded from 35m x 45m to 100m x 150m. The existing Wesglass substation is located within the Ga-Rankuwa Industrial area where the immediate surroundings to the north is disturbed open bush veld with scattered trees dominated by vegetation is mostly *Combretum* woodland on shallow rocky soil. Overall the Wesglass substation is surrounded by a number of industrial complexes and factory houses.<br><br>**Advantages:** | 25°33'49.778"S | 27°59'24.796"E |

| | | |
|---|---|---|
| ***Vegetation*** - Although the vegetation specialist (see Appendix D2) found that all the site alternatives are considered to be of a low ecological sensitivity due to the transformation of the vegetation in the study area, SS Alternative 1 (expansion) is considered the better alternative because lesser vegetation clearance will take place around an existing substation as part of its expansion as opposed to SS Alternative 2 & 3 (new construction) where the entire substation footprint vegetation clearance will be applicable.<br><br>***Fauna*** - The Fauna and habitat assessment found that the impact on fauna is expected to be small to negligent. The presence of indigenous terrestrial vertebrates within the study area is relatively low.<br><br>***Wetland*** - This substation alternative take place well away from any watercourse. More than 500 m away. The local wetlands will remain intact.<br><br>***Heritage*** - The substation location acceptable from a heritage point of view due to the lack of heritage resources found.<br><br>***Visual*** - SS Alternative 1 substation is the most preferred location as it will be an expansion of an existing substation which is considered more preferable as opposed to establishing an entirely new substation.<br><br>***Social*** - The proposed development will bring about employment creation and small business procurement opportunities both during the construction and operation phase. This in result will contribute to the stimulation of the local economy and contribute to the improvement of quality of life for the local communities<br><br>**Disadvantages:**<br><br>***Vegetation*** – No particular disadvantage as lesser vegetation clearance will take place as compared to other alternatives. The vegetation is considered to be of a low ecological sensitivity due to the transformation of the vegetation in the study area.<br><br>***Fauna*** – Minor as this alternative entails lesser vegetation clearance and habitat loss for the small indigenous terrestrial vertebrates and loss of grazing land for the local livestock due to it being an extension of an existing substation.<br><br>***Wetland*** – No particular direct disadvantage as this alternative is located well away from any watercourse. More than 500 m away.<br><br>***Heritage*** – No particular disadvantage as the location is acceptable from a heritage point of view due to the lack of heritage resources found.<br><br>***Visual*** – No particular disadvantage as the electrical baseline infrastructure already exists and sensitive visual receptors are located away from the industrial area.<br><br>***Social*** – Not all job seekers will find employment from this proposed development during the construction phase and could potentially create squabbles between the contractor and local job seekers. | | |
| **SS Alternative 2** | | |
| Description | Lat (DDMMSS) | Long (DDMMSS) |
| Centre coordinates of the SS Alternative 2 substation. | 25$^{o}$33’47.446”S | 27$^{o}$58’49.302”E |

| | | |
|---|---|---|
| This site is located on open bushveld and shrubland with scattered Acacia *tortilis* trees and some *Hyparrhenia hirta* shrubland vegetation approximately 950m west of the existing. Wesglass substation. The site is disturbed and degraded due to human impacts such as borrow pits, dumping of solid waste in the borrow pits, vehicle tracks; footpaths, frequent fires, grazing, etc. The clearing of all vegetation to a footprint of 100m x 150m will have to take place if any of these alternatives are to be selected.<br><br>**Advantages:**<br><br>***Vegetation –*** No particular advantage over SS Alternative 1. However, considered to be of a low ecological sensitivity due to the transformation of the vegetation in the study area.<br><br>***Fauna*** – No particular advantage when compared to the SS Alternative 1 due to more vegetation clearance taking place for new substation construction in an open area and thus reducing the habitat of small indigenous terrestrial vertebrates and grazing land of the local livestock.<br><br>***Wetland*** - This substation alternative take place well away from any watercourse. More than 500 m away. The local wetlands will remain intact.<br><br>***Heritage*** - The substation location acceptable from a heritage point of view due to the lack of heritage resources found.<br><br>***Visual –*** Dense vegetation cover, consisting of medium to large trees to help conceal the substation.<br><br>***Social*** - The proposed development will bring about employment creation and small business procurement opportunities both during the construction and operation phase. This in result will contribute to the stimulation of the local economy and contribute to the improvement of quality of life for the local communities<br><br>**Disadvantage:**<br><br>***Vegetation*** - SS Alternative 1 (expansion) is considered the better alternative because lesser vegetation clearance will take place around an existing substation as part of its expansion as opposed to SS Alternative 2 (new construction) where the entire substation footprint vegetation clearance will be applicable.<br><br>***Wetland*** – No particular direct disadvantage as this alternative is located well away from any watercourse. More than 500 m away. The local wetlands will remain intact.<br><br>***Heritage*** – No particular disadvantage as the location is acceptable from a heritage point of view due to the lack of heritage resources found.<br><br>***Visual –*** There is no baseline electricity infrastructure at this alternative. The construction of an entirely new substation will introduce a new visual intrusion to the most sensitive observer group in the study area of which are the residents of GaRankuwa. | | |

| | | |
|---|---|---|
| ***Social*** – Not all job seekers will find employment from this proposed development during the construction phase and could potentially create squabbles between the contractor and local job seekers. | | |
| **SS Alternative 3** | | |
| Description | Lat (DDMMSS) | Long (DDMMSS) |
| Centre coordinates of the SS Alternative 3 substation.<br><br>Equally as SS Alternative 2, this site is approximately 750m west of the existing Wesglass substation. This site is also disturbed and degraded due to anthological activities such as solid waste dumping, vehicle tracks, footpaths and grazing. The site area is characterised by scattered Acacia *tortilis* trees and some *Hyparrhenia* hirta shrubland vegetation.<br><br>**Advantages:**<br><br>***Vegetation –*** No particular advantage over SS Alternative 1. However, considered to be of a low ecological sensitivity due to the transformation of the vegetation in the study area.<br><br>***Fauna*** – No particular advantage when compared to the SS Alternative 1 due to more vegetation clearance taking place for new substation construction in an open area and thus reducing the habitat of small indigenous terrestrial vertebrates and grazing land of the local livestock.<br><br>***Wetland*** - This substation alternative take place well away from any watercourse. More than 500 m away. The local wetlands will remain intact.<br><br>***Heritage*** - The substation location acceptable from a heritage point of view due to the lack of heritage resources found.<br><br>***Visual –*** Dense vegetation cover, consisting of medium to large trees to help conceal the substation.<br><br>***Social*** - The proposed development will bring about employment creation and small business procurement opportunities both during the construction and operation phase. This in result will contribute to the stimulation of the local economy and contribute to the improvement of quality of life for the local communities<br><br>**Disadvantage:**<br><br>***Vegetation*** - SS Alternative 1 (expansion) is considered the better alternative because lesser vegetation clearance will take place around an existing substation as part of its expansion as opposed to SS Alternative 3 (new construction) where the entire substation footprint vegetation clearance will be applicable.<br><br>***Wetland*** – No particular direct disadvantage as this alternative is located well away from any watercourse. More than 500 m away. The local wetlands will remain intact.<br><br>***Heritage*** – No particular disadvantage as the location is acceptable from a heritage | 25°33'46.330"S | 27°58'57.313"E |

| | | |
|---|---|---|
| point of view due to the lack of heritage resources found.<br><br>***Visual*** **–** There is no baseline electricity infrastructure at this alternative. The construction of an entirely new substation will introduce a new visual intrusion to the most sensitive observer group in the study area of which are the residents of GaRankuwa.<br><br>***Social*** – Not all job seekers will find employment from this proposed development during the construction phase and could potentially create squabbles between the contractor and local job seekers. | | |

In the case of linear activities:

**POWERLINE**

***(Alternative 1) – Preferred route plan***

The upgrade will be of the existing 33kV power line that spans for approximately 2.6 km from the existing Wesglass substation to the authorised line of Ga-Rankuwa-Dipompong (Dotted Orange) to the south of which is yet to be constructed. This existing power line starts off at the existing Wesglass substation between Fourth and Third Street in Ga-Rankuwa Industrial, where it exits the substation in a western direction, after crossing Fourth Street it then turns south towards Main Street where it connects with the Ga-Rankuwa-Dipompong and that is characterised as a simple gum pole structure. This line traverses Ga-Rankuwa Unit 24 & 25 Township and a small section over an open disturbed area south of the Ga-Rankuwa Township.

**Advantages:**

***Vegetation*** - Although the vegetation specialist (see Appendix D2) found that all the site alternatives are considered to be of a low ecological sensitivity due to the transformation of the vegetation in the study area, Alternative 1 (upgrade) is considered the better alternative because lesser vegetation clearance will take place around the existing route corridor as part of the upgrade as opposed to Alternative 2 & 3 (new construction) where the entirely new power lines will be constructed.

***Fauna*** - The Fauna and habitat assessment found that the impact on fauna is expected to be small to negligent. The presence of indigenous terrestrial vertebrates within the study area is relatively low especially where the route traverses Ga-Rankuwa residential area.

***Wetland*** - This power line alternative take place well away from any watercourse. More than 500 m away. The local wetlands will remain intact.

***Heritage*** - The power line location is acceptable from a heritage point of view due to the lack of heritage resources found.

***Visual*** - Alternative 1 power line is the most preferred location as it will be an upgrade of an existing power line which is considered more preferable as compared to establishing an entirely new power line.

***Social*** - The proposed development will bring about employment creation and small business procurement opportunities both during the construction and operation phase. This in result will contribute to the stimulation of the local economy and contribute to the improvement of quality of life for the local communities

**Disadvantages:**

***Vegetation*** – No particular disadvantage as lesser vegetation clearance will take place as compared to other alternatives. The vegetation is considered to be of a low ecological sensitivity due to the transformation of the vegetation in the study area.

***Fauna*** – Minor as this alternative entails lesser vegetation clearance and habitat loss for the small indigenous terrestrial vertebrates and loss of grazing land for the local livestock due to it being an upgrade of an existing power line.

***Wetland*** – No particular direct disadvantage as this alternative is located well away from any watercourse. More than 500 m away.

***Heritage*** – No particular disadvantage as the location is acceptable from a heritage point of view due to the lack of heritage resources found.

***Visual*** – No particular disadvantage as the electrical baseline infrastructure already exists and sensitive visual receptors are located away from the industrial area.

***Social*** – Not all job seekers will find employment from this proposed development during the construction phase and could potentially create squabbles between the contractor and local job seekers.

### *(Alternative 2) route plan*

The length of power line Alternative 2 is approximately 1685 m and It exits the SS Alternative 2 and heads into a western direction along the northern boundary of Ga-Rankuwa Unit 24. The alignment turns south at the northern corner of the cemetery and runs between the cemetery and Ga-Rankuwa Unit 24 and 25 towards the western entrance road to Ga-Rankuwa Unit 24 and 25.

**Advantages:**

***Vegetation*** **–** No particular advantage over power line Alternative 1. However, considered to be of a low ecological sensitivity due to the transformation of the vegetation in the study area.

***Fauna*** – No particular advantage when compared to the power line Alternative 1 due to more vegetation clearance taking place for new power line construction in an open area and thus reducing the habitat of small indigenous terrestrial vertebrates and grazing land of the local livestock.

***Wetland*** - This power line alternative takes place well away from any watercourse. More than 500 m away. The local wetlands will remain intact.

***Heritage*** - The power line location is acceptable from a heritage point of view due to the lack of heritage resources found.

***Visual –*** Dense vegetation cover, consisting of medium to large trees to help conceal the substation.

***Social*** - The proposed development will bring about employment creation and small business procurement opportunities both during the construction and operation phase. This in result will contribute to the stimulation of the local economy and contribute to the improvement of quality of life for the local communities

**Disadvantage:**

***Vegetation*** - SS Alternative 1 (expansion) is considered the better alternative because lesser vegetation clearance will take place around an existing substation as part of its expansion as opposed to this alternative (new construction) where the entire power line footprint vegetation clearance will be applicable.

***Wetland*** – No particular direct disadvantage as this alternative is located well away from any watercourse. More than 500 m away. The local wetlands will remain intact.

***Heritage*** - The power line location is less desired as compared to power line Alternative 1 (upgrade) because this alternative runs very close parallel to the Ga-Rankuwa Cemetery. The cemetery however is adequately fenced.

***Visual –*** There is no baseline electricity infrastructure at this alternative. The construction of an entirely new substation will introduce a new visual intrusion to the most sensitive observer group in the study area of which are the residents of GaRankuwa.

***Social*** – Not all job seekers will find employment from this proposed development during the construction phase and could potentially create squabbles between the contractor and local job seekers.

***(Alternative 3) route plan***

The length of power line Alternative 2 is approximately 1960 m and it follows the same path as Alternative 2 but starts at SS Alternative 3 which is located north east from substation site 2. The alignment is approximately 300 m longer than Alternative 2.

**Advantages:**

***Vegetation –*** No particular advantage over power line Alternative 1. However, considered to be of a low ecological sensitivity due to the transformation of the vegetation in the study area.

***Fauna*** – No particular advantage when compared to the power line Alternative 1 due to more vegetation clearance taking place for new power line construction in an open area and thus reducing the habitat of small indigenous terrestrial vertebrates and grazing land of the local livestock.

***Wetland*** - This power line alternative takes place well away from any watercourse. More than 500 m away. The local wetlands will remain intact.

***Heritage*** - The power line location is acceptable from a heritage point of view due to the lack of heritage resources found.

***Visual –*** Dense vegetation cover, consisting of medium to large trees to help conceal the substation.

***Social*** - The proposed development will bring about employment creation and small business procurement opportunities both during the construction and operation phase. This in result will contribute to the stimulation of the local economy and contribute to the improvement of quality of life for the local communities

**Disadvantage:**

***Vegetation*** - SS Alternative 1 (expansion) is considered the better alternative because lesser vegetation clearance will take place around an existing substation as part of its expansion as opposed to this alternative (new construction) where the entire power line footprint vegetation clearance will be applicable.

***Wetland*** – No particular direct disadvantage as this alternative is located well away from any watercourse. More than 500 m away. The local wetlands will remain intact.

***Heritage*** - The power line location is less desired as compared to power line Alternative 1 (upgrade) because this alternative runs very close parallel to the Ga-Rankuwa Cemetery. The cemetery however is adequately fenced.

***Visual –*** There is no baseline electricity infrastructure at this alternative. The construction of an entirely new substation will introduce a new visual intrusion to the most sensitive observer group in the study area of which are the residents of Ga-Rankuwa.

***Social*** – Not all job seekers will find employment from this proposed development during the construction phase and could potentially create squabbles between the contractor and local job seekers.

| **Alternative:** | **Latitude (S):** | **Longitude (E):** |
|---|---|---|
| Alternative 1 (preferred) | | |
| • Starting point of the activity | 25°33'49.778" S | 27°59'24.796" E |
| • Middle/Additional point of the activity | 25° 34' 27.935" S | 27° 59' 02.592" E |
| • End point of the activity | 25° 35' 03.996" S | 27° 58' 48.948" E |
| | | |
| Alternative 2 | | |
| • Starting point of the activity | 25°33'47.446" S | 27°58'49.302" E |
| • Middle/Additional point of the activity | 25° 33' 54.814" S | 27° 58' 24.135" E |
| • End point of the activity | 25° 34' 17.942" S | 27° 58' 15.939" E |
| | | |
| Alternative 3 | | |
| • Starting point of the activity | 25°33'46.330"S | 27°58'57.313"E |
| • Middle/Additional point of the activity | 25° 33' 47.526" S | 27° 58' 27.655" E |
| • End point of the activity | 25° 34' 17.942" S | 27° 58' 15.939" E |

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.

A table has been attached as **Appendix J1** with all the proposed power line coordinates

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 of this form.

A table has been attached as **Appendix J1** with all the proposed power line coordinates

**b) Lay-out alternatives**

Layout alternatives for substations are constrained as the area to be transformed cannot deviate significantly from the standard design for 33/132kV substations as required by Eskom's building standards. Therefore there are no layout alternatives. However, the placement of the substation and the position of the power line pylons will be required to be in line with Eskom's technical requirements, as well as specific landowner requirements. This will be negotiated within the broader power line servitudes being considered.

| Alternative 1 (preferred alternative) | | |
|---|---|---|
| Description | Lat (DDMMSS) | Long (DDMMSS) |
| | | |
| Alternative 2 | | |
| Description | Lat (DDMMSS) | Long (DDMMSS) |
| | | |
| Alternative 3 | | |
| Description | Lat (DDMMSS) | Long (DDMMSS) |
| | | |

**c) Technology alternatives**

No technology alternatives are applicable. The choice of power line tower structure will be finalised based on the final grid connection alternative and Eskom connection requirements.

| Alternative 1 (preferred alternative) |
|---|
| |
| Alternative 2 |
| |
| Alternative 3 |
| |

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

The choice of structure to be used for the substation and power lines will be determined in consultation with Eskom and does not significantly affect the environmental impact of the proposed development in any way. No defined structure has been decided confirmed at this stage and will depend on Eskom's technical requirements. The line must be constructed according to the authorised standards for a power line approved by Eskom.

| Alternative 1 (preferred alternative) | | |
|---|---|---|
| | | |
| Alternative 2 | | |
| | | |
| Alternative 3 | | |
| | | |

**e) No-go alternative**

The No-go option implies that the Project does not proceed, and will thus comprise of Eskom not going ahead with the construction of the proposed power line and substation expansion. Ideally, this would be the preferred alternative as the status quo of the environment remains unchanged, however due to the growing demand for energy and activities that will require electricity in the area, this alternative is not preferred.

This option is assessed as the "No go" alternative in this basic assessment report.

**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):**

**SUBSTATION**

| **Alternative:** | **Size of the activity:** |
|---|---|
| SS Alternative 1 (preferred activity alternative) | 15 000 m² |
| SS Alternative 2 | 15 000 m² |
| SS Alternative 3 | 15 000 m² |

and/or, for linear activities:

**POWERLINE**

| **Alternative:** | **Length of the activity:** |
|---|---|
| Alternative A1 (preferred activity alternative) | 2680 m |
| Alternative A2 (if any) | 1690 m |
| Alternative A3 (if any) | 1960 m |

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

**SUBSTATION**

| **Alternative:** | **Size of the activity:** |
|---|---|
| SS Alternative 1 (preferred activity alternative) | 15 000 m² |
| SS Alternative 2 | 15 000 m² |
| SS Alternative 3 | 15 000 m² |

**POWERLINE**

| **Alternative:** | **Size of the site/servitude:** |
|---|---|
| Alternative 1 (preferred activity alternative) | 31 m |
| Alternative 2 (if any) | 31 m |
| Alternative 3 (if any) | 31 m |

## 4. SITE ACCESS

| | | |
|---|---|---|
| Does ready access to the site exist? | YES✔ | NO |
| If NO, what is the distance over which a new access road will be built | | m |

Describe the type of access road planned:

| |
|---|
| Power line and substation sites can be accessed using already existing access roads and tracks; however upgrading of some access roads leading to some of the sites may be required to allow easy movement of construction machinery. |

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.

## 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).

Attached within **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.

Attached within **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 DWS);
- ridges;
- cultural and historical features;
- 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.

Attached within **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.

Attached within **Appendix B**

## 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.

Attached within **Appendix C.** Note that the illustration provided was prepared for a similar project but is a good example of the type of facility that will be constructed for the project.

## 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✔ | NO | Please explain |
| The existing power line spans over a township settlement. The substation that is proposed to be expanded is situated on privately owned land where the existing substation currently operates. Once the proposed overhead line expansion and substation expansion have been constructed, limited impacts are expected. Eskom will acquire further servitude for the proposed substation expansion and the affected property owners will be permitted to use areas underneath the power line for activities such as township infrastructure development and other activities, except the construction of buildings and tall structures and growing of trees. | | | |
| **2. Will the activity be in line with the following?** | | | |
| **(a) Provincial Spatial Development Framework (PSDF)** | YES✔ | NO | Please explain |
| The Gauteng Employment, Growth and Development Strategy (2009) states that the infrastructure network of the Province is a strategic, socio-economic and bulk infrastructure investment and includes: transport and logistics (including roads, rail and air), Information and Communication and Technologies, schools, hospitals, clinics, libraries, universities (if applicable), electricity services (energy), water reticulation services, sewage and sanitation services, waste management services, and so forth. Thus the provision of electrical infrastructure is in line with SDF. | | | |
| **(b) Urban edge / Edge of Built environment for the area** | YES | NO✔ | Please explain |
| The proposed distribution lines fall outside the urban edge. | | | |

| | | | |
|---|---|---|---|
| **(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✔ | NO | Please explain |
| Although the City of Tshwane Metropolitan Municipality recorded that 88.6% households had access to electricity during the 2011 Census, which indicated that Tshwane has the highest percentage of households with access to electricity for lighting. To ensure a sustainable electricity supply, the City has since 2011 focused on investment in bulk infrastructure and network upgrading, thus ensuring an increase in access to household with electricity from 68.3% to 79.71% (726 630hh) by the end of 2014/15 financial year. During 2014/15 alone, 9152 new electricity connections were delivered in order to address electricity backlogs.<br>With this said, the purpose of this proposed development is in line with the City of Tshwane Integrated Development Plan (IDP) and Spatial Development Framework (SDF) as it is to strengthen the current network capacity as well as to improve the quality of supply in the surrounding areas.<br><br>The upgrading of the city's electricity network has therefore become a strategic priority, especially the substations and transmission lines. | | | |
| **(d) Approved Structure Plan of the Municipality** | YES✔ | NO | Please explain |
| According to the local municipality IDP, the City of Tshwane Metropolitan Municipality aims at ensuring that all citizens have access to basic services such as electricity. This project will assist in addressing such issues in the local municipalities as it will facilitate the provision of reliable electricity especially to the mining industries that are essential for the country`s economic growth. | | | |
| **(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?)** | YES✔ | NO | Please explain |
| The city of Tshwane is guided by the Gauteng Provincial Environmental Framework. Gauteng Department of Agriculture and Rural Development have produced the Environmental Management Framework (EMF) which replaces all other EMFs in Gauteng.<br><br>The proposed development will have minimal environmental impacts, as the majority of the site is highly disturbed by past anthropogenic activities. The proposed project will not compromise the existing environmental management priorities. Then addition of the long term developmental and sustainability goals coupled with increased economic activity and overarching benefits to both the region and the country in terms of power supply justifies the project.<br><br>The approval of this proposed project will not compromise the integrity of the existing environmental management priorities for the area. | | | |
| **(f) Any other Plans (e.g. Guide Plan)** | YES✔ | NO | Please explain |
| The Gauteng Department of Agriculture and Rural Development's Strategic Plan which intends to create decent work and building of a growing inclusive economy, provide quality education and skills development, better health care for all, stimulating rural development and food security for all, intensify the fight against crime and corruption, build cohesive and sustainable communities, strengthen the development state and good governance. | | | |

| | | | |
|---|---|---|---|
| **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)?** | YES✔ | NO | Please explain |
| The proposed development is in line with the National Development Plan and Tshwane Metropolitan Municipality IDP and SDPs, which relate to the provision of infrastructure such as electricity supply. Therefore, the proposed project is in line with the land use associated with the activity being applied for. | | | |
| **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.)** | YES✔ | NO | Please explain |
| The objective of the project is to reduce the network constraints as well as to improve the quality of supply in areas in the City of Tshwane Metropolitan Municipality. It is envisaged that the proposed power line expansion and Wesglass substation expansion will reinforce the supply and improve supply reliability to all existing and future customers in the area. The existing 33kV power line network is unable to cater for future load growth in the area. The existing network that supply the Ga-Rankuwa areas are becoming overloaded following the increasing pressure from residential and commercial development. | | | |
| **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.)** | YES✔ | NO | Please explain |
| The expansion of the substation and its associated loop-in and loop-out line and expansion of the power line infrastructure will not place additional pressure on the local area or Municipality during construction or operation. It is anticipated that the required services including water and electricity will be sourced from the municipality during the construction phase. In addition, the proposed project is the expansion of the existing overhead power line, a short loop-in and loop-out link power line and Wesglass substation expansion. It will during the operation phase provide additional electricity capacity needed in the area. | | | |
| **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.)** | YES✔ | NO | Please explain |
| The proposed project is to be developed by Eskom, a parastatal company. It therefore falls within the infrastructure planning of the municipality. The construction of the substation and power line infrastructure will not place additional pressure on the City of Tshwane Metropolitan Municipality's infrastructure during construction or operation. The project will not have any implications for the municipality but will assist it in its infrastructural planning priorities through increased electricity capacity | | | |
| **7. Is this project part of a national programme to address an issue of national concern or importance?** | YES✔ | NO | Please explain |
| The upgrading of the electricity network and infrastructure especially the substations and transmission and distribution lines is a strategic priority towards addressing the shortage of electricity in South Africa. | | | |

| | | | |
|---|---|---|---|
| **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.)** | YES✔ | NO | Please explain |
| Although the proposed development will transverse on some privately owned land, the location of the substation is selected such that the overall project is within or in close proximity to the centre of the load demand. | | | |
| **9. Is the development the best practicable environmental option for this land/site?** | YES✔ | NO | Please explain |
| Yes, the project entails the upgrade of existing electricity infrastructure no significant newly disturbed areas are in play. | | | |
| **10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?** | YES✔ | NO | Please explain |
| The potential benefit of the power line upgrade and proposed substation expansion in the area lies in the stimulation of the local economy through a reliable electricity supply, which will increasingly benefit the provision of services. Furthermore the objective of the proposed power line and substation is to strengthen the network capacity as well as to improve the quality of supply in the area. The benefits of the project are considered to outweigh the negative impacts. | | | |
| **11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?** | YES | NO✔ | Please explain |
| The development is in part adjacent to the existing electricity network supply. No new precedent will be created. | | | |
| **12. Will any person's rights be negatively affected by the proposed activity/ies?** | YES | NO✔ | Please explain |
| The proposed development will not negatively affect any person's rights. The servitude rights for the line will be acquired by Eskom and financial compensation will be paid where applicable. | | | |
| **13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?** | YES | NO✔ | Please explain |
| The proposed project takes place in an area outside the urban edge. The urban edge will not be compromised. | | | |
| **14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?** | YES✔ | NO | Please explain |
| The project will conform to the objectives of the following SIPS:<br><br><u>SIP 6: Integrated Municipal Infrastructure Project</u><br>Develop a national capacity to assist the 23 least resourced districts (17 million people) to address all the maintenance backlogs and upgrades required in water, **electricity** and sanitation bulk infrastructure.<br><br><u>SIP 10: Electricity Transmission and Distribution for all</u><br>Expand the transmission and distribution network to address historical imbalances, provide access to electricity for all and support economic development. Align the 10-year transmission plan, the services back log, the national broadband roll-out and the freight rail line development to leverage off regulatory approvals, supply chain and project development capacity. | | | |

| **15. What will the benefits be to society in general and to the local communities?** | Please explain |
|---|---|
| The provision of a reliable electricity network and provision of capacity for new users. Furthermore, the provision of employment opportunities during the construction phase. | |
| **16. Any other need and desirability considerations related to the proposed activity?** | Please explain |
| The proposed project will ensure that economic growth continues in the region. | |
| **17. How does the project fit into the National Development Plan for 2030?** | Please explain |

The following NDP sections area relevant: Elements Of A Decent Standard Of Living – provision of Electricity

Women And The Plan

Access to safe drinking water, electricity and quality early childhood education, for example, could free women from doing unpaid work and help them seek jobs

Due to a reduction in capital spending from effect, South Africa has missed a generation of capital investment in roads, rail, ports, electricity, water, sanitation, public transport and housing. To grow faster and in a more inclusive manner, the country needs a higher level of capital spending.

Chapter 4: Economic Infrastructure

The proportion of people with access to the electricity grid should rise to at least 90 percent by 2030, with non-grid options available for the rest.

Action 20 of The National Development Plan also considers the Ring-fencing the electricity distribution businesses of the 12 largest municipalities (which account for 80 percent of supply), resolve maintenance and refurbishment backlogs and develop a financing plan, alongside investment in human capital.

Actions

21. Revise national electrification plan and ensure 90 percent grid access by 2030 (with balance met through off-grid technologies).

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

This report serves as a Basic Assessment Report that will investigate all potential impacts (social, economic and environmental) that may result from the development including alternatives, assess and evaluate and further provide a mitigation plan for all identified potential impacts and promote compliance with the principles of environmental management.

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

Vegetation, fauna, heritage, geotechnical, visual, and wetland specialists were appointed to investigate potential environmental impacts. Identified environmental impacts were assessed and mitigation measures provided to control and manage these environmental impacts. Interested and Affected parties, land owners and relevant stakeholders were identified and involved throughout the Basic Assessment process and their comments will be addressed and recorded as part of this assessment.

## 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 (NEMA), No. 107 of 1998. | In terms of Section 24(1) of NEMA, the potential impact on the environment associated with these listed activities must be considered, investigated, assessed and reported on to the competent authority (the decision-maker) charged by NEMA with granting of the relevant environmental authorisation.<br>A Basic Assessment process is required to be undertaken for the proposed project. | Department of Environmental Affairs – competent authority<br><br>Gauteng Department of Agriculture and Rural Development (GDARD) - commenting authority. | 1998 |
| National Water Act No 36 of 1998. | The Alternative 2 and Alternative 3 power line will interact with an artificial wetland. | Department of Water and Sanitation | 1998 |
| National Environmental Management Waste Act No 59 of 2008 | No waste license activities are applicable to this project. The developer will however be required to store and manage waste in accordance with the requirements of this Act and associated Standards. | Department of Environmental Affairs (hazardous waste)<br><br>Gauteng Department of Agriculture and Rural Development (GDARD (general waste) | 2008 |
| National Heritage Resources Act No. 25 of 1999 | Under section 38. (1) of the NHRA any person who intends to construct a power line or other linear development exceeding 300m in length must notify the responsible heritage resources agency of its intention.<br><br>As the proposed linear development exceeds 300m in length, a Heritage Assessment has been undertaken as part of this Basic Assessment (refer to Appendix D). | South African Heritage Resources Agency (SAHRA)<br>The Provincial Heritage Resources Authority Gauteng (PHRAG) | 1999 |

| | | | |
|---|---|---|---|
| | No identified heritage sites were reported on site. However, should any heritage sites be unearthed during excavations, a permit would be required to be obtained from SAHRA. | | |
| National Environmental Management: Air Quality Act (Act No 39 of 2004) | Measures in respect of dust control (S32) and National Dust Control Regulations of February 2014. Measures to control noise (S34) - no regulations promulgated yet.<br>No permitting or licensing requirements arise from this legislation. However, National, provincial and local ambient air quality standards (S9 - 10 & S11) to be considered.<br>Measures in respect of dust control (S32) and the National Dust Control Regulations of February 2014. | Department of Environmental Affairs | 2004 |
| Conservation of Agricultural Resources Act (Act No 43 of 1983) | Regulation 15 of GNR1048 provides for the declaration of weeds and invader plants. Weeds are described as Category 1 plants, while invader plants are described as Category 2 and Category 3 plants. These regulations provide that Category 1, 2 and 3 plants must not occur on land and that such plants must be controlled by the methods set out in Regulation 15E. | Department of Agriculture | 1983 |

## 12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

### a) Solid waste management

| | | |
|---|---|---|
| Will the activity produce solid construction waste during the construction/initiation phase? | YES✔ | NO |
| If YES, what estimated quantity will be produced per month? | Unknown $m^3$ | |

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

| |
|---|
| Waste produced during the construction phase will primarily be from the contractor's building activities. Waste produced will be managed according to the requirements of the EMPr, which will include proper disposal of waste at a registered site as well as recycling were feasible. A record of waste generated and disposed of will be kept and managed accordingly to encourage waste reduction. |

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

| |
|---|
| Ga-Rankuwa Landfill site<br>Ward 30, Region 2<br>Molefe Makinta Drive. |

| | | |
|---|---|---|
| Will the activity produce solid waste during its operational phase? | YES✔ | NO |
| If YES, what estimated quantity will be produced per month? | Unknown $m^3$ | |

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

| |
|---|
| Waste produced during the operational phase will be primarily from maintenance and domestic waste from employees (site security guards and other). Waste produced will be managed according to the requirements of the EMPr, which will include proper disposal of waste at a registered site as well as recycling were feasible. A record of waste generated and disposed of will be kept and managed accordingly to encourage waste reduction. |

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

| |
|---|
| Bon Accord Waste site, Pretoria North. |

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

| |
|---|
| Waste that does not fit into the municipal waste stream will be disposed of at a registered hazardous waste disposal site while recyclable and reusable will be treated as such. |

*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.*

| | | |
|---|---|---|
| Can any part of the solid waste be classified as hazardous in terms of the NEM:WA? | YES | 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? | YES | 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? | YES | NO✔ |
| If YES, what estimated quantity will be produced per month? | | $m^3$ |
| Will the activity produce any effluent that will be treated and/or disposed of on site? | YES | 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? | YES | NO✔ |
|---|---|---|

If YES, provide the particulars of the facility:

| | | | |
|---|---|---|---|
| **Facility name:** | | | |
| **Contact person:** | | | |
| **Postal address:** | | | |
| **Postal code:** | | | |
| **Telephone:** | | **Cell:** | |
| **E-mail:** | | **Fax:** | |

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 that exhaust emissions and dust associated with construction phase activities? | YES | NO✔ |
|---|---|---|
| If YES, is it controlled by any legislation of any sphere of government? | 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:

| |
|---|
| During the construction phase of Wesglass substation expansion and its associated power line upgrade, dust and vehicular emissions are expected to be released as a result of earthmoving machinery. However these emissions will have a short term impact on the immediate surrounding area and thus no authorisation will be required for such emissions. Appropriate dust suppression measures must be implemented (e.g. removal of vegetation in a phased manner and using recycled water for spraying dust to reduce the impacts). |

**d) Waste permit**

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

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? | YES | NO✔ |

Describe the noise in terms of type and level:

| |
|---|
| Short term noise impacts are anticipated during the construction phase of the project for Wesglas substation and line expansion.<br><br>It is however, anticipated that the noise will be localised and contained within the construction site and its immediate surroundings. No noise will be generated during the operational phase of the development. |

## 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: | litres | |
|---|---|---|
| Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs? | YES✔ | NO |
| If YES, please provide proof that the application has been submitted to the Department of Water Affairs. | | |

Note: A General Authorisation Application will be submitted to Department of Water and Sanitation (DWS) after the Basic Assessment Report (this report) has been reviewed and the decision made by DEA. This is subject to the selection of either power line Alternative 2 or Alternative 3 by DEA.

## 14. ENERGY EFFICIENCY

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

| N/A |
|---|

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

| N/A |
|---|

## 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.

NOTE: Three power line alternatives of varying lengths and substation positions are considered below however the receiving environment in all cases has been determined to be similar. It is for this reason that the section will not be duplicated.

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✔ | NO

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.

### SUBSTATIONS

#### SS Alternative 1 (Preferred)

**Property description/physical address:**

| | |
|---|---|
| **Province** | Gauteng Province |
| **District Municipality** | City of Tshwane Metropolitan Municipality |
| **Local Municipality** | City of Tshwane Metropolitan Municipality |
| **Ward Number(s)** | 30 |
| **Farm name and number** | Farm Ga-Rankuwa Industrial |
| **Portion number** | Portion 28 |
| **SG Code** | T0JR04430000002800000 |

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:** Industrial

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? YES | NO✔

### SS Alternative 2

**Property description/physical address:**

| | |
|---|---|
| **Province** | Gauteng Province |
| **District Municipality** | City of Tshwane Metropolitan Municipality |
| **Local Municipality** | City of Tshwane Metropolitan Municipality |
| **Ward Number(s)** | 30 |
| **Farm name and number** | Farm Ga-Rankuwa Industrial |
| **Portion number** | Portion 80 |
| **SG Code** | T0JR04430000008000000 |

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:**

Open Space/veld.

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?

| YES | NO✔ |
|---|---|

### SS Alternative 3

**Property description/physical address:**

| | |
|---|---|
| **Province** | Gauteng Province |
| **District Municipality** | City of Tshwane Metropolitan Municipality |
| **Local Municipality** | City of Tshwane Metropolitan Municipality |
| **Ward Number(s)** | 30 |
| **Farm name and number** | Farm Sjambok Zyn Oude Kraal 258 JR |
| **Portion number** | Portion 388 |
| **SG Code** | T0JR04430000038800000 |

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:**

Open Space/veld

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?

| YES | NO✔ |
|---|---|

## POWERLINES

### Alternative 1 (Preferred)

**Property description/physical address:**

| | |
|---|---|
| **Province** | Gauteng Province |
| **District Municipality** | City of Tshwane Metropolitan Municipality |
| **Local Municipality** | City of Tshwane Metropolitan Municipality |
| **Ward Number(s)** | 30 |
| **Farm name and number** | Farm Ga-Rankuwa Industrial, Portion 28, 29, 30, 31.<br>Farm Sjambok Zyn Oude Kraal 258 JR, Portion 2, 3. |
| **Portion number** | See above |
| **SG Code** | T0JR04430000002800000<br>T0JR04430000002900000<br>T0JR04430000003000000<br>T0JR04430000003100000<br>T0JR02580000000300000<br>T0JR02580000000200000 |

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:**

| |
|---|
| Industrial, Residential |

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?

| YES | NO✔ |
|---|---|

### Alternative 2

**Property description/physical address:**

| | |
|---|---|
| **Province** | Gauteng Province |
| **District Municipality** | City of Tshwane Metropolitan Municipality |
| **Local Municipality** | City of Tshwane Metropolitan Municipality |
| **Ward Number(s)** | 30 |
| **Farm name and number** | Farm Ga-Rankuwa Industrial, Portion 80.<br>Farm Sjambok Zyn Oude Kraal 258 JR, Portion 3. |
| **Portion number** | See above |
| **SG Code** | T0JR04430000008000000<br>T0JR02580000000300000 |

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:**

| |
|---|
| Industrial, Residential, Open Space/veld, Cemetery. |

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?

| YES | NO✔ |
|---|---|

**Alternative 3**

**Property description/physical address:**

| | |
|---|---|
| **Province** | Gauteng Province |
| **District Municipality** | City of Tshwane Metropolitan Municipality |
| **Local Municipality** | City of Tshwane Metropolitan Municipality |
| **Ward Number(s)** | 30 |
| **Farm name and number** | Farm Ga-Rankuwa Industrial, Portion 80.<br>Farm Sjambok Zyn Oude Kraal 258 JR, Portion 3. |
| **Portion number** | See above |
| **SG Code** | T0JR04430000008000000<br>T0JR02580000000300000 |

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:**

| |
|---|
| Industrial, Residential, Open Space/veld, Cemetery. |

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?

| YES | NO✔ |
|---|---|

## 1. GRADIENT OF THE SITE

**SUBSTATIONS**

Indicate the general gradient of the site.

**SS Alternative 1 (Preferred):**

| | | | | | | |
|---|---|---|---|---|---|---|
| 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 |

**SS Alternative 2:**

| | | | | | | |
|---|---|---|---|---|---|---|
| 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 |

**SS Alternative 3:**

| | | | | | | |
|---|---|---|---|---|---|---|
| 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 |

**POWERLINES**
Indicate the general gradient of the site.

**Alternative 1 (Preferred):**

| | | | | | | |
|---|---|---|---|---|---|---|
| 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 |

**Alternative 2:**

| | | | | | | |
|---|---|---|---|---|---|---|
| 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 |

**SS Alternative 3:**

| | | | | | | |
|---|---|---|---|---|---|---|
| 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 |

## 2. LOCATION IN LANDSCAPE

**SUBSTATION** (All Alternatives) & **POWER LINE** (All Alternatives)

Note: These conditions apply to the entire alternatives of the project; hence they are grouped together in this section.

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

| | | | | | |
|---|---|---|---|---|---|
| 2.1 Ridgeline | | 2.4 Closed valley | | 2.7 Undulating plain / low hills | ✔ |
| 2.2 Plateau | | 2.5 Open valley | | 2.8 Dune | |
| 2.3 Side slope of hill/mountain | | 2.6 Plain | ✔ | 2.9 Seafront | |
| 2.10 At sea | | | | | |

## 3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

**SUBSTATION**

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

| | SS Alternative 1 (Preferred): | | SS Alternative 2: | | SS Alternative 3: | |
|---|---|---|---|---|---|---|
| Shallow water table (less than 1.5m deep) | YES | NO✔ | YES | NO✔ | YES | NO✔ |
| Dolomite, sinkhole or doline areas | YES | NO✔ | YES | NO✔ | YES | NO✔ |
| Seasonally wet soils (often close to water bodies) | YES | NO✔ | YES | NO✔ | YES | NO✔ |
| Unstable rocky slopes or steep slopes with loose soil | YES | NO✔ | YES | NO✔ | YES | NO✔ |
| Dispersive soils (soils that dissolve in water) | YES | NO✔ | YES | NO✔ | YES | NO✔ |
| Soils with high clay content (clay fraction more than 40%) | YES | NO✔ | YES | NO✔ | YES | NO✔ |
| Any other unstable soil or geological feature | YES | NO✔ | YES | NO✔ | YES | NO✔ |
| An area sensitive to erosion | YES✔ | NO | YES ✔ | NO | YES ✔ | NO |

**POWER LINE**

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

| | SS Alternative 1 (Preferred): | | SS Alternative 2: | | SS Alternative 3: | |
|---|---|---|---|---|---|---|
| Shallow water table (less than 1.5m deep) | YES | NO✔ | YES | NO✔ | YES | NO✔ |
| Dolomite, sinkhole or doline areas | YES | NO✔ | YES | NO✔ | YES | NO✔ |
| Seasonally wet soils (often close to water bodies) | YES | NO✔ | YES ✔ | NO | YES ✔ | NO |
| Unstable rocky slopes or steep slopes with loose soil | YES | NO✔ | YES | NO✔ | YES | NO✔ |
| Dispersive soils (soils that dissolve in water) | YES | NO✔ | YES | NO✔ | YES | NO✔ |
| Soils with high clay content (clay fraction more than 40%) | YES | NO✔ | YES | NO✔ | YES | NO✔ |
| Any other unstable soil or geological feature | YES | NO✔ | YES | NO✔ | YES | NO✔ |
| An area sensitive to erosion | 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

**SUBSTATION**

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).

**SS Alternative 1 (Preferred)**

| | | | | |
|---|---|---|---|---|
| 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 |

**SS Alternative 2**

| | | | | |
|---|---|---|---|---|
| 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 |

**SS Alternative 3**

| | | | | |
|---|---|---|---|---|
| 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 |

**POWER LINE**

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).

**Alternative 1 (Preferred)**

| | | | | |
|---|---|---|---|---|
| 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 |

**Alternative 2**

| | | | | |
|---|---|---|---|---|
| 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 |

**Alternative 3**

| | | | | |
|---|---|---|---|---|
| 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

**SUBSTATION**

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

**SS Alternative 1 (Preferred)**

| | | | |
|---|---|---|---|
| Perennial River | YES | NO ✔ | UNSURE |
| Non-Perennial River | YES | NO ✔ | UNSURE |
| Permanent Wetland | YES | NO ✔ | UNSURE |
| Seasonal Wetland | YES | NO ✔ | UNSURE |
| Artificial Wetland | YES | NO ✔ | UNSURE |
| Estuarine / Lagoonal wetland | YES | NO ✔ | UNSURE |

**SS Alternative 2**

| | | | |
|---|---|---|---|
| Perennial River | YES | NO ✔ | UNSURE |
| Non-Perennial River | YES | NO ✔ | UNSURE |
| Permanent Wetland | YES | NO ✔ | UNSURE |
| Seasonal Wetland | YES | NO ✔ | UNSURE |
| Artificial Wetland | YES | NO ✔ | UNSURE |

| | | | |
|---|---|---|---|
| Estuarine / Lagoonal wetland | YES | NO✔ | UNSURE |

**SS Alternative 3**

| | | | |
|---|---|---|---|
| Perennial River | YES | NO✔ | UNSURE |
| Non-Perennial River | YES | NO✔ | UNSURE |
| Permanent Wetland | YES | NO✔ | UNSURE |
| Seasonal Wetland | YES | NO✔ | UNSURE |
| Artificial Wetland | YES | NO✔ | UNSURE |
| Estuarine / Lagoonal wetland | YES | NO✔ | UNSURE |

**POWELINE**

**Alternative 1 (Preferred)**

| | | | |
|---|---|---|---|
| Perennial River | YES | NO✔ | UNSURE |
| Non-Perennial River | YES | NO✔ | UNSURE |
| Permanent Wetland | YES | NO✔ | UNSURE |
| Seasonal Wetland | YES | NO✔ | UNSURE |
| Artificial Wetland | YES | NO✔ | UNSURE |
| Estuarine / Lagoonal wetland | YES | NO✔ | UNSURE |

**Alternative 2**

| | | | |
|---|---|---|---|
| Perennial River | YES | NO✔ | UNSURE |
| Non-Perennial River | YES | NO✔ | UNSURE |
| Permanent Wetland | YES | NO✔ | UNSURE |
| Seasonal Wetland | YES | NO✔ | UNSURE |
| Artificial Wetland | YES✔ | NO | UNSURE |
| Estuarine / Lagoonal wetland | YES | NO✔ | UNSURE |

**Alternative 3**

| | | | |
|---|---|---|---|
| Perennial River | YES | NO✔ | UNSURE |
| Non-Perennial River | YES | NO✔ | UNSURE |
| Permanent Wetland | YES | NO✔ | UNSURE |
| Seasonal Wetland | YES | NO✔ | UNSURE |
| Artificial Wetland | YES✔ | NO | UNSURE |
| Estuarine / Lagoonal wetland | YES | NO✔ | UNSURE |

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

An artificial wetland occurs in the storm water canal on southern side of soccer field where it will interact with power line Alternative 2 and Alternative 3. This canal is a storm water canal that drains the Wesglass residential area. This canal is opposite the soccer field blocked by a wetland plant community. The two proposed power line alternatives (Alternative 2 & 3) run perpendicular with the storm water canal. The vegetation of the artificial wetland in the canal is characterised by the prominence of a Bulrush (*Typha latifolia*). Other indigenous species are the grasses *Echinochloa holubii*, *Agrostis. lachnantha*, and *Paspalum distichum*. A number of exotic species are also present namely Scottish Thistle (*Cirsium vulgare*), *Sesbania* (*Sesbania punicea), Tagetes minuta, Schkuhria pinnata and Paspalum dilatatum.*

## 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:

**SUBSTATION**

**SS Alternative 1 (Preferred)**

| | | |
|---|---|---|
| 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 |
| 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) |

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

Major road – The M21 (Lucas Mangope Drive) is an arterial road with high traffic capacity. The activity will impact on the road by way of slight traffic delays when heavy construction vehicles are turning near the Fourth Street and M21 juncture leading into the Ga-Raunkuwa Industrial Area (site vicinity) where the substation is located. However; this can be mitigated by placing construction road side signage and deploying construction points personnel to ease and direct traffic.

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 |

**SS Alternative 2**

| | | |
|---|---|---|
| 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 |
| 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) |

If any of the boxes marked with an "[N] "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 "[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 |

**SS Alternative 3**

| | | |
|---|---|---|
| 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 |
| 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) |

If any of the boxes marked with an "N "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 "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 |

## POWER LINE

### Alternative 1 (Preferred)

| | | |
|---|---|---|
| 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 |
| 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) |

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

| |
|---|
| Major road – The M21 (Lucas Mangope Drive) is an arterial road with high traffic capacity. The activity will impact on the road by way of slight traffic delays when heavy construction vehicles are turning near the Fourth Street and M21 juncture leading into the Ga-Raunkuwa Industrial Area (site vicinity) where the substation is located. However; this can be mitigated by placing construction road side signage and deploying construction points personnel to ease and direct traffic. |

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 |

**Alternative 2**

| | | |
|---|---|---|
| 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 |
| 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) |

If any of the boxes marked with an "[N] "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 "[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 |

**Alternative 3**

| | | |
|---|---|---|
| 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 |
| 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) |

If any of the boxes marked with an "N "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 "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 |

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

**SUBSTATION** (All Alternatives) & **POWER LINE** (All Alternatives)
Note: These conditions apply to the entire alternatives of the project; hence they are grouped together in this section.

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

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

| |
|---|
| A vegetation sensitivity map is included in **Appendix A** |

The Marikana Thornveld vegetation type in which the project site is situated has been classified as a Critical Biodiversity area (CBA) and Threatened Ecosystem. However the project site is situated in a highly transformed section of the Marikana Thornveld vegetation type and is therefore not considered relevant for this project as per the vegetation specialist.

## 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✔ | NO |
| | Uncertain | |

| |
|---|
| Yes, the Power line Alternative 2 and 3 comes within close proximity to the adjacent fenced off community grave yard/cemetery. |

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:

| |
|---|
| The Heritage specialist concluded that since the community cemetery is fully fenced off, it is unlikely that the proposed development will have an impact on it. |

| | | |
|---|---|---|
| Will any building or structure older than 60 years be affected in any way? | YES | NO✔ |
| Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)? | YES | NO✔ |

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

## 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.

Level of unemployment:

| |
|---|
| The project area (Ga-Rankuwa) is located within the City Of Tshwane Metropolitan Municipality (CTMM). According to the CTMM IDP (2011-2016) the unemployment within the municipality is approximately 14.8% and has the lowest unemployment rate as compared to other metropolitan municipalities in Gauteng. Approximately 14% of males and 15.5% of females are not employed within the municipality and this percentage is largely dominated by the black population group with approximately 18% of unemployment. |

Economic profile of local municipality:

| |
|---|
| The project area is located within the jurisdiction of the City of Tshwane. The CTMM space economy has been for a long time propelled by the heavy industrial development in the areas of manufacturing. The CTMM plays an important role in the economy of the Gauteng Province, featuring a strong manufacturing sector, particularly the automotive industry, metal production, machinery and household appliances, followed by the manufacturing of transport equipment. The other main economic sectors in the Municipality's area are community service followed by finance. The CTMM continues to register remarkable economic performance as highlighted by its GVA of R157 billion and Gross Value Added (GVA) growth rate of 5,9% in 2007. The GVA did not change significantly since 2008, despite the global economic recession it remained at 6% in the 2009/10 financial year (CTMM IDP, 2011-2016). |

Level of education:

| |
|---|
| Six percent (5.9%) of City of Tshwane residents have no schooling. A substantial number (40.6%) in Tshwane Metro have not completed secondary school and the proportion of those respondents who have completed Matric. A percentage of 16,1% of adults aged 20+ have obtained Higher education. |

### b) Socio-economic value of the activity

| | | |
|---|---|---|
| What is the expected capital value of the activity on completion? | Unknown at this stage | |
| What is the expected yearly income that will be generated by or as a result of the activity? | Unknown at this stage | |
| Will the activity contribute to service infrastructure? | YES✔ | NO |
| Is the activity a public amenity? | YES✔ | NO |

| | |
|---|---|
| How many new employment opportunities will be created in the development and construction phase of the activity/ies? | Unknown at this stage |
| What is the expected value of the employment opportunities during the development and construction phase? | Unknown at this stage |
| What percentage of this will accrue to previously disadvantaged individuals? | Unknown at this stage |
| How many permanent new employment opportunities will be created during the operational phase of the activity? | Unknown at this stage |
| What is the expected current value of the employment opportunities during the first 10 years? | Unknown, these assessments are done late in the process, during construction and operational phase |
| What percentage of this will accrue to previously disadvantaged individuals? | Unknown, these assessments are done late in the process, during construction and operational phase |

## 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.

As mentioned before The Marikana Thornveld vegetation type in which the project site (all substation and power line alternatives) is situated and has been classified as a Critical Biodiversity area (CBA) and Threatened Ecosystem. Therefore this section will be grouped together and be applicable to all substation and power line alternatives.

**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)**

<table>
<tr><th colspan="4">Systematic Biodiversity Planning Category</th><th>If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan</th></tr>
<tr><td rowspan="2">Critical Biodiversity Area (CBA) ✔</td><td rowspan="2">Ecological Support Area (ESA)</td><td rowspan="2">Other Natural Area (ONA)</td><td rowspan="2">No Natural Area Remaining (NNR) ✔</td><td>The Marikana Thornveld vegetation type in which the project site is situated has been classified as a Critical Biodiversity area (CBA) and Threatened Ecosystem. However the proposed development site is situated in a highly transformed section of the Marikana Thornveld<br>Vegetation type and is therefore not considered relevant for this project.<br><br>The study area is transformed and residential development occupies large tracts of land. The study area is however on the outskirts of Ga-Rankuwa and borders areas of open spaces. These open spaces have been disturbed but are currently occupied by pioneer grassland species and a couple of small to medium sized trees. The vegetation is mostly Combretum woodland on shallow rocky soil. Prominent species include the woody Terminalia sericea, Burkea africana, Combretum apiculatum, Combretum zeyheri, Peltophorum africanum, Grewia flava, Searsia leptodictya, the grasses Perotis patens, Eragrostis rigidior, Eragrostis pallens, Panicum maximum, Anthephora pubescens and the forbs Waltheria indica, Hermannia lancifolia, Kyphocarpa angustifolia, Indigofera daleaoides and Agathesanthemum bojeri. The vegetation is characterised by the prominence of a Bulrush (Typha latifolia). Other indigenous species are the grasses Echinochloa holubii, Agrostis lachnantha, and Paspalum distichum. A number of exotic species are also present namely Scottish Thistle (Cirsium vulgare), Sesbania (Sesbania punicea), Tagetes minuta, Schkuhria pinnata and Paspalum dilatatum. From a plant ecological point of view these areas do not have a high conservation value, however from an ecosystem functioning point of view these areas have a high conservation value due to their flood attenuation function, water purification and breeding site for bird species.</td></tr>
<tr><td>This vegetation unit occurs on the disturbed area of the soccer field and surrounding areas. The soil has been disturbed during the construction of the storm water canal as well as the soccer field. The soccer field users are keeping the vegetation cover on the soccer field low. No trees or shrubs occur on this site.</td></tr>
</table>

| | | | | |
|---|---|---|---|---|
| | | | | |

**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% | No pure natural vegetation exists. |
| Near Natural (includes areas with low to moderate level of alien invasive plants) | 5% | A small extent of near natural vegetation exists. This extent is however affected by grazing and anthropological activities such as solid waste dumping, footpaths, vehicle tracks etc. |
| Degraded (includes areas heavily invaded by alien plants) | 50% | This vegetation unit occurs on the disturbed area of the soccer field and surrounding areas. The soil has been disturbed during the construction of the storm water canal as well as the soccer field. The soccer players are keeping the vegetation cover on the soccer field low. No trees or shrubs occur on this site.<br><br>The power line routes for Alternatives 1, 2 & 3 has been subjected to frequent disturbances as mentioned above. This is a degraded typical savanna community which occurs on deeper sandy soils. It consists of a grass layer which is dominated by *Schmidtia pappophoroides*, *Heteropogon contortus* and *Eragrostis trichophora*, *Eragrostis trichophora* and *Cynodon dactylon* to name a few. |
| Transformed (includes cultivation, dams, urban, plantation, roads, etc) | 45% | The surroundings in the area where the lines and substation are proposed are rural in nature, but have been transformed almost in total with residential land use, and roads. |

**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 unchanneled 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)**

It was found that the vegetation of the project sites is strongly related to the Marikana Thornveld as described by Mucina & Rutherford 2006. Small variations especially in terms of the dominant grass species and rocky outcrops species occur throughout the site. Geology and the soil forms appear to be the driving force between the variations found between the different units.

Due to the fact that the Wesglass area is a build-up environment with a high concentration of people and associated infrastructure the vegetation is in a transformed state. The degradation of the vegetation is due to human-impacts such as vehicle tracks, footpaths, excavations to put infrastructure in place, communal grazing practices, etc The plant community can be described
as:

**Highly disturbed vegetation along proposed power line routes**

This vegetation unit occurs on the disturbed area of the soccer field and surrounding areas. The soil has been disturbed during the construction of the storm water canal as well as the soccer field. The soccer players are keeping the vegetation cover on the soccer field low. No trees or shrubs occur on this site. The power line routes for Alternatives 1, 2 & 3 has been subjected to frequent disturbances as mentioned above. This is a degraded typical savanna community which occurs on deeper sandy soils. It consists of a grass layer which is dominated by Schmidtia pappophoroides, Heteropogon contortus and Eragrostis trichophora, Eragrostis trichophora and Cynodon dactylon to name a few. No protected species were found during the site survey.

**Shrub vegetation on north side of residential area (sub-station sites)**

This vegetation unit occurs north of the Wesglass residential area and is where the last sections of the proposed power line route are as well as where the substation site options are. This vegetation unit is in a better condition than the disturbed areas in the residential area. The soil has been disturbed during the construction of the residential area and vehicle tracks and footpaths crisscross the area. A well-developed shrub community occurs although the shrub are sparsely distributed e. The dominant tree is Acacia tortilis. Hyparrhenia hirta is a dominant grass and together with Cynodon dactylon are they are indicators of disturbed soil. No protected species were found during the site survey.

These sites are considered of a low ecological sensitivity due to the transformation of the vegetation in the study area. From an ecological perspective the project site is suitable for a
development without detrimental environmental effects

**Wetland communities (Vegetation in the storm water canal (Alternative 2 & 3)**
The vegetation of the artificial wetland in the canal is characterised by the prominence of a Bulrush (Typha latifolia). Other indigenous species are the grasses Echinochloa holubii, Agrostis lachnantha, and Paspalum distichum. A number of exotic species are also present namely Scottish Thistle (Cirsium vulgare), Sesbania (Sesbania punicea), Tagetes minuta, Schkuhria pinnata and Paspalum dilatatum. This canal is a storm water canal that drains the Wesglass residential area. This canal is opposite the soccer field blocked by a wetland plant community.

The two proposed power line alternatives (Alternative 2 & 3) run perpendicular with the storm water canal. From a plant ecological point of view these areas do not have a high conservation value, however from an ecosystem functioning point of view these areas have a high conservation value due to their flood attenuation function, water purification and breeding site for bird species. The overhead line would have a negative impact on the artificial wetland and its associated species in the canal.

**Alien Invasive Plants (AIPs) confirmed during the survey**
The largest concentration of alien plant species is along the road reserves and in the wetland. Species such as Verbesina encelioides Argemone mexicana, Datura stramonium, Tagetes minuta, Bidens bipinnata Cirsium vulgare, Verbena bonariensis and Conyza bonariensis were noted.

## SECTION C: PUBLIC PARTICIPATION

### 1. ADVERTISEMENT AND NOTICE

| | | |
|---|---|---|
| **Publication name** | Daily Sun Newspaper | |
| **Date published** | 12 October 2016 | |
| **Site notice position** | **Latitude** | **Longitude** |
| | 25° 34' 14" S | 27° 58' 12" E |
| | 25° 34' 15" S | 27° 58' 12" E |
| | 25° 34' 16" S | 27° 58' 12" E |
| | 25° 34' 14" S | 27° 58' 12" E |
| **Date placed** | 11 October 2016 | |

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 41(2)(e) and 41(6) of GN 733.

- A2 Site notices were placed at conspicuous places around the four proposed power line alternatives.
- An advert was placed in a local newspaper to notify the public of the availability of the Draft Basic Assessment Report for review.
- Notification letters were sent to I&APs inviting I&APs to participate add comment on the draft Basic Assessment Report.
- A focus group (pre-consultation) meeting was held with City of Tshwane Metropolitan Municipality (CTMM) prior to releasing the Draft Basic Assessment Report for public review.
- Any comments received form I&AP issues up to date have been included in the Comments and Responses Report (**Appendix E**)

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733

| **Title, Name and Surname** | **Affiliation/ key stakeholder status** | **Contact details (tel number or e-mail address)** |
|---|---|---|
| Councillor Jabulani Rammushi | Ward Counclillor Ga-Rakuwa Unit 15, 16, 17, 20, 23, 24, 25, 4, 5 (North) Ward 30 | 072 871 6041 jabulaniR@tshwane.gov.za |
| Mr Sekwano Gilbert Mosena or Leanda | Land Owner (Minaco) | 012 703 1163 lcm@finstone.net |
| Mr Wessels Du Plessis | Shatterprufe Engineer | 012 309 0551 wduplessis@pg.co.za |
| Mr Andrew Salomon | Provincial Heritage Resources Agency (PH-RAG) | asalomon@sahra.org.za |

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E. 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 |
|---|---|
| **Mr Andrew Salomon**<br><br>**Heritage Officer: Archaeology**<br>**South African Heritage Resource Agency**<br><br>Considering that no significant archaeological heritage resources occur within the study area ,and that the SA<br>Palaeontological Sensitivity Map indicates that the study area has Insignificant palaeontological sensitivity, the<br>SAHRA Archaeology, Palaeontology and Meteorites Unit has no objections to this proposed development on<br>the following conditions:<br>- If any evidence of archaeological sites or remains (e.g., remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments and charcoal/ash concentrations), fossils or other<br>categories of heritage resources are found during the proposed activities, SAHRA must be alerted<br>immediately, and a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contacted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance a Phase 2 rescue operation might be necessary.<br>Should you have any further queries, please contact the designated official using the case number quoted above in the case header. | Comment duly noted. |
| **Department of Environmental Affairs**<br><br>**Mr. Sabelo Malaza**<br>**Chief Director: Integrated Environmental Authorisations.**<br><br>**Case Officer: Mr T Booi.** | 1. Noted. As per the telephonic conversation and agreement with Mr Thando Booi on 12 April 2017, the original signature of the EAP will be provided on the FBAR when it is submitted to the department for decision.<br><br>2. Duly noted. All issues raised and comments |

| | |
|---|---|
| 1. Provide original signature of the EAP on section E i.e. recommendation of practitioner on page 141 of the draft BAR.<br><br>2. Please ensure that all issues raised and comments received during the circulation of the draft BAR, from the registered I&APs and organs of state which have jurisdiction in respect of the proposed activity are adequately addressed in the Final BAR<br><br>3. Proof of correspondence with the various stakeholders must be included in the final BAR. Should you be unable to obtain comments, proof should be submitted to the Department of the attempts that were made to obtain comments. The Public Participation Process must be conducted in terms of Regulations 39, 40, 41, 42, 43 & 44 of the EIA Regulations, 2014<br><br>4. Please provide a description of any identified alternatives for the proposed activity that are feasible and reasonable, including the advantages and disadvantages that the proposed activity or alternatives will have on the environment and on the community that may be affected by the activity as per Appendix 1 (2) (e) and 3 (1) (h) (i) of GN R.982 of 2014. Alternatively, you should submit written proof of an investigation and motivation if no reasonable or feasible alternatives exist in terms of Appendix 1.<br><br>5. A sensitivity layout plan overlaid by the sensitive features and the buffer zones i.e. wetland on Appendix 7 and also the existing structure in the vicinity of the proposed development must be submitted as part of the final report for analysis of the effect of the proposed project on the environment. Please ensure all features are clearly indicated on the legend of the sensitivity layout plan.<br><br>You are further reminded that the final BAR to be submitted to this Department must comply with all the requirements in terms of the scope of assessment | received during the circulation of the draft BAR, from the registered I&APs and organs of state will be adequately addressed in the Final BAR.<br><br>3. Duly noted. Proof of correspondence with the various stakeholders will be included in the final BAR. The Public Participation Process will be conducted in terms of Regulations 39, 40, 41, 42, 43 & 44 of the EIA Regulations, 2014.<br><br>4. A description of the feasible alternatives was provided in the DBAR on page 8 – 9. Further details on the advantages and disadvantages will be included in the FBAR as per Appendix 1 (2) (e) and 3 (1) (h) (i) of GN R.982 of 2014.<br><br>5. A sensitivity layout plan overlaid by the sensitive features of the artificial wetland and buffer zones will be provided. The locality map included as Appendix A1 indicates the existing infrastructure in the study area.<br><br>We as the environmental assessment practitioner will ensure that the FBAR complies with all the requirements in terms of the scope of assessment and content of basic assessment reports in accordance with Appendix 1 and Regulation 19(1) of the EIA Regulations, 2014. |

| | |
|---|---|
| and content of basic assessment reports in accordance with Appendix 1 and Regulation 19(1) of the EIA Regulations, 2014.<br><br>Further note that in terms of Regulation 45 of the EIA Regulations 2014, this application will lapse if the applicant fails to meet any of the timeframes prescribed in terms of the these Regulations, unless an extension has been granted in terms of Regulation 3(7).<br>You are hereby reminded of Section 24F of the National Environmental Management Act, Act No 107 of 1998, as amended, that no activity may commence prior to an environmental authorisation being granted by the Department. | |
| | |

## 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 |
|---|---|---|---|---|---|
| City of Tshwane Metropolitan Municipality | Ms Kemmone Mofela | 012 358 7334 | | Kemmonem@tshwane.gov.za | |
| City of Tshwane Metropolitan Municipality | Tshinyasho Mphephu | 012 358 8667 | | Tshinyashom@tshwane.gov.za | |
| Gauteng Department of Agriculture and Rural Development | Ms Boniswa Belot | 011 355 1212 | | boniswa.belot@gauteng.gov.za | |
| Gauteng Department of Agriculture and Rural Development | Mr Teboho Leku | | | teboho.leku@gauteng.gov.za | |
| Department of Water and Sanitation | Ms Lillian Siwelane | 012 392 1367 | | SiwelaneL@dwa.gov.za | |
| Department of Water and Sanitation | Mr Vongani Mhinga | 012 392-1503 | 012 392 1486 | MhingaV@dwa.gov.za | |

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, 2014 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.

**Impact Assessment and Rating Methodology**

The significance weightings for each potential impact are as follows:

The significance of impacts will be rated from **Low**, **Medium** to **High** where:

**Low**: Little influence on the receiving environment

**Moderate**: Will have an influence on the receiving environment unless mitigated

**High**: Will have an influence on the receiving environment regardless of mitigation

**Positive**: Impacts that will lead to an improvement in the status quo, e.g. improve electricity supply or protect the environment

**Negative:** Impacts that will lead to an decline in the status quo of the environment

Please also refer to the draft EMPr, Specialist assessment reports for details on other applicable mitigation measures. Also, please refer to Appendix F for detailed assessment of each alternative and impacts in terms of duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts

## PLANNING AND DESIGN PHASE

| Activity | Impact summary | Significance | Proposed mitigation |
|---|---|---|---|
| **Planning and design phase: Proposed Expansion of the existing Wesglass Substation and Associated Power Line Upgrade** (All alternatives)<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detailed impact assessment for each mentioned impact. | | | |
| **Planning and designing** | ***Direct impacts:***<br>• A direct impact as a result of good planning and design is protecting the environment but still providing a good product / service for the Roodepoort and West Soweto area in terms of reliable electricity supply. | **Positive Impact** | • The proposed Project implementation as well as suggested design measures and mitigation measures must be monitored. |
| | ***Indirect impacts:***<br>• An indirect impact as a result of proper planning and design is saving on costs in the long term but also ensuring that the proposed Project has a better success. | **Positive Impact** | • The proposed Project implementation as well as suggested design measures and mitigation measures must be monitored. |
| | ***Cumulative impacts:***<br>None | N/A | N/A |
| **Drilling at localised areas for geotechnical surveys** | ***Direct impacts:***<br>• Potential disturbance of vegetation<br>• Potential disturbance of soil | **Low** | • Keep disturbance of soil to a minimum<br>• No pre-construction activities should be undertaken within areas demarcated as being very high sensitivity.<br>• Do not unnecessarily remove vegetation in areas outside construction the construction footprint.<br>• Protected plant species in any area to be cleared must be identified and relocated. |
| | ***Indirect impacts:***<br>• Limited biodiversity loss of floral and faunal species<br>• Limited disruption of ecosystem | **Low** | |

| Activity | Impact summary | Significance | Proposed mitigation |
|---|---|---|---|
| | functions | | • Implement erosion control measures if required to minimise erosion.<br>• Remove all equipment from the site and rehabilitate any disturbed areas once activities are completed. |
| | ***Cumulative impacts:***<br>• The possible invasion of alien plants species | **Low** | • Ensure large areas of vegetation are not disturbed. |

## CONSTRUCTION PHASE

**SUBSTATION**

| **Construction Phase: SS Alternative 1 (Preferred)** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact. | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| **VEGETATION IMPACTS** | | | |
| Destruction of vegetation due to clearing and construction related activities. | ***Direct impacts:***<br>• Clearing of and damage to vegetation in expansion footprint for substation site, construction camps, vehicle / machinery traffic, trampling by workers (stepping on small plants). | **Low** | • A search and rescue operation must be done before construction commences in order to translocate the any bulbous and succulent plant that could be negatively affected by this proposed development.<br>• The removal of indigenous tree species as well as vegetation clearance must be kept to the minimum area required and remain in the existing servitude wherever possible.<br>• Cleared vegetation should form wood piles and logs and stumps within the cleared servitude. Dead or decaying wood piles should be created as these will provide valuable refuge areas especially due to the clearance of vegetation cover.<br>• Construction workers may not remove flora and neither may anyone |
| | ***Indirect impacts:***<br>• The proposed Wesglass substation expansion would reduce the occurrence of open space around the substation. However, in its current | **Low** | |

| **Construction Phase: SS Alternative 1 (Preferred)** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact. | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | state, the vegetation that was recorded are slowly degrading due to surrounding land uses and a lack of fire and grazing. | | collect seed from the plants without permission from the local authority.<br>• A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to adjacent, vegetated environs.<br>• Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.<br>• Where possible, construction activities must be restricted to previously disturb (Secondary grasslands) and transformed areas.<br>• The ECO should be notified if any provincially protected species are uncovered. The species should be identified by a suitably qualified person, who will also advise to correct action to be taken.<br>• No protected vegetation species shall be removed without a tree permit from DAFF.<br>• After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction. |
| | ***Cumulative impacts:***<br>• The clearance or loss of flora lessens the contribution to the ecosystem function.<br>• Increase in sedimentation of regional watercourses due loss of vegetation cover. | **Low** | |
| **FAUNA IMPACTS** | | | |
| Impact on fauna and habitat due to clearing and construction related activities. | ***Direct impacts:***<br>• Habitat loss and degradation by means of vegetation/tree clearance and heavy motor vehicle usage over the study site and adjacent land will expose the soils. It is predicted that can be ameliorated. | **Low** | • Construction activities of the substation expansion should be restricted to daylight hours reducing the potential impact on the nocturnal breeding activities of the majority of amphibian species. The Giant Bullfrog however breeds during the day.<br>• The contractor/contractors must ensure that no animals are disturbed, trapped, hunted or killed during the construction phase. Conservation- |

| **Construction Phase: SS Alternative 1 (Preferred)** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact. | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | | | orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance.<br>• No Giant Bullfrogs may be collected for food or illegal pet trade.<br>• As far as possible, restrict construction activities to the development site.<br>• Education of the construction staff about the value of wildlife and environmental sensitivity.<br>• Construction activities of the proposed power line and substation should be restricted to daylight hours reducing the potential impact on the nocturnal breeding activities of the majority of amphibian species. The Giant Bullfrog however breeds during the day.<br>• Ideally the expansion of the substation should be undertaken during the dry winter months (May-September) when the majority of amphibian species are dormant.<br>• As a precautionary mitigation measure it is recommended that the developer and construction contractor as well as an independent environmental control officer (ECO) should be made aware of the possible presence of certain threatened amphibian species such as the Giant Bullfrog.<br>• No termite mounds should be intentionally destroyed. If any moribund termite mounds have to be destroyed due to tower position a qualified herpetologist must be present in case any blind snakes are unearthed. The termite mounds should be carefully excavated by hand and pick.<br>• Any animals rescued or recovered will be relocated in suitable habitat away from the substation site.<br>• Any lizards, gecko's, agamids, monitors or snakes encountered should be allowed to escape to suitable habitat away from the disturbance. No reptile should be intentionally killed, caught or collected during any |
| | ***Indirect impacts:***<br>• Increased habitat fragmentation & loss of connectivity.<br>• Increased anthropogenic encroachment. | **Low** | |

| **Construction Phase: SS Alternative 1 (Preferred)** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact. | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | | | phase of the project.<br>• General avoidance of snakes if the best policy if encountered. Snakes should not be intentionally harmed or killed and allowed free movement away from the area.<br>• No termite mounds should be intentionally destroyed. If any moribund termite mounds have to be destroyed due to tower position a qualified herpetologist must be present in case any blind snakes are unearthed. The termite mounds should be carefully excavated by hand and pick.<br>• The removal of indigenous tree species as well as vegetation clearance must be kept to the minimum area required and remain in the existing servitude wherever possible. |
| | ***Cumulative impacts:***<br>• No loss of ecosystem function is anticipated. | None | None |
| **AVIFAUNA IMPACTS** | | | |
| Impact on Avifauna and habitat due to clearing and construction related activities. | ***Direct impacts:***<br>• Habitat Destruction.<br>• Disturbance to breeding birds | **Low** | • The construction activities must be strictly limited to the construction footprint.<br>• No birds should be unnecessarily disturbed, hunted or trapped during construction. |
| | ***Indirect impacts:***<br>• Birds moving and settling away from construction areas.<br>• Noise from construction activities frightening the birds. | **Low** | |

| **Construction Phase: SS Alternative 1 (Preferred)** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact. | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | | | |
| | ***Cumulative impacts:***<br>• None anticipated | **None** | None |
| **SOIL IMPACTS** | | | |
| Impact on soil due to excavations and construction related activities. | ***Direct impacts:***<br>• The removal of surface vegetation, whether natural or disturbed, will expose the soils, which in rainy events could wash down into proximate storm water inlets, causing sedimentation. | **Low** | • Do not allow erosion to develop on a large scale before taking action.<br>• Do not strip topsoil when it is wet.<br>• Make use of existing roads and tracks where feasible, rather than creating new routes through vegetated areas.<br>• Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area.<br>• Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. The grassland can be removed as sods and re-established after construction is completed where possible.<br>• Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.<br>• Existing access roads must be used where possible to avoid impacts on surrounding vegetation. Appropriate erosion control measures must be implemented. |
| | ***Indirect impacts:***<br>• Exposure of the soil to erosion.<br>• Seeds from proximate alien invasive plant species will spread easily into eroded soils.<br>• Increased storm water run-off. | **Low** | |
| | ***Cumulative impacts:***<br>• Subsequent sedimentation of surrounding regional watercourses.<br>• Higher rates of storm water run-off during flood events. | **Low** | |
| | | | |

| **Construction Phase: SS Alternative 1 (Preferred)** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact. | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| **STORM WATER MANAGEMENT** | | | |
| Impact on storm water due to construction related activities. | ***Direct impacts:***<br>• Flooding and ponding of low level areas. | **Low** | • A storm water management plan must be implemented during construction.<br>• No stockpiles or construction materials may be stored or placed within any drainage lines that may be in close proximity of storm water drains.<br>• The storm water system especially discharge points must be inspected and damaged areas must be repaired if required. |
| | ***Indirect impacts:***<br>• Transporting of pollutants to regional watercourses and sensitive areas via storm water systems.<br>• Sediment runoff into regional watercourses and catchments. | **Low** | |
| | ***Cumulative impacts:***<br>• Overall contribution to the degradation of regional watercourses. | **Low** | |
| **HERITAGE IMPACTS** | | | |
| Impact on heritage resources due to construction related activities. | ***Direct impacts:***<br>• No impacts are expected on any cultural-historical aspects during the construction of the proposed development as no such features | **Low** | • Should any archaeological sites or graves be exposed during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.<br>• Construction personnel must be alert and inform local Council should |

| **Construction Phase: SS Alternative 1 (Preferred)** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact. | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | occur on site. It must also be noted that sometimes such features (such as graves and/or tools) occur beneath ground and could accidentally be unearthed during earthworks. | | they come across any features of heritage value and must cease construction activities immediately.<br>• No heritage feature can be removed, destroyed and/or interfered with on site without the permission of an accredited archaeologist. |
| | ***Indirect impacts:***<br>• None anticipated. | **None** | None |
| | ***Cumulative impacts:***<br>• None anticipated. | **None** | |
| **VISUAL IMPACTS** | | | |
| Impact on visual aesthetics due to construction related activities. | ***Direct impacts:***<br>• Surface disturbances and the presence of a construction team are uncharacteristic events in the study area and may cause unsightly views as a result of the activity.<br>• Introduction of construction equipment and ground staff that is unfamiliar in the baseline environment. | **Moderate** | • Do not locate the construction camp or laydown yards within 1 km from any residential area or tourist attraction, unless it can be completely screened from sensitive viewpoints. Preferably, construction camps should be in a dedicated construction camp in the industrial area, in an area that is already disturbed. The Ga-Rankuwa Industrial zone provides ample space and some disturbed areas that are outside the views of sensitive viewers.<br>• Avoid the construction of additional access roads by keeping to existing roads.<br>• Avoid removal of any large trees or shrubs that may open views to the construction site and compromise the natural screening capacity of the study area. |
| | ***Indirect impacts:***<br>• As the power line nears completion, | **Low** | |

| **Construction Phase: SS Alternative 1 (Preferred)** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact. | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | the visibility and visual exposure will increase as the height of the poles causes a greater ZVI. | | • Clearly demarcate the construction site to limit the area of disturbance.<br>• Keep dust levels down by regularly wetting dirt roads and exposed soil areas.<br>• Remove rubble and other waste that is generated by the construction process as soon as possible and dispose at an appropriate dump site.<br>• Implement rehabilitation of disturbed areas as soon as possible to limit the duration of exposed soil surfaces. Monitor the rehabilitated areas for at least 6 months to ensure a sufficient vegetation cover is established that will prevent erosion from occurring.<br>• Keep the construction camp neat and tidy at all times. Remove any waste from the site or contain it in an enclosed area out of sight from sensitive viewpoints.<br>• Enhance screening of the construction camps by erecting a temporary fence with a 3m high shade cloth to limit the intrusive nature of such a site. |
| | ***Cumulative impacts:***<br>• None anticipated. | **Low** | |
| **WASTE MANAGEMENT** | | | |
| Waste generation due to clearing and construction related activities. | ***Direct impacts:***<br>• Littering and disposing construction related wastes will degrade the environment. | **Low** | • Littering will not be permitted on the site and general housekeeping will be enforced.<br>• General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.<br>• Littering will not be permitted on the site and general housekeeping will be enforced.<br>• General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction. |
| | ***Indirect impacts:***<br>• Construction related wastes and general wastes may attract vermin species such as rodents to the site | **Low** | |

| **Construction Phase: SS Alternative 1 (Preferred)** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact. | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | and spread disease. | | • All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins.<br>• All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained. Separate waste skips/ bins for the different waste streams must be available on site.<br>• The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.<br>• No waste (hazardous or general) will be disposed of in the trenches around the storm water channel footprint.<br>• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.<br>• Adequate toilet facilities must be provided for all staff members as standard construction practice.<br>• Monitor the sewerage facilities for spillages, and handle any spillages as hazardous waste.<br>• Chemical toilets must be placed within the construction camp and not in close proximity to watercourses.<br>• The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.<br>• All hazardous material must be carefully stored and then disposed of offsite at the licensed hazardous landfill site.<br>• All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to |
| | ***Cumulative impacts:***<br>• Overall contribution of the degradation of the environment. | **Low** | |

| **Construction Phase: SS Alternative 1 (Preferred)** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact. | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | | | animals, or be placed in piles adjacent the waste skips / bins.<br>• All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained. Separate waste skips/ bins for the different waste streams must be available on site.<br>• The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.<br>• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.<br>• Adequate toilet facilities must be provided for all staff members as standard construction practice.<br>• Monitor the sewerage facilities for spillages, and handle any spillages as hazardous waste.<br>• Chemical toilets must be placed within the construction camp and not in close proximity to watercourses.<br>• The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.<br>• All hazardous material must be carefully stored and then disposed of offsite at the licensed hazardous landfill site. |
| **NOISE IMPACTS** | | | |
| Noise Impacts due to clearing and construction related activities. | ***Direct impacts:***<br>• Noise created by construction vehicles and machinery during | **Low** | • Construction activities to be limited to office hours on weekdays as far as possible.<br>• The contractor must ensure that noise levels remain within acceptable limits. |

| **Construction Phase: SS Alternative 1 (Preferred)** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact. | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | construction activities. | | • Prevent the generation of a disturbing or nuisance noises.<br>• Ensure acceptable noise levels at surrounding stakeholders and potentially sensitive receptors.<br>• Ensuring compliance with the Noise Control Regulations.<br>• In order to minimise the impacts of noise during the construction phase, construction activities should be restricted to between 07H00 and 17H00 Monday to Friday. This is required in order to avoid noise and lighting disturbances outside of normal working hours.<br>• All construction equipment must be maintained and kept in good working order to minimise associated noise impacts. If required, adequate noise suppression measures (i.e. screens, etc) must be erected around the point source of construction and/or operational noise pollution to reduce noise to an acceptable level. No noise will be generated during the operational phase of the development. |
| | ***Indirect impacts:***<br>• Noise may drive away fauna species that may potentially occur in the area. | **Moderate** | |
| | ***Cumulative impacts:***<br>• If mitigation measures are adequately implemented, no cumulative impacts are expected. | **None** | None |
| **SOCIO-ECONOMIC IMPACTS** | | | |
| | ***Direct positive impacts:***<br>• Creation of employment and business | **Low positive** | **Proposed enhancement and mitigation:**<br>• A local employment policy to be adopted by the developer to maximise |

| **Construction Phase: SS Alternative 1 (Preferred)** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact. | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | opportunities.<br>• Increased reliability of electricity services<br><br>***Potential negative impacts:***<br>• Influx of workers looking for employment opportunities to the area<br>• Increased risk of stock theft, poaching and damage to camp site.<br>• Construction workers using nearby bushes or farmland for ablution. | **Low negative** | the project opportunities being made available to the local community.<br>• Eskom must opt to utilize local businesses as suppliers.<br>• Eskom must ensure that some goods such as food and fuel are procured locally.<br>• Surrounding neighbours must be consulted prior to construction to discuss the construction process and opportunities regarding employment.<br>• Mechanisms must be implemented to deal with people seeking employment in order to minimise any issues related to the influx of people. |
| | ***Indirect impacts:***<br><br>• Stimulation of local economy.<br>• Improved living conditions of locals. | **Low positive** | |
| | ***Cumulative impacts:***<br><br>• Increased economic activity and growth.<br>• Increased electricity reliability. | **Low positive** | |

| **Construction Phase: SS Alternative 2 substation.**<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| **VEGETATION IMPACTS** | | | |
| Destruction of vegetation due to clearing and construction related activities. | ***Direct impacts:***<br>• Clearing of and damage to vegetation in construction footprint for new substation site, new access roads, construction camps, vehicle / machinery traffic, trampling by workers (stepping on small plants). | **Low** | • A search and rescue operation must be done before construction commences in order to translocate the any bulbous and succulent plant that could be negatively affected by this proposed development.<br>• The removal of indigenous tree species as well as vegetation clearance must be kept to the minimum area required and remain in the existing servitude wherever possible.<br>• Cleared vegetation should form wood piles and logs and stumps within the cleared servitude. Dead or decaying wood piles should be created as these will provide valuable refuge areas especially due to the clearance of vegetation cover.<br>• Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the local authority.<br>• A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to adjacent, vegetated environs.<br>• Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.<br>• Where possible, construction activities must be restricted to previously disturb (Secondary grasslands) and transformed areas.<br>• The ECO should be notified if any provincially protected species are uncovered. The species should be identified by a suitably qualified person, who will also advise to correct action to be taken.<br>• No protected vegetation species shall be removed without a tree permit from DAFF. |
| | ***Indirect impacts:***<br>• The proposed Wesglass substation construction would reduce the occurrence of open space. However, in its current state, the vegetation that was recorded are slowly degrading due to surrounding land uses and a lack of fire and grazing. | **Low** | |
| | ***Cumulative impacts:***<br>• The clearance or loss of flora lessens the contribution to the ecosystem function.<br>• Increase in sedimentation of surrounding watercourses due loss of vegetation cover. | **Low** | |

| **Construction Phase: SS Alternative 2 substation.**<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | | | • After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction.<br>• |
| **FAUNA IMPACTS** | | | |
| Impact on fauna and habitat due to clearing and construction related activities. | ***Direct impacts:***<br>• Habitat loss and degradation by means of vegetation/tree clearance and heavy motor vehicle usage over the study site and adjacent land will expose the soils. It is predicted that can be ameliorated. | **Low** | • Construction activities of the substation expansion should be restricted to daylight hours reducing the potential impact on the nocturnal breeding activities of the majority of amphibian species. The Giant Bullfrog however breeds during the day.<br>• The contractor/contractors must ensure that no animals are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance.<br>• No Giant Bullfrogs may be collected for food or illegal pet trade.<br>• As far as possible, restrict construction activities to the development site.<br>• Education of the construction staff about the value of wildlife and environmental sensitivity.<br>• Construction activities of the proposed power line and substation should be restricted to daylight hours reducing the potential impact on the nocturnal breeding activities of the majority of amphibian species. The Giant Bullfrog however breeds during the day.<br>• Ideally the expansion of the substation should be undertaken during the dry winter months (May-September) when the majority of amphibian species are dormant.<br>• As a precautionary mitigation measure it is recommended that the |
| | ***Indirect impacts:***<br>• Increased habitat fragmentation & loss of connectivity.<br>• Increased anthropogenic encroachment. | **Low** | |

| **Construction Phase: SS Alternative 2** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | | | developer and construction contractor as well as an independent environmental control officer (ECO) should be made aware of the possible presence of certain threatened amphibian species such as the Giant Bullfrog.<br>• No termite mounds should be intentionally destroyed. If any moribund termite mounds have to be destroyed due to tower position a qualified herpetologist must be present in case any blind snakes are unearthed. The termite mounds should be carefully excavated by hand and pick.<br>• Any animals rescued or recovered will be relocated in suitable habitat away from the substation site.<br>• Any lizards, gecko's, agamids, monitors or snakes encountered should be allowed to escape to suitable habitat away from the disturbance. No reptile should be intentionally killed, caught or collected during any phase of the project.<br>• General avoidance of snakes if the best policy if encountered. Snakes should not be intentionally harmed or killed and allowed free movement away from the area. |
| | ***Cumulative impacts:***<br>• No loss of ecosystem function is anticipated. | None | N/A |
| **AVIFAUNA IMPACTS** | | | |
| Impact on Avifauna and habitat due to clearing and construction related activities. | ***Direct impacts:***<br>• Habitat Destruction.<br>• Disturbance to breeding birds | **Low** | • The construction activities must be strictly limited to the construction footprint.<br>• No birds should be unnecessarily disturbed, hunted or trapped during construction. |

| **Construction Phase: SS Alternative 2 substation.**<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | ***Indirect impacts:***<br>• Birds moving and settling away from construction areas.<br>• Noise from construction activities frightening the birds. | **Low** | |
| | ***Cumulative impacts:***<br>• None anticipated | **None** | None |
| **SOIL IMPACTS** | | | |
| Impact on soil due to excavations and construction related activities. | ***Direct impacts:***<br>• The removal of surface vegetation, whether natural or disturbed, will expose the soils, which in rainy events could wash down into proximate storm water inlets, causing sedimentation. | **Low** | • Do not allow erosion to develop on a large scale before taking action.<br>• Do not strip topsoil when it is wet.<br>• Make use of existing roads and tracks where feasible, rather than creating new routes through vegetated areas.<br>• Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area.<br>• Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. The grassland can be removed as sods and re-established after construction is completed where possible.<br>• Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.<br>• Existing access roads must be used where possible to avoid impacts on surrounding vegetation. Appropriate erosion control measures must be implemented. |
| | ***Indirect impacts:***<br>• Exposure of the soil to erosion.<br>• Seeds from proximate alien invasive plant species will spread easily into eroded soils.<br>• Increased storm water run-off. | **Low** | |
| | ***Cumulative impacts:***<br>• Subsequent sedimentation of | **Low** | |

| **Construction Phase: SS Alternative 2 substation.**<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | surrounding regional watercourses.<br>• Higher rates of storm water run-off during flood events. | | |
| **STORM WATER MANAGEMENT** | | | |
| Impact on storm water due to construction related activities. | ***Direct impacts:***<br>• Flooding and ponding of low level areas. | **Low** | • A storm water management plan must be implemented during construction.<br>• No stockpiles or construction materials may be stored or placed within any drainage lines that may be in close proximity of storm water drains.<br>• The storm water system especially discharge points must be inspected and damaged areas must be repaired if required. |
| | ***Indirect impacts:***<br>• Transporting of pollutants to regional watercourses and sensitive areas via storm water systems.<br>• Sediment runoff into regional watercourses and catchments. | **Low** | |
| | ***Cumulative impacts:***<br>• Overall contribution to the degradation of regional watercourses. | **Low** | |
| **HERITAGE IMPACTS** | | | |

| **Construction Phase: SS Alternative 2** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| Impact on heritage resources due to construction related activities. | ***Direct impacts:***<br>• No impacts are expected on any cultural-historical aspects during the construction of the proposed development as no such features occur on site. It must also be noted that sometimes such features (such as graves and/or tools) occur beneath ground and could accidentally be unearthed during earthworks. | **Low** | • Should any archaeological sites or graves be exposed during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.<br>• Construction personnel must be alert and inform local Council should they come across any features of heritage value and must cease construction activities immediately.<br>• No heritage feature can be removed, destroyed and/or interfered with on site without the permission of an accredited archaeologist. |
| | ***Indirect impacts:***<br>• None anticipated. | None | None |
| | ***Cumulative impacts:***<br>• None anticipated. | None | |
| **VISUAL IMPACTS** | | | |
| Impact on visual aesthetics due to construction related activities. | ***Direct impacts:***<br>• Surface disturbances and the presence of a construction team are uncharacteristic events in the study area and may cause unsightly views as a result of the activity.<br>• Introduction of construction | **Moderate** | • Do not locate the construction camp or laydown yards within 1 km from any residential area or tourist attraction, unless it can be completely screened from sensitive viewpoints. Preferably, construction camps should be in a dedicated construction camp in the industrial area, in an area that is already disturbed. The Ga-Rankuwa Industrial zone provide ample space and some disturbed areas that are outside the views of sensitive viewers.<br>• Avoid the construction of additional access roads by keeping to existing |

| **Construction Phase: SS Alternative 2 substation.**<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | equipment and ground staff that is unfamiliar in the baseline environment. | | roads.<br>• Avoid removal of any large trees or shrubs that may open views to the construction site and compromise the natural screening capacity of the study area.<br>• Clearly demarcate the construction site to limit the area of disturbance.<br>• Keep dust levels down by regularly wetting dirt roads and exposed soil areas.<br>• Remove rubble and other waste that is generated by the construction process as soon as possible and dispose at an appropriate dump site.<br>• Implement rehabilitation of disturbed areas as soon as possible to limit the duration of exposed soil surfaces. Monitor the rehabilitated areas for at least 6 months to ensure a sufficient vegetation cover is established that will prevent erosion from occurring.<br>• Keep the construction camp neat and tidy at all times. Remove any waste from the site or contain it in an enclosed area out of sight from sensitive viewpoints.<br>• Enhance screening of the construction camps by erecting a temporary fence with a 3m high shade cloth to limit the intrusive nature of such a site. |
| | ***Indirect impacts:***<br>• As the power line nears completion, the visibility and visual exposure will increase as the height of the poles causes a greater ZVI. | **Low** | |
| | ***Cumulative impacts:***<br>• None anticipated. | **Low** | |
| **WASTE MANAGEMENT** | | | |
| Noise generation due to clearing and construction related activities. | ***Direct impacts:***<br>• Littering and disposing construction related wastes will degrade the environment. | **Low** | • Littering will not be permitted on the site and general housekeeping will be enforced.<br>• General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.<br>• Littering will not be permitted on the site and general housekeeping will |
| | ***Indirect impacts:*** | **Low** | |

| **Construction Phase: SS Alternative 2 substation.**<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | • Construction related wastes and general wastes may attract vermin species such as rodents to the site and spread disease. | | be enforced.<br>• General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.<br>• All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins.<br>• All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained. Separate waste skips/ bins for the different waste streams must be available on site.<br>• The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.<br>• No waste (hazardous or general) will be disposed of in the trenches around the storm water channel footprint.<br>• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.<br>• Adequate toilet facilities must be provided for all staff members as standard construction practice.<br>• Monitor the sewerage facilities for spillages, and handle any spillages as hazardous waste.<br>• Chemical toilets must be placed within the construction camp and not in close proximity to watercourses.<br>• The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.<br>• All hazardous material must be carefully stored and then disposed of offsite at the licensed hazardous landfill site. |
| | ***Cumulative impacts:***<br>• Overall contribution of the degradation of the environment. | **Low** | |

| **Construction Phase: SS Alternative 2 substation.**<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | | | • All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins.<br>• All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained. Separate waste skips/ bins for the different waste streams must be available on site.<br>• The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.<br>• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.<br>• Adequate toilet facilities must be provided for all staff members as standard construction practice.<br>• Monitor the sewerage facilities for spillages, and handle any spillages as hazardous waste.<br>• Chemical toilets must be placed within the construction camp and not in close proximity to watercourses.<br>• The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.<br>• All hazardous material must be carefully stored and then disposed of offsite at the licensed hazardous landfill site. |
| **NOISE IMPACTS** | | | |
| Noise Impacts due to | ***Direct impacts:*** | **Low** | • Construction activities to be limited to office hours on weekdays as far |

| **Construction Phase: SS Alternative 2 substation.**<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| clearing and construction related activities. | • Noise created by construction vehicles and machinery during construction activities. | | as possible.<br>• The contractor must ensure that noise levels remain within acceptable limits.<br>• Prevent the generation of a disturbing or nuisance noises.<br>• Ensure acceptable noise levels at surrounding stakeholders and potentially sensitive receptors.<br>• Ensuring compliance with the Noise Control Regulations.<br>• In order to minimise the impacts of noise during the construction phase, construction activities should be restricted to between 07H00 and 17H00 Monday to Friday. This is required in order to avoid noise and lighting disturbances outside of normal working hours.<br>• All construction equipment must be maintained and kept in good working order to minimise associated noise impacts. If required, adequate noise suppression measures (i.e. screens, etc) must be erected around the point source of construction and/or operational noise pollution to reduce noise to an acceptable level. No noise will be generated during the operational phase of the development. |
| | ***Indirect impacts:***<br>• Noise may drive away fauna species that may potentially occur in the area. | **Medium** | |
| | ***Cumulative impacts:***<br>• If mitigation measures are adequately implemented, no cumulative impacts are expected. | **None** | None |
| **SOCIO-ECONOMIC IMPACTS** | | | |
| | ***Direct positive impacts:*** | **Low positive** | **Proposed enhancement and mitigation:** |

| **Construction Phase: SS Alternative 2 substation.**<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | • Creation of employment and business opportunities.<br>• Increased reliability of energy services<br><br>***Potential negative impacts:***<br>• Influx of workers looking for employment opportunities to the area<br>• Increased risk of stock theft, poaching and damage to camp site.<br>• Construction workers using nearby bushes or farmland for ablution | | • A local employment policy to be adopted by the developer to maximise the project opportunities being made available to the local community.<br>• Eskom must opt to utilize local businesses as suppliers.<br>• Eskom must ensure that some goods such as food and fuel are procured locally.<br>• Surrounding neighbours must be consulted prior to construction to discuss the construction process and opportunities regarding employment.<br>• Mechanisms must be implemented to deal with people seeking employment in order to minimise any issues related to the influx of people. |
| | ***Indirect impacts:***<br><br>• Stimulation of local economy.<br>• Improved living conditions of locals. | **Low positive** | |
| | ***Cumulative impacts:***<br><br>• Increased economic activity and growth.<br>• Increased electricity reliability. | **Low positive** | |

| **Construction Phase: SS Alternative 3** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| **VEGETATION IMPACTS** | | | |
| Destruction of vegetation due to clearing and construction related activities. | ***Direct impacts:***<br>• Clearing of and damage to vegetation in construction footprint for new substation site, new access roads, construction camps, vehicle / machinery traffic, trampling by workers (stepping on small plants). | **Low** | • A search and rescue operation must be done before construction commences in order to translocate the any bulbous and succulent plant that could be negatively affected by this proposed development.<br>• The removal of indigenous tree species as well as vegetation clearance must be kept to the minimum area required and remain in the existing servitude wherever possible.<br>• Cleared vegetation should form wood piles and logs and stumps within the cleared servitude. Dead or decaying wood piles should be created as these will provide valuable refuge areas especially due to the clearance of vegetation cover.<br>• Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the local authority.<br>• A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to adjacent, vegetated environs.<br>• Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.<br>• Where possible, construction activities must be restricted to previously disturb (Secondary grasslands) and transformed areas.<br>• The ECO should be notified if any provincially protected species are uncovered. The species should be identified by a suitably qualified person, who will also advise to correct action to be taken. |
| | ***Indirect impacts:***<br>• The proposed Wesglass substation construction would reduce the occurrence of open space. However, in its current state, the vegetation that was recorded are slowly degrading due to surrounding land uses and a lack of fire and grazing. | **Low** | |
| | ***Cumulative impacts:***<br>• The clearance or loss of flora lessens the contribution to the ecosystem function. | **Low** | |

| **Construction Phase: SS Alternative 3** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | • Increase in sedimentation of surrounding watercourses due loss of vegetation cover. | | • No protected vegetation species shall be removed without a tree permit from DAFF.<br>• After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction. |
| **FAUNA IMPACTS** | | | |
| Impact on fauna and habitat due to clearing and construction related activities. | ***Direct impacts:***<br>• Habitat loss and degradation by means of vegetation/tree clearance and heavy motor vehicle usage over the study site and adjacent land will expose the soils. It is predicted that can be ameliorated. | **Low** | • Construction activities of the substation expansion should be restricted to daylight hours reducing the potential impact on the nocturnal breeding activities of the majority of amphibian species. The Giant Bullfrog however breeds during the day.<br>• The contractor/contractors must ensure that no animals are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance.<br>• No Giant Bullfrogs may be collected for food or illegal pet trade.<br>• As far as possible, restrict construction activities to the development site.<br>• Education of the construction staff about the value of wildlife and environmental sensitivity.<br>• Construction activities of the proposed power line and substation should be restricted to daylight hours reducing the potential impact on the nocturnal breeding activities of the majority of amphibian species. The Giant Bullfrog however breeds during the day.<br>• Ideally the expansion of the substation should be undertaken during the dry winter months (May-September) when the majority of amphibian |
| | ***Indirect impacts:***<br>• Increased habitat fragmentation & loss of connectivity.<br>• Increased anthropogenic encroachment. | **Low** | |

| **Construction Phase: SS Alternative 3** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | | | species are dormant.<br>• As a precautionary mitigation measure it is recommended that the developer and construction contractor as well as an independent environmental control officer (ECO) should be made aware of the possible presence of certain threatened amphibian species such as the Giant Bullfrog.<br>• No termite mounds should be intentionally destroyed. If any moribund termite mounds have to be destroyed due to tower position a qualified herpetologist must be present in case any blind snakes are unearthed. The termite mounds should be carefully excavated by hand and pick.<br>• Any animals rescued or recovered will be relocated in suitable habitat away from the substation site.<br>• Any lizards, gecko's, agamids, monitors or snakes encountered should be allowed to escape to suitable habitat away from the disturbance. No reptile should be intentionally killed, caught or collected during any phase of the project.<br>• General avoidance of snakes if the best policy if encountered. Snakes should not be intentionally harmed or killed and allowed free movement away from the area. |
| | ***Cumulative impacts:***<br>• No loss of ecosystem function is anticipated. | None | None |
| **AVIFAUNA IMPACTS** | | | |
| Impact on Avifauna and | ***Direct impacts:*** | **Low** | • No bird flight diverters were noted on the existing transmission lines |

| **Construction Phase: SS Alternative 3** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| habitat due to clearing and construction related activities. | • Habitat Destruction.<br>• Disturbance to breeding birds | | around the area and should be installed.<br>• Bird flight diverters shall be installed according to Eskom Specifications.<br>• The construction activities must be strictly limited to the construction footprint.<br>• No birds should be disturbed, hunted or trapped during construction. |
| | ***Indirect impacts:***<br>• Birds moving and settling away from construction areas.<br>• Noise from construction activities frightening the birds. | **Low** | |
| | ***Cumulative impacts:***<br>• None anticipated | **None** | None |
| **SOIL IMPACTS** | | | |
| Impact on soil due to excavations and construction related activities. | ***Direct impacts:***<br>• The removal of surface vegetation, whether natural or disturbed, will expose the soils, which in rainy events could wash down into proximate storm water inlets, causing sedimentation. | **Low** | • Do not allow erosion to develop on a large scale before taking action.<br>• Do not strip topsoil when it is wet.<br>• Make use of existing roads and tracks where feasible, rather than creating new routes through vegetated areas.<br>• Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area.<br>• Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. The grassland can be removed as sods and re-established after construction is completed where possible.<br>• Protect all areas susceptible to erosion and ensure that there is no |
| | ***Indirect impacts:***<br>• Exposure of the soil to erosion.<br>• Seeds from proximate alien invasive plant species will spread | **Low** | |

| **Construction Phase: SS Alternative 3** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | easily into eroded soils.<br>• Increased storm water run-off. | | undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.<br>• Existing access roads must be used where possible to avoid impacts on surrounding vegetation. Appropriate erosion control measures must be implemented. |
| | ***Cumulative impacts:***<br>• Subsequent sedimentation of surrounding regional watercourses.<br>• Higher rates of storm water run-off during flood events. | **Low** | |
| **STORM WATER MANAGEMENT** | | | |
| Impact on storm water due to construction related activities. | ***Direct impacts:***<br>• Flooding and ponding of low level areas. | **Low** | • A storm water management plan must be implemented during construction.<br>• No stockpiles or construction materials may be stored or placed within any drainage lines that may be in close proximity of storm water drains.<br>• The storm water system especially discharge points must be inspected and damaged areas must be repaired if required. |
| | ***Indirect impacts:***<br>• Transporting of pollutants to regional watercourses and sensitive areas via storm water systems.<br>• Sediment runoff into regional watercourses and catchments. | **Low** | |
| | ***Cumulative impacts:*** | **Low** | |

| **Construction Phase: SS Alternative 3** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | • Overall contribution to the degradation of regional watercourses. | | |
| **HERITAGE IMPACTS** | | | |
| Impact on heritage resources due to construction related activities. | ***Direct impacts:***<br>• No impacts are expected on any cultural-historical aspects during the construction of the proposed development as no such features occur on site. It must also be noted that sometimes such features (such as graves and/or tools) occur beneath ground and could accidentally be unearthed during earthworks. | **Low** | • Should any archaeological sites or graves be exposed during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.<br>• Construction personnel must be alert and inform local Council should they come across any features of heritage value and must cease construction activities immediately.<br>• No heritage feature can be removed, destroyed and/or interfered with on site without the permission of an accredited archaeologist. |
| | ***Indirect impacts:***<br>• None anticipated. | **None** | None |
| | ***Cumulative impacts:***<br>• None anticipated. | **None** | |

| **Construction Phase: SS Alternative 3** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| **VISUAL IMPACTS** | | | |
| Impact on visual aesthetics due to construction related activities. | ***Direct impacts:***<br>• Surface disturbances and the presence of a construction team are uncharacteristic events in the study area and may cause unsightly views as a result of the activity.<br>• Introduction of construction equipment and ground staff that is unfamiliar in the baseline environment. | **Moderate** | • Do not locate the construction camp or laydown yards within 1 km from any residential area or tourist attraction, unless it can be completely screened from sensitive viewpoints. Preferably, construction camps should be in a dedicated construction camp in the industrial area, in an area that is already disturbed. The Ga-Rankuwa Industrial zone provide ample space and some disturbed areas that are outside the views of sensitive viewers.<br>• Avoid the construction of additional access roads by keeping to existing roads.<br>• Avoid removal of any large trees or shrubs that may open views to the construction site and compromise the natural screening capacity of the study area.<br>• Clearly demarcate the construction site to limit the area of disturbance.<br>• Keep dust levels down by regularly wetting dirt roads and exposed soil areas.<br>• Remove rubble and other waste that is generated by the construction process as soon as possible and dispose at an appropriate dump site.<br>• Implement rehabilitation of disturbed areas as soon as possible to limit the duration of exposed soil surfaces. Monitor the rehabilitated areas for at least 6 months to ensure a sufficient vegetation cover is established that will prevent erosion from occurring.<br>• Keep the construction camp neat and tidy at all times. Remove any waste from the site or contain it in an enclosed area out of sight from sensitive viewpoints. |
| | ***Indirect impacts:***<br>• As the power line nears completion, the visibility and visual exposure will increase as the height of the poles causes a greater ZVI. | **Low** | |
| | ***Cumulative impacts:***<br>• None anticipated. | **None** | |

| **Construction Phase: SS Alternative 3** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | | | • Enhance screening of the construction camps by erecting a temporary fence with a 3m high shade cloth to limit the intrusive nature of such a site. |
| **WASTE MANAGEMENT** | | | |
| Noise generation due to clearing and construction related activities. | ***Direct impacts:***<br>• Littering and disposing construction related wastes will degrade the environment. | **Low** | • Littering will not be permitted on the site and general housekeeping will be enforced.<br>• General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.<br>• Littering will not be permitted on the site and general housekeeping will be enforced.<br>• General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.<br>• All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins.<br>• All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained. Separate waste skips/ bins for the different waste streams must be available on site.<br>• The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.<br>• No waste (hazardous or general) will be disposed of in the trenches around the storm water channel footprint.<br>• All excess material and rubble must be removed from the site so not to |
| | ***Indirect impacts:***<br>• Construction related wastes and general wastes may attract vermin species such as rodents to the site and spread disease. | **Low** | |
| | ***Cumulative impacts:***<br>• Overall contribution of the degradation of the environment. | **Low** | |

| **Construction Phase: SS Alternative 3** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | | | restrict the rehabilitation process.<br>• Adequate toilet facilities must be provided for all staff members as standard construction practice.<br>• Monitor the sewerage facilities for spillages, and handle any spillages as hazardous waste.<br>• Chemical toilets must be placed within the construction camp and not in close proximity to watercourses.<br>• The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.<br>• All hazardous material must be carefully stored and then disposed of offsite at the licensed hazardous landfill site.<br>• All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins.<br>• All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained. Separate waste skips/ bins for the different waste streams must be available on site.<br>• The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.<br>• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.<br>• Adequate toilet facilities must be provided for all staff members as standard construction practice.<br>• Monitor the sewerage facilities for spillages, and handle any spillages |

| **Construction Phase: SS Alternative 3** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | | | as hazardous waste.<br>• Chemical toilets must be placed within the construction camp and not in close proximity to watercourses.<br>• The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.<br>• All hazardous material must be carefully stored and then disposed of offsite at the licensed hazardous landfill site. |
| **NOISE IMPACTS** | | | |
| Noise Impacts due to clearing and construction related activities. | ***Direct impacts:***<br>• Noise created by construction vehicles and machinery during construction activities. | **Low** | • Construction activities to be limited to office hours on weekdays as far as possible.<br>• The contractor must ensure that noise levels remain within acceptable limits.<br>• Prevent the generation of a disturbing or nuisance noises.<br>• Ensure acceptable noise levels at surrounding stakeholders and potentially sensitive receptors.<br>• Ensuring compliance with the Noise Control Regulations.<br>• In order to minimise the impacts of noise during the construction phase, construction activities should be restricted to between 07H00 and 17H00 Monday to Friday. This is required in order to avoid noise and lighting disturbances outside of normal working hours.<br>• All construction equipment must be maintained and kept in good working order to minimise associated noise impacts. If required, |
| | ***Indirect impacts:***<br>• Noise may drive away fauna species that may potentially occur in the area. | **Medium** | |

| **Construction Phase: SS Alternative 3** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | | | adequate noise suppression measures (i.e. screens, etc) must be erected around the point source of construction and/or operational noise pollution to reduce noise to an acceptable level. No noise will be generated during the operational phase of the development. |
| | ***Cumulative impacts:***<br><br>• If mitigation measures are adequately implemented, no cumulative impacts are expected. | **None** | None |
| **SOCIO-ECONOMIC IMPACTS** | | | |
| | ***Direct positive impacts:***<br><br>• Creation of employment and business opportunities.<br>• Increased reliability of energy services<br><br>***Potential negative impacts:***<br>• Influx of workers looking for employment opportunities to the area | **Low positive** | **Proposed enhancement and mitigation:**<br><br>• A local employment policy to be adopted by the developer to maximise the project opportunities being made available to the local community.<br>• Eskom must opt to utilize local businesses as suppliers.<br>• Eskom must ensure that some goods such as food and fuel are procured locally.<br>• Surrounding neighbours must be consulted prior to construction to discuss the construction process and opportunities regarding employment.<br>• Mechanisms must be implemented to deal with people seeking employment in order to minimise any issues related to the influx of |

| **Construction Phase: SS Alternative 3** substation.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | • Increased risk of stock theft, poaching and damage to camp site.<br>• Construction workers using nearby bushes or farmland for ablution | | people. |
| | ***Indirect impacts:***<br>• Stimulation of local economy.<br>• Improved living conditions of locals. | **Low positive** | |
| | ***Cumulative impacts:***<br>• Increased economic activity and growth.<br>• Increased electricity reliability. | **Low positive** | |

**POWER LINE**

| **Construction Phase: Alternative 1 (Preferred)** Power Line.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| **VEGETATION IMPACTS** | | | |
| Destruction of vegetation due to clearing and construction related activities. | ***Direct impacts:***<br>• Clearing of and damage to vegetation in expansion footprint for Power line alignment, construction camps, vehicle / machinery traffic, trampling by workers (stepping on small plants). | **Low** | • A search and rescue operation must be done before construction commences in order to translocate the any bulbous and succulent plant that could be negatively affected by this proposed development.<br>• The removal of indigenous tree species as well as vegetation clearance must be kept to the minimum area required and remain in the existing servitude wherever possible.<br>• Cleared vegetation should form wood piles and logs and stumps within the cleared servitude. Dead or decaying wood piles should be created as these will provide valuable refuge areas especially due to the clearance of vegetation cover.<br>• Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the local authority.<br>• A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to adjacent, vegetated environs.<br>• Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.<br>• Where possible, construction activities must be restricted to previously |
| | ***Indirect impacts:***<br>• Loss of habitat for local fauna | **Low** | |
| | ***Cumulative impacts:***<br>• The clearance or loss of flora lessens the contribution to the ecosystem function.<br>• Increase in sedimentation of surrounding watercourses due loss of vegetation cover. | **Low** | |

| **Construction Phase: Alternative 1 (Preferred)** Power Line.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | | | disturb (Secondary grasslands) and transformed areas.<br>• The ECO should be notified if any provincially protected species are uncovered. The species should be identified by a suitably qualified person, who will also advise to correct action to be taken.<br>• No protected vegetation species shall be removed without a tree permit from DAFF.<br>• After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction. |
| **FAUNA IMPACTS** | | | |
| Impact on fauna and habitat due to clearing and construction related activities. | ***Direct impacts:***<br>• Habitat loss and degradation by means of vegetation/tree clearance under the existing power line and heavy motor vehicle usage over the study site and adjacent land will expose the soils. It is predicted that can be ameliorated. | **Low** | • Construction activities of the proposed power line and substation should be restricted to daylight hours reducing the potential impact on the nocturnal breeding activities of the majority of amphibian species. The Giant Bullfrog however breeds during the day.<br>• The contractor/contractors must ensure that no animals are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance.<br>• No Giant Bullfrogs may be collected for food or illegal pet trade.<br>• As far as possible, restrict construction activities to the development site.<br>• Education of the construction staff about the value of wildlife and environmental sensitivity.<br>• Construction activities of the proposed power line and substation should |
| | ***Indirect impacts:***<br>• Increased habitat fragmentation & loss of connectivity.<br>• Increased anthropogenic | **Low** | |

| **Construction Phase: Alternative 1 (Preferred)** Power Line.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | encroachment. | | be restricted to daylight hours reducing the potential impact on the nocturnal breeding activities of the majority of amphibian species. The Giant Bullfrog however breeds during the day.<br>• Ideally the expansion of the power line should be undertaken during the dry winter months (May-September) when the majority of amphibian species are dormant.<br>• As a precautionary mitigation measure it is recommended that the developer and construction contractor as well as an independent environmental control officer (ECO) should be made aware of the possible presence of certain threatened amphibian species such as the Giant Bullfrog.<br>• No termite mounds should be intentionally destroyed. If any moribund termite mounds have to be destroyed due to tower position a qualified herpetologist must be present in case any blind snakes are unearthed. The termite mounds should be carefully excavated by hand and pick.<br>• Any animals rescued or recovered will be relocated in suitable habitat away from the substation site.<br>• Any lizards, gecko's, agamids, monitors or snakes encountered should be allowed to escape to suitable habitat away from the disturbance. No reptile should be intentionally killed, caught or collected during any phase of the project.<br>• General avoidance of snakes if the best policy if encountered. Snakes should not be intentionally harmed or killed and allowed free movement away from the area. |
| | ***Cumulative impacts:***<br>• No loss of ecosystem function is | None | None |

| **Construction Phase: Alternative 1 (Preferred)** Power Line.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | anticipated. | | |
| **AVIFAUNA IMPACTS** | | | |
| Impact on Avifauna and habitat due to clearing and construction related activities. | ***Direct impacts:***<br>• Habitat Destruction.<br>• Disturbance to breeding birds | **Low** | • No bird flight diverters were noted on the existing transmission lines around the area and should be installed.<br>• Bird flight diverters shall be installed according to Eskom Specifications.<br>• The construction activities must be strictly limited to the construction footprint.<br>• No birds should be disturbed, hunted or trapped during construction. |
| | ***Indirect impacts:***<br>• Birds moving and settling away from construction areas.<br>• Noise from construction activities frightening the birds. | **Low** | |
| | ***Cumulative impacts:***<br>• None anticipated | **None** | None |
| **SOIL IMPACTS** | | | |
| Impact on soil due to excavations and construction related activities. | ***Direct impacts:***<br>• The removal of surface vegetation, whether natural or disturbed, will expose the soils, which in rainy events could wash down into proximate storm water | **Low** | • Do not allow erosion to develop on a large scale before taking action.<br>• Do not strip topsoil when it is wet.<br>• Make use of existing roads and tracks where feasible, rather than creating new routes through vegetated areas.<br>• Retain vegetation and soil in position for as long as possible, removing |

| **Construction Phase: Alternative 1 (Preferred)** Power Line.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | inlets, causing sedimentation. | | it immediately ahead of construction / earthworks in that area.<br>• Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. The grassland can be removed as sods and re-established after construction is completed where possible.<br>• Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.<br>• Existing access roads must be used where possible to avoid impacts on surrounding vegetation. Appropriate erosion control measures must be implemented. |
| | ***Indirect impacts:***<br>• Exposure of the soil to erosion.<br>• Seeds from proximate alien invasive plant species will spread easily into eroded soils.<br>• Increased storm water run-off. | **Low** | |
| | ***Cumulative impacts:***<br>• Subsequent sedimentation of surrounding regional watercourses.<br>• Higher rates of storm water run-off during flood events. | **Low** | |
| **STORM WATER MANAGEMENT** | | | |
| Impact on storm water due to construction related activities. | ***Direct impacts:***<br>• Flooding and ponding of low level areas. | **Low** | • A storm water management plan must be implemented during construction.<br>• No stockpiles or construction materials may be stored or placed within any drainage lines that may be in close proximity of storm water drains.<br>• The storm water system especially discharge points must be inspected |
| | ***Indirect impacts:***<br>• Transporting of pollutants to regional watercourses and | **Low** | |

| **Construction Phase: Alternative 1 (Preferred)** Power Line.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | sensitive areas via storm water systems.<br>• Sediment runoff into regional watercourses and catchments. | | and damaged areas must be repaired if required. |
| | ***Cumulative impacts:***<br>• Overall contribution to the degradation of regional watercourses. | **Low** | |
| **HERITAGE IMPACTS** | | | |
| Impact on heritage resources due to construction related activities. | ***Direct impacts:***<br>• No impacts are expected on any cultural-historical aspects during the construction of the proposed development as no such features occur on site. It must also be noted that sometimes such features (such as graves and/or tools) occur beneath ground and could accidentally be unearthed during earthworks. | **Low** | • Should any archaeological sites or graves be exposed during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.<br>• Construction personnel must be alert and inform local Council should they come across any features of heritage value and must cease construction activities immediately.<br>• No heritage feature can be removed, destroyed and/or interfered with on site without the permission of an accredited archaeologist. |

| **Construction Phase: Alternative 1 (Preferred)** Power Line.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | ***Indirect impacts:***<br>• None anticipated. | **None** | None |
| | ***Cumulative impacts:***<br>• None anticipated. | **None** | None |
| **VISUAL IMPACTS** | | | |
| Impact on visual aesthetics due to construction related activities. | ***Direct impacts:***<br>• Surface disturbances and the presence of a construction team are uncharacteristic events in the study area and may cause unsightly views as a result of the activity.<br>• Introduction of construction equipment and ground staff that is unfamiliar in the baseline environment. | **Moderate** | • Do not locate the construction camp or laydown yards within 1 km from any residential area or tourist attraction, unless it can be completely screened from sensitive viewpoints. Preferably, construction camps should be in a dedicated construction camp in the industrial area, in an area that is already disturbed. The Ga-Rankuwa Industrial zone provide ample space and some disturbed areas that are outside the views of sensitive viewers.<br>• Avoid the construction of additional access roads by keeping to existing roads.<br>• Avoid removal of any large trees or shrubs that may open views to the construction site and compromise the natural screening capacity of the study area.<br>• Clearly demarcate the construction site to limit the area of disturbance.<br>• Keep dust levels down by regularly wetting dirt roads and exposed soil areas.<br>• Remove rubble and other waste that is generated by the construction process as soon as possible and dispose at an appropriate dump site.<br>• Implement rehabilitation of disturbed areas as soon as possible to limit |
| | ***Indirect impacts:***<br>• As the power line nears completion, the visibility and visual exposure will increase as the height of the poles causes a greater ZVI. | | |

| **Construction Phase: Alternative 1 (Preferred)** Power Line.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | | | the duration of exposed soil surfaces. Monitor the rehabilitated areas for at least 6 months to ensure a sufficient vegetation cover is established that will prevent erosion from occurring.<br>• Keep the construction camp neat and tidy at all times. Remove any waste from the site or contain it in an enclosed area out of sight from sensitive viewpoints.<br>• Enhance screening of the construction camps by erecting a temporary fence with a 3m high shade cloth to limit the intrusive nature of such a site. |
| | ***Cumulative impacts:***<br>• None anticipated. | None | None |
| **WASTE MANAGEMENT** | | | |
| Noise generation due to clearing and construction related activities. | ***Direct impacts:***<br>• Littering and disposing construction related wastes will degrade the environment. | **Low** | • Littering will not be permitted on the site and general housekeeping will be enforced.<br>• General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.<br>• Littering will not be permitted on the site and general housekeeping will be enforced.<br>• General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.<br>• All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins. |
| | ***Indirect impacts:***<br>• Construction related wastes and general wastes may attract vermin species such as rodents to the site and spread disease. | **Low** | |
| | ***Cumulative impacts:*** | **Low** | |

| **Construction Phase: Alternative 1 (Preferred)** Power Line.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | • Overall contribution of the degradation of the environment. | | • All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained. Separate waste skips/ bins for the different waste streams must be available on site.<br>• The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.<br>• No waste (hazardous or general) will be disposed of in the trenches around the storm water channel footprint.<br>• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.<br>• Adequate toilet facilities must be provided for all staff members as standard construction practice.<br>• Monitor the sewerage facilities for spillages, and handle any spillages as hazardous waste.<br>• Chemical toilets must be placed within the construction camp and not in close proximity to watercourses.<br>• The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.<br>• All hazardous material must be carefully stored and then disposed of offsite at the licensed hazardous landfill site.<br>• All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins.<br>• All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained. Separate waste skips/ bins for |

| **Construction Phase: Alternative 1 (Preferred)** Power Line.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | | | the different waste streams must be available on site.<br>• The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.<br>• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.<br>• Adequate toilet facilities must be provided for all staff members as standard construction practice.<br>• Monitor the sewerage facilities for spillages, and handle any spillages as hazardous waste.<br>• Chemical toilets must be placed within the construction camp and not in close proximity to watercourses.<br>• The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.<br>• All hazardous material must be carefully stored and then disposed of offsite at the licensed hazardous landfill site. |
| **NOISE IMPACTS** | | | |
| Noise Impacts due to clearing and construction related activities. | ***Direct impacts:***<br>• Noise created by construction vehicles and machinery during construction activities. | **Low** | • Construction activities to be limited to office hours on weekdays as far as possible.<br>• The contractor must ensure that noise levels remain within acceptable limits.<br>• Prevent the generation of a disturbing or nuisance noises. |

| **Construction Phase: Alternative 1 (Preferred)** Power Line.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | | | • Ensure acceptable noise levels at surrounding stakeholders and potentially sensitive receptors.<br>• Ensuring compliance with the Noise Control Regulations.<br>• In order to minimise the impacts of noise during the construction phase, construction activities should be restricted to between 07H00 and 17H00 Monday to Friday. This is required in order to avoid noise and lighting disturbances outside of normal working hours.<br>• All construction equipment must be maintained and kept in good working order to minimise associated noise impacts. If required, adequate noise suppression measures (i.e. screens, etc) must be erected around the point source of construction and/or operational noise pollution to reduce noise to an acceptable level. No noise will be generated during the operational phase of the development. |
| | ***Indirect impacts:***<br>• Noise may drive away fauna species that may potentially occur in the area. | **Medium** | |
| | ***Cumulative impacts:***<br>• If mitigation measures are adequately implemented, no cumulative impacts are expected. | **None** | None |
| **SOCIO-ECONOMIC IMPACTS** | | | |
| | ***Direct positive impacts:***<br>• Creation of employment and | **Low positive** | **Proposed enhancement and mitigation:**<br>• A local employment policy to be adopted by the developer to maximise |

| **Construction Phase: Alternative 1 (Preferred)** Power Line.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | business opportunities.<br>• Increased reliability of energy services<br><br>***Potential negative impacts:***<br>• Influx of workers looking for employment opportunities to the area<br>• Increased risk of stock theft, poaching and damage to camp site.<br>• Construction workers using nearby bushes or farmland for ablution | | the project opportunities being made available to the local community.<br>• Eskom must opt to utilize local businesses as suppliers.<br>• Eskom must ensure that some goods such as food and fuel are procured locally.<br>• Surrounding neighbours must be consulted prior to construction to discuss the construction process and opportunities regarding employment.<br>• Mechanisms must be implemented to deal with people seeking employment in order to minimise any issues related to the influx of people. |
| | ***Indirect impacts:***<br><br>• Stimulation of local economy.<br>• Improved living conditions of locals. | **Low positive** | |
| | ***Cumulative impacts:***<br><br>• Increased economic activity and growth. | **Low positive** | |

| **Construction Phase: Alternative 1 (Preferred)** Power Line.<br>Please also refer to Appendix F, the EMPr and Specialist assessments for detail impact assessment for each mentioned impact | | | |
|---|---|---|---|
| **Activity** | **Impact summary** | **Significance** | **Proposed mitigation** |
| | • Increased electricity reliability. | | |

| **Construction Phase: Alternative 2** Power Line. Please also refer to the EMPr and Specialist assessments | | | |
|---|---|---|---|
| **VEGETATION IMPACTS** | | | |
| Destruction of vegetation due to clearing and construction related activities. | ***Direct impacts:***<br>• Clearing of and damage to vegetation in construction footprint for Power line alignment, construction camps, vehicle / machinery traffic, trampling by workers (stepping on small plants). | **Low** | • A search and rescue operation must be done before construction commences in order to translocate the any bulbous and succulent plant that could be negatively affected by this proposed development.<br>• The removal of indigenous tree species as well as vegetation clearance must be kept to the minimum area required and remain in the existing servitude wherever possible.<br>• Cleared vegetation should form wood piles and logs and stumps within the cleared servitude. Dead or decaying wood piles should be created as these will provide valuable refuge areas especially due to the clearance of vegetation cover.<br>• Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the local authority.<br>• A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to adjacent, vegetated environs. |
| | ***Indirect impacts:***<br>• Loss of habitat for local fauna | **Low** | |
| | ***Cumulative impacts:***<br>• The clearance or loss of flora lessens the contribution to the ecosystem function.<br>• Increase in sedimentation of | **Low** | |

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|---|---|---|---|
| | surrounding watercourses due loss of vegetation cover. | | • Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.<br>• Where possible, construction activities must be restricted to previously disturb (Secondary grasslands) and transformed areas.<br>• The ECO should be notified if any provincially protected species are uncovered. The species should be identified by a suitably qualified person, who will also advise to correct action to be taken.<br>• No protected vegetation species shall be removed without a tree permit from DAFF.<br>• After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction.<br>• |
| **FAUNA IMPACTS** | | | |
| Impact on fauna and habitat due to clearing and construction related activities. | ***Direct impacts:***<br>• Habitat loss and degradation by means of vegetation/tree clearance for construction of the new line and heavy motor vehicle usage over the study site and adjacent land will expose the soils. It is predicted that can be ameliorated. | **Low** | • Construction activities of the proposed power line should be restricted to daylight hours reducing the potential impact on the nocturnal breeding activities of the majority of amphibian species. The Giant Bullfrog however breeds during the day.<br>• The contractor/contractors must ensure that no animals are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance.<br>• No Giant Bullfrogs may be collected for food or illegal pet trade.<br>• As far as possible, restrict construction activities to the development site.<br>• Education of the construction staff about the value of wildlife and environmental sensitivity.<br>• Construction activities of the proposed power line and substation should be restricted to daylight hours reducing the potential impact on the nocturnal breeding activities of the majority of amphibian species. The Giant Bullfrog however breeds during the day.<br>• Ideally the expansion of the power line should be undertaken during the |
| | ***Indirect impacts:***<br>• Increased habitat fragmentation & loss of connectivity.<br>• Increased anthropogenic encroachment. | **Low** | |

| | | | |
|---|---|---|---|
| | | | dry winter months (May-September) when the majority of amphibian species are dormant.<br>• As a precautionary mitigation measure it is recommended that the developer and construction contractor as well as an independent environmental control officer (ECO) should be made aware of the possible presence of certain threatened amphibian species such as the Giant Bullfrog.<br>• No termite mounds should be intentionally destroyed. If any moribund termite mounds have to be destroyed due to tower position a qualified herpetologist must be present in case any blind snakes are unearthed. The termite mounds should be carefully excavated by hand and pick.<br>• Any animals rescued or recovered will be relocated in suitable habitat away from the substation site.<br>• Any lizards, gecko's, agamids, monitors or snakes encountered should be allowed to escape to suitable habitat away from the disturbance. No reptile should be intentionally killed, caught or collected during any phase of the project.<br>• General avoidance of snakes if the best policy if encountered. Snakes should not be intentionally harmed or killed and allowed free movement away from the area. |
| | ***Cumulative impacts:***<br>• No loss of ecosystem function is anticipated. | **None** | • The construction activities must be strictly limited to the construction footprint.<br>• No birds should be disturbed, hunted or trapped during construction. |
| **AVIFAUNA IMPACTS** | | | |
| Impact on Avifauna and habitat due to clearing and construction related activities. | ***Direct impacts:***<br>• Habitat Destruction.<br>• Disturbance to breeding birds | **Low** | • No bird flight diverters were noted on the existing transmission lines around the area and should be installed.<br>• Bird flight diverters shall be installed according to Eskom Specifications.<br>• The construction activities must be strictly limited to the construction footprint.<br>• No birds should be disturbed, hunted or trapped during construction. |
| | ***Indirect impacts:***<br>• Birds moving and settling away from construction areas. | **Low** | |

| | | | |
|---|---|---|---|
| | • Noise from construction activities frightening the birds. | | |
| | ***Cumulative impacts:***<br>• None anticipated. | **None** | None |
| **WETLAND IMPACTS** | | | |
| Impact on wetlands due to clearing and construction related activities. | ***Direct impacts:***<br>• Increased loss of soil on site and deposition of sediment in the artificial wetland close to the project site. | **Low** | • No activities should take place in the watercourses and associated buffer zone (50 m from the edge of the watercourse). Where the above is unavoidable, only the necessary footprint and additional access roads can be considered. This is subjected to authorization by means of a general authorisation or water use license from DWS.<br>• Construction in and around the artificial wetland must be restricted to the dryer winter months.<br>• A temporary fence or demarcation must be erected around the works area to prevent access to sensitive environs. The works areas generally include the servitude, construction camps, areas where material is stored and the actual footprint of infrastructure.<br>• Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.<br>• Demarcate the artificial wetland and riparian areas and buffer zones to limit disturbance, clearly mark these areas as no-go areas.<br>• Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area.<br>• Prevent pedestrian and vehicular access into the artificial wetland and buffer areas.<br>• Consider the various methods for stringing cables and select whichever method(s) that will have the least impact on the artificial wetland.<br>• Weed control in buffer zone.<br>• Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the |
| | ***Indirect impacts:***<br>• Erosion and subsequent sedimentation of the proximate artificial wetland and other watercourses downstream. | **Low** | |
| | ***Cumulative impacts:***<br>• Pollutants from the construction and operation of the project within the project site might end up in the seasonal stream. From here the downstream aquatic system might be affected.<br>• Loss or disturbance to individuals of rare, endangered, endemic and/or protected species that may occur in in the artificial wetland.<br>• Impairment of wetland function | **Low** | |

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|---|---|---|---|
| | | | construction camp and work areas.<br>• Rehabilitation plans must be submitted and approved for rehabilitation of damage during construction and that plan must be implemented immediately upon completion of construction. |
| **SOIL IMPACTS** | | | |
| Impact on soil due to excavations and construction related activities. | ***Direct impacts:***<br>• The removal of surface vegetation, whether natural or disturbed, will expose the soils, which in rainy events could wash down into proximate storm water inlets, causing sedimentation. | **Low** | • Do not allow erosion to develop on a large scale before taking action.<br>• Do not strip topsoil when it is wet.<br>• Make use of existing roads and tracks where feasible, rather than creating new routes through vegetated areas.<br>• Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area.<br>• Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. The grassland can be removed as sods and re-established after construction is completed where possible.<br>• Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.<br>• Existing access roads must be used where possible to avoid impacts on surrounding vegetation. Appropriate erosion control measures must be implemented. |
| | ***Indirect impacts:***<br>• Exposure of the soil to erosion.<br>• Seeds from proximate alien invasive plant species will spread easily into eroded soils.<br>• Increased storm water run-off | **Low** | |
| | ***Cumulative impacts:***<br>• Subsequent sedimentation of surrounding regional watercourses.<br>• Higher rates of storm water run-off during flood events. | **Low** | |
| **STORM WATER MANAGEMENT** | | | |
| Impact on storm water due to construction related activities. | ***Direct impacts:***<br>• Flooding and ponding of low level areas. | **Low** | • A storm water management plan must be implemented during construction. |

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| | ***Indirect impacts:***<br>• Transporting of pollutants to regional watercourses and sensitive areas via storm water systems.<br>• Sediment runoff into regional watercourses and catchments. | **Low** | • No stockpiles or construction materials may be stored or placed within any drainage lines that may be in close proximity of storm water drains.<br>• The storm water system especially discharge points must be inspected and damaged areas must be repaired if required.<br>• |
| | ***Cumulative impacts:***<br>• Overall contribution to the degradation of regional watercourses. | **Low** | |
| **HERITAGE RESOURCES IMPACTS** | | | |
| Impact on heritage resources due to construction related activities. | ***Direct impacts:***<br>• No impacts are expected on any cultural-historical aspects during the construction of the proposed development as no such features occur on site. It must also be noted that sometimes such features (such as graves and/or tools) occur beneath ground and could accidentally be unearthed during earthworks. | **Low** | • Should any archaeological sites or graves be exposed during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.<br>• Construction personnel must be alert and inform local Council should they come across any features of heritage value and must cease construction activities immediately.<br>• No heritage feature can be removed, destroyed and/or interfered with on site without the permission of an accredited archaeologist.<br>• |
| | ***Indirect impacts:***<br>• None anticipated. | **None** | None |
| | ***Cumulative impacts:***<br>• None anticipated. | **None** | None |

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| **VISUAL IMPACTS** | | | |
| Impact on visual aesthetics due to construction related activities. | ***Direct impacts:***<br>• Surface disturbances and the presence of a construction team are uncharacteristic events in the study area and may cause unsightly views as a result of the activity.<br>• Introduction of construction equipment and ground staff that is unfamiliar in the baseline environment. | **Moderate** | • Do not locate the construction camp or laydown yards within 1 km from any residential area or tourist attraction, unless it can be completely screened from sensitive viewpoints. Preferably, construction camps should be in a dedicated construction camp in the industrial area, in an area that is already disturbed. The Ga-Rankuwa Industrial zone provide ample space and some disturbed areas that are outside the views of sensitive viewers.<br>• Avoid the construction of additional access roads by keeping to existing roads.<br>• Avoid removal of any large trees or shrubs that may open views to the construction site and compromise the natural screening capacity of the study area.<br>• Clearly demarcate the construction site to limit the area of disturbance.<br>• Keep dust levels down by regularly wetting dirt roads and exposed soil areas.<br>• Remove rubble and other waste that is generated by the construction process as soon as possible and dispose at an appropriate dump site.<br>• Implement rehabilitation of disturbed areas as soon as possible to limit the duration of exposed soil surfaces. Monitor the rehabilitated areas for at least 6 months to ensure a sufficient vegetation cover is established that will prevent erosion from occurring.<br>• Keep the construction camp neat and tidy at all times. Remove any waste from the site or contain it in an enclosed area out of sight from sensitive viewpoints.<br>• Enhance screening of the construction camps by erecting a temporary fence with a 3m high shade cloth to limit the intrusive nature of such a site.<br>• |
| | ***Indirect impacts:***<br>• As the power line nears completion, the visibility and visual exposure will increase as the height of the poles causes a greater ZVI. | **Low** | |
| | ***Cumulative impacts:***<br>• None anticipated. | None | None |

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| **WASTE MANAGEMENT** | | | |
| Waste generation due to clearing and construction related activities. | ***Direct impacts:***<br>• Littering and disposing construction related wastes will degrade the environment. | **Low** | • Littering will not be permitted on the site and general housekeeping will be enforced.<br>• General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.<br>• Littering will not be permitted on the site and general housekeeping will be enforced.<br>• General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.<br>• All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins.<br>• All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained. Separate waste skips/ bins for the different waste streams must be available on site.<br>• The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.<br>• No waste (hazardous or general) will be disposed of in the trenches around the storm water channel footprint.<br>• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.<br>• Adequate toilet facilities must be provided for all staff members as standard construction practice.<br>• Monitor the sewerage facilities for spillages, and handle any spillages as hazardous waste.<br>• Chemical toilets must be placed within the construction camp and not in close proximity to watercourses.<br>• The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe |
| | ***Indirect impacts:***<br>• Construction related wastes and general wastes may attract vermin species such as rodents to the site and spread disease. | **Low** | |
| | ***Cumulative impacts:***<br>• Overall contribution of the degradation of the environment. | **Low** | |

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| | | | disposal certificates must be kept on record.<br>• All hazardous material must be carefully stored and then disposed of offsite at the licensed hazardous landfill site.<br>• All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins.<br>• All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained. Separate waste skips/ bins for the different waste streams must be available on site.<br>• The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.<br>• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.<br>• Adequate toilet facilities must be provided for all staff members as standard construction practice.<br>• Monitor the sewerage facilities for spillages, and handle any spillages as hazardous waste.<br>• Chemical toilets must be placed within the construction camp and not in close proximity to watercourses.<br>• The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.<br>• All hazardous material must be carefully stored and then disposed of offsite at the licensed hazardous landfill site. |
| **NOISE IMPACTS** | | | |
| Noise Impacts due to clearing and construction related activities. | ***Direct impacts:***<br>• Noise created by construction vehicles and machinery during construction activities. | **Low** | • Construction activities to be limited to office hours on weekdays as far as possible.<br>• The contractor must ensure that noise levels remain within acceptable limits.<br>• Prevent the generation of a disturbing or nuisance noises. |

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| | | | • Ensure acceptable noise levels at surrounding stakeholders and potentially sensitive receptors.<br>• Ensuring compliance with the Noise Control Regulations.<br>• In order to minimise the impacts of noise during the construction phase, construction activities should be restricted to between 07H00 and 17H00 Monday to Friday. This is required in order to avoid noise and lighting disturbances outside of normal working hours.<br>• All construction equipment must be maintained and kept in good working order to minimise associated noise impacts. If required, adequate noise suppression measures (i.e. screens, etc) must be erected around the point source of construction and/or operational noise pollution to reduce noise to an acceptable level. No noise will be generated during the operational phase of the development. |
| | ***Indirect impacts:***<br>• Noise may drive away fauna species that may potentially occur in the area. | **Medium** | |
| | ***Cumulative impacts:***<br>• If mitigation measures are adequately implemented, no cumulative impacts are expected. | **None** | None |
| **SOCIO-ECONOMIC IMPACTS** | | | |
| Noise Impacts due to construction related activities. | ***Direct positive impacts:***<br>• Creation of employment and business opportunities.<br>• Increased reliability of energy services<br><br>***Potential negative impacts:***<br>• Influx of workers looking for employment opportunities to the | **Low positive** | • Proposed enhancement and mitigation:<br>•<br>• A local employment policy to be adopted by the developer to maximise the project opportunities being made available to the local community.<br>• Eskom must opt to utilize local businesses as suppliers.<br>• Eskom must ensure that some goods such as food and fuel are procured locally.<br>• Surrounding neighbours must be consulted prior to construction to discuss the construction process and opportunities regarding employment.<br>• Mechanisms must be implemented to deal with people seeking |

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| | area<br>• Increased risk of stock theft, poaching and damage to camp site.<br>• Construction workers using nearby bushes or farmland for ablution | | employment in order to minimise any issues related to the influx of people. |
| | ***Indirect impacts:***<br>• Stimulation of local economy.<br>Improved living conditions of locals. | **Low positive** | |
| | ***Cumulative impacts:***<br>• Increased economic activity and growth.<br>• Increased electricity reliability. | **Low positive** | |

| **Construction Phase: Alternative 3** Power Line. Please also refer to the EMPr and Specialist assessments | | | |
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| **VEGETATION IMPACTS** | | | |
| Destruction of vegetation due to clearing and construction related activities. | ***Direct impacts:***<br>• Clearing of and damage to vegetation in construction footprint for Power line alignment, construction camps, vehicle / machinery traffic, trampling by workers (stepping on small | **Low** | • A search and rescue operation must be done before construction commences in order to translocate the any bulbous and succulent plant that could be negatively affected by this proposed development.<br>• The removal of indigenous tree species as well as vegetation clearance must be kept to the minimum area required and remain in the existing servitude wherever possible. |

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| | plants). | | • Cleared vegetation should form wood piles and logs and stumps within the cleared servitude. Dead or decaying wood piles should be created as these will provide valuable refuge areas especially due to the clearance of vegetation cover.<br>• Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the local authority.<br>• A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to adjacent, vegetated environs.<br>• Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.<br>• Where possible, construction activities must be restricted to previously disturb (Secondary grasslands) and transformed areas.<br>• The ECO should be notified if any provincially protected species are uncovered. The species should be identified by a suitably qualified person, who will also advise to correct action to be taken.<br>• No protected vegetation species shall be removed without a tree permit from DAFF.<br>• After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction. |
| | ***Indirect impacts:***<br>• Loss of habitat for local fauna | **Low** | |
| | ***Cumulative impacts:***<br>• The clearance or loss of flora lessens the contribution to the ecosystem function.<br>• Increase in sedimentation of surrounding watercourses due loss of vegetation cover. | **Low** | |
| **FAUNA IMPACTS** | | | |
| Impact on fauna and habitat due to clearing and construction related activities. | ***Direct impacts:***<br>• Habitat loss and degradation by means of vegetation/tree clearance for construction of the new line and heavy motor vehicle usage over the study site and adjacent land will expose the soils. It is predicted that can be ameliorated. | **Low** | • Construction activities of the proposed power line should be restricted to daylight hours reducing the potential impact on the nocturnal breeding activities of the majority of amphibian species. The Giant Bullfrog however breeds during the day.<br>• The contractor/contractors must ensure that no animals are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance. |

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| | | | • No Giant Bullfrogs may be collected for food or illegal pet trade. |
| | ***Indirect impacts:***<br>• Increased habitat fragmentation & loss of connectivity.<br>• Increased anthropogenic encroachment. | **Low** | • As far as possible, restrict construction activities to the development site.<br>• Education of the construction staff about the value of wildlife and environmental sensitivity.<br>• Construction activities of the proposed power line and substation should be restricted to daylight hours reducing the potential impact on the nocturnal breeding activities of the majority of amphibian species. The Giant Bullfrog however breeds during the day.<br>• Ideally the expansion of the power line should be undertaken during the dry winter months (May-September) when the majority of amphibian species are dormant.<br>• As a precautionary mitigation measure it is recommended that the developer and construction contractor as well as an independent environmental control officer (ECO) should be made aware of the possible presence of certain threatened amphibian species such as the Giant Bullfrog.<br>• No termite mounds should be intentionally destroyed. If any moribund termite mounds have to be destroyed due to tower position a qualified herpetologist must be present in case any blind snakes are unearthed. The termite mounds should be carefully excavated by hand and pick.<br>• Any animals rescued or recovered will be relocated in suitable habitat away from the substation site.<br>• Any lizards, gecko's, agamids, monitors or snakes encountered should be allowed to escape to suitable habitat away from the disturbance. No reptile should be intentionally killed, caught or collected during any phase of the project.<br>• General avoidance of snakes if the best policy if encountered. Snakes should not be intentionally harmed or killed and allowed free movement away from the area. |
| | ***Cumulative impacts:***<br>• No loss of ecosystem function is anticipated. | **Low** | • The construction activities must be strictly limited to the construction footprint.<br>• No birds should be disturbed, hunted or trapped during construction. |

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| **AVIFAUNA IMPACTS** | | | |
| Impact on Avifauna and habitat due to clearing and construction related activities. | ***Direct impacts:***<br>• Habitat Destruction.<br>• Disturbance to breeding birds | **Low** | • No bird flight diverters were noted on the existing transmission lines around the area and should be installed.<br>• Bird flight diverters shall be installed according to Eskom Specifications.<br>• The construction activities must be strictly limited to the construction footprint.<br>• No birds should be disturbed, hunted or trapped during construction. |
| | ***Indirect impacts:***<br>• Birds moving and settling away from construction areas.<br>• Noise from construction activities frightening the birds. | **Low** | |
| | ***Cumulative impacts:***<br>• None anticipated. | **None** | None |
| **WETLAND IMPACTS** | | | |
| Impact on wetlands due to clearing and construction related activities. | ***Direct impacts:***<br>• Increased loss of soil on site and deposition of sediment in the artificial wetland close to the project site. | **Low** | • No activities should take place in the watercourses and associated buffer zone (50 m from the edge of the watercourse). Where the above is unavoidable, only the necessary footprint and additional access roads can be considered. This is subjected to authorization by means of a general authorisation or water use license from DWS.<br>• Construction in and around the artificial wetland must be restricted to the dryer winter months.<br>• A temporary fence or demarcation must be erected around the works area to prevent access to sensitive environs. The works areas generally include the servitude, construction camps, areas where material is stored and the actual footprint of infrastructure.<br>• Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.<br>• Demarcate the artificial wetland and riparian areas and buffer zones to |
| | ***Indirect impacts:***<br>• Erosion and subsequent sedimentation of the proximate artificial wetland and other watercourses downstream. | **Low** | |
| | ***Cumulative impacts:***<br>• Pollutants from the construction and operation of the project within | **Low** | |

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| | the project site might end up in the seasonal stream. From here the downstream aquatic system might be affected.<br>• Loss or disturbance to individuals of rare, endangered, endemic and/or protected species that may occur in in the artificial wetland.<br>• Impairment of wetland function | | limit disturbance, clearly mark these areas as no-go areas.<br>• Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area.<br>• Prevent pedestrian and vehicular access into the artificial wetland and buffer areas.<br>• Consider the various methods for stringing cables and select whichever method(s) that will have the least impact on the artificial wetland.<br>• Weed control in buffer zone.<br>• Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.<br>• Rehabilitation plans must be submitted and approved for rehabilitation of damage during construction and that plan must be implemented immediately upon completion of construction.<br>• |
| **SOIL IMPACTS** | | | |
| Impact on soil due to excavations and construction related activities. | ***Direct impacts:***<br>• The removal of surface vegetation, whether natural or disturbed, will expose the soils, which in rainy events could wash down into proximate storm water inlets, causing sedimentation. | **Low** | • Do not allow erosion to develop on a large scale before taking action.<br>• Do not strip topsoil when it is wet.<br>• Make use of existing roads and tracks where feasible, rather than creating new routes through vegetated areas.<br>• Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area.<br>• Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. The grassland can be removed as sods and re-established after construction is completed where possible.<br>• Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.<br>• Existing access roads must be used where possible to avoid impacts on surrounding vegetation. Appropriate erosion control measures must be implemented. |
| | ***Indirect impacts:***<br>• Exposure of the soil to erosion.<br>• Seeds from proximate alien invasive plant species will spread easily into eroded soils.<br>• Increased storm water run-off | **Low** | |
| | ***Cumulative impacts:***<br>• Subsequent sedimentation of | **Low** | |

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| | surrounding regional watercourses.<br>• Higher rates of storm water run-off during flood events. | | |
| **STORM WATER MANAGEMENT** | | | |
| Impact on storm water due to construction related activities. | ***Direct impacts:***<br>• Flooding and ponding of low level areas. | **Low** | • A storm water management plan must be implemented during construction.<br>• No stockpiles or construction materials may be stored or placed within any drainage lines that may be in close proximity of storm water drains.<br>• The storm water system especially discharge points must be inspected and damaged areas must be repaired if required. |
| | ***Indirect impacts:***<br>• Transporting of pollutants to regional watercourses and sensitive areas via storm water systems.<br>• Sediment runoff into regional watercourses and catchments. | **Low** | |
| | ***Cumulative impacts:***<br>• Overall contribution to the degradation of regional watercourses. | **Low** | |
| **HERITAGE RESOURCES IMPACTS** | | | |
| Impact on heritage resources due to construction related activities. | ***Direct impacts:***<br>• No impacts are expected on any cultural-historical aspects during the construction of the proposed development as no such features occur on site. It must also be | **Low** | • Should any archaeological sites or graves be exposed during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.<br>• Construction personnel must be alert and inform local Council should they come across any features of heritage value and must cease |

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| | noted that sometimes such features (such as graves and/or tools) occur beneath ground and could accidentally be unearthed during earthworks. | | construction activities immediately.<br>• No heritage feature can be removed, destroyed and/or interfered with on site without the permission of an accredited archaeologist. |
| | ***Indirect impacts:***<br>• None anticipated. | **None** | None |
| | ***Cumulative impacts:***<br>• None anticipated. | **None** | None |
| **VISUAL IMPACTS** | | | |
| Impact on visual aesthetics due to construction related activities. | ***Direct impacts:***<br>• Surface disturbances and the presence of a construction team are uncharacteristic events in the study area and may cause unsightly views as a result of the activity.<br>• Introduction of construction equipment and ground staff that is unfamiliar in the baseline environment. | **Moderate** | • Do not locate the construction camp or laydown yards within 1 km from any residential area or tourist attraction, unless it can be completely screened from sensitive viewpoints. Preferably, construction camps should be in a dedicated construction camp in the industrial area, in an area that is already disturbed. The Ga-Rankuwa Industrial zone provide ample space and some disturbed areas that are outside the views of sensitive viewers.<br>• Avoid the construction of additional access roads by keeping to existing roads.<br>• Avoid removal of any large trees or shrubs that may open views to the construction site and compromise the natural screening capacity of the study area.<br>• Clearly demarcate the construction site to limit the area of disturbance.<br>• Keep dust levels down by regularly wetting dirt roads and exposed soil areas.<br>• Remove rubble and other waste that is generated by the construction process as soon as possible and dispose at an appropriate dump site.<br>• Implement rehabilitation of disturbed areas as soon as possible to limit the duration of exposed soil surfaces. Monitor the rehabilitated areas for |
| | ***Indirect impacts:***<br>• As the power line nears completion, the visibility and visual exposure will increase as the height of the poles causes a greater ZVI. | **Moderate** | |

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| | | | at least 6 months to ensure a sufficient vegetation cover is established that will prevent erosion from occurring.<br>• Keep the construction camp neat and tidy at all times. Remove any waste from the site or contain it in an enclosed area out of sight from sensitive viewpoints.<br>• Enhance screening of the construction camps by erecting a temporary fence with a 3m high shade cloth to limit the intrusive nature of such a site. |
| | ***Cumulative impacts:***<br>• None anticipated. | None | None |
| **WASTE MANAGEMENT** | | | |
| Waste generation due to clearing and construction related activities. | ***Direct impacts:***<br>• Littering and disposing construction related wastes will degrade the environment. | **Low** | • Littering will not be permitted on the site and general housekeeping will be enforced.<br>• General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.<br>• Littering will not be permitted on the site and general housekeeping will be enforced.<br>• General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.<br>• All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins.<br>• All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained. Separate waste skips/ bins for the different waste streams must be available on site.<br>• The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.<br>• No waste (hazardous or general) will be disposed of in the trenches around the storm water channel footprint. |
| | ***Indirect impacts:***<br>• Construction related wastes and general wastes may attract vermin species such as rodents to the site and spread disease. | **Low** | |

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| | | | • All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.<br>• Adequate toilet facilities must be provided for all staff members as standard construction practice.<br>• Monitor the sewerage facilities for spillages, and handle any spillages as hazardous waste.<br>• Chemical toilets must be placed within the construction camp and not in close proximity to watercourses.<br>• The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.<br>• All hazardous material must be carefully stored and then disposed of offsite at the licensed hazardous landfill site.<br>• All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins.<br>• All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained. Separate waste skips/ bins for the different waste streams must be available on site.<br>• The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.<br>• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.<br>• Adequate toilet facilities must be provided for all staff members as standard construction practice.<br>• Monitor the sewerage facilities for spillages, and handle any spillages as hazardous waste.<br>• Chemical toilets must be placed within the construction camp and not in close proximity to watercourses.<br>• The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record. |

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| | | | • All hazardous material must be carefully stored and then disposed of offsite at the licensed hazardous landfill site. |
| | ***Cumulative impacts:***<br>• Overall contribution of the degradation of the environment. | **Low** | As detailed above. |
| **NOISE IMPACTS** | | | |
| Noise Impacts due to clearing and construction related activities. | ***Direct impacts:***<br>• Noise created by construction vehicles and machinery during construction activities. | **Low** | • Construction activities to be limited to office hours on weekdays as far as possible.<br>• The contractor must ensure that noise levels remain within acceptable limits.<br>• Prevent the generation of a disturbing or nuisance noises.<br>• Ensure acceptable noise levels at surrounding stakeholders and potentially sensitive receptors.<br>• Ensuring compliance with the Noise Control Regulations.<br>• In order to minimise the impacts of noise during the construction phase, construction activities should be restricted to between 07H00 and 17H00 Monday to Friday. This is required in order to avoid noise and lighting disturbances outside of normal working hours.<br>• All construction equipment must be maintained and kept in good working order to minimise associated noise impacts. If required, adequate noise suppression measures (i.e. screens, etc) must be erected around the point source of construction and/or operational noise pollution to reduce noise to an acceptable level. No noise will be generated during the operational phase of the development.<br>• |
| | ***Indirect impacts:***<br>• Noise may drive away fauna species that may potentially occur in the area. | **Moderate** | |
| | ***Cumulative impacts:***<br>• If mitigation measures are adequately implemented, no cumulative impacts are expected. | **None** | None |

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| **SOCIO-ECONOMIC IMPACTS** | | | |
| Noise Impacts due to construction related activities. | ***Direct positive impacts:***<br>• Creation of employment and business opportunities.<br>• Increased reliability of energy services<br><br>***Potential negative impacts:***<br>• Influx of workers looking for employment opportunities to the area<br>• Increased risk of stock theft, poaching and damage to camp site.<br>• Construction workers using nearby bushes or farmland for ablution | **Low positive** | • Proposed enhancement and mitigation:<br>•<br>• A local employment policy to be adopted by the developer to maximise the project opportunities being made available to the local community.<br>• Eskom must opt to utilize local businesses as suppliers.<br>• Eskom must ensure that some goods such as food and fuel are procured locally.<br>• Surrounding neighbours must be consulted prior to construction to discuss the construction process and opportunities regarding employment.<br>• Mechanisms must be implemented to deal with people seeking employment in order to minimise any issues related to the influx of people.<br>• |
| | ***Indirect impacts:***<br>• Stimulation of local economy.<br>Improved living conditions of locals. | **Low positive** | |
| | ***Cumulative impacts:***<br>• Increased economic activity and growth.<br>• Increased electricity reliability. | **Low positive** | |

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## OPERATIONAL PHASE

Please note that the substations are grouped together due having similar impacts during the operational phase

| **OPERATIONAL PHASE: (Substation).** Please also refer to Appendix F, the EMPr and Specialist assessments for detailed impact assessment for each mentioned impact. | | | | | |
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| **Ecological Impacts** | | | | | |
| **Activity** | **Impact Summary** | **Significance (after mitigation)** | | | **Proposed Mitigation** |
| | | **SS Alternative 1** | **SS Alternative 2** | **SS Alternative 3** | |
| **Maintenance and operation of the substation.** | ***Direct impacts:*** • Potential influx of alien invader species. | **Low** | **Low** | **Low** | • Regular monitoring for alien plants at the site should occur and could be conducted simultaneously with erosion monitoring. • Edge effects of all operational activities, such as erosion and alien plant species proliferation, which will affect faunal habitats adjacent to the development area, need to be strictly managed. • When alien plants are detected, these should be controlled and cleared using the recommended control measures for each species to ensure that the problem is not exacerbated or does not re-occur. • Clearing methods should themselves aim to keep disturbance to a minimum. • No planting or importing any alien species to the site for landscaping, rehabilitation or any other purpose should be permitted. |
| | ***Indirect impacts:*** • Potential disruption of ecosystem function & processes. | **Low** | **Low** | **Low** | |
| | ***Cumulative impacts:*** • Potential impacts such as soil erosion and habitat loss may exacerbate the infestation of alien species. | **Low** | **Low** | **Low** | |

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| | | | | | • Disturbed areas due to maintenance activities should be rehabilitated and re-vegetated as soon as practically possible.<br>• Implement erosion control measures<br>• |
| | **Visual Impacts** | | | | |
| | **Direct impacts:**<br>• The power line will add to the dominance of the existing power line infrastructure in the study area. | **Low** | **Low** | **Low** | • *Avoidance*: Complete avoidance of the impacts is a function of either not proceeding with the proposed project or relocating the project to an alternative site. This is often the most effective mitigation strategies but within the constraints of economics and available land it is not necessarily possible or feasible.<br>• *Reduction*: Where negative impacts cannot be avoided it should be considered how to reduce the impact as much as possible. Different projects require different solutions but scaling down or limiting disturbances are some of the options.<br>• *Remediation*: Remediation mitigation relies on add-on or cosmetic measures to "soften" the impact to a degree. This is often associated with screening or camouflage treatment to avoid or limit intrusive views.<br>• *Compensation*: Where a negative impact cannot be mitigated adequately, other compensatory measures may offset the residual effects. This requires a thorough understanding and assessment of the environment in order to provide equivalent compensation. This may require extensive public consultation, especially if the impacts lean towards sentimental issues or personal values and perceptions.<br>• *Enhancement*: Enhancement aims to manage certain changes and impacts by enhancing the quality of the environment for local people. This requires the exploring of opportunities in the |
| | **Indirect impacts:**<br>• None | **Low** | **Low** | **Low** | |

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| | | | | | proposed project to contribute positively to the landscape and its experience. Enhancement may take many forms but could include preservation of ecosystems, proper land management, and restoration of habitats or historic landscapes. |
| | **Cumulative impacts:**<br><br>• The power line would add slightly to the existing visual impact associated with the existing power lines and planned/ proposed renewable energy facilities in the area | **Low** | **Low** | **Low** | • Maintain the general appearance of power lines as a whole. |
| | **Noise and dust pollution** | | | | |
| | **Direct impacts:**<br><br>Noise and dust may occur during maintenance of the substation. | **Moderate** | **Moderate** | **Moderate** | • Dust suppression and wet spraying should be implemented.<br>• Limit maintenance hours to daytime and weekday.<br>• Ensure that noise levels are to an acceptable limit. |
| | **Indirect impacts:**<br><br>None | **N/A** | **N/A** | **N/A** | **N/A** |
| | **Cumulative impacts:**<br><br>None | **N/A** | **N/A** | **N/A** | |

**NB:** Please note that the power lines are grouped together due having similar impacts during the operational phase of the project.

| **OPERATIONAL PHASE: (Power line)**<br>**Please also refer to Appendix F, the EMPr and Specialist assessments for detailed impact assessment for each mentioned impact** | | | | | |
|---|---|---|---|---|---|
| **Ecological Impacts** | | | | | |
| **Activity** | **Impact Summary** | **Significance (after mitigation)** | | | **Proposed Mitigation** |
| | | **Alternative 1** | **Alternative 2** | **Alternative 3** | |
| **Maintenance and operation of the Power line.** | ***Direct impacts:***<br>• Potential influx of alien invader species. | **Low** | **Low** | **Low** | • Regular monitoring for alien plants at the site should occur and could be conducted simultaneously with erosion monitoring.<br>• Edge effects of all operational activities, such as erosion and alien plant species proliferation, which will affect faunal habitats adjacent to the development area, need to be strictly managed.<br>• When alien plants are detected, these should be controlled and cleared using the recommended control measures for each species to ensure that the problem is not exacerbated or does not re-occur.<br>• Clearing methods should themselves aim to keep disturbance to a minimum.<br>• No planting or importing any alien species to the site for landscaping, rehabilitation or any other purpose should be permitted.<br>• Disturbed areas due to maintenance activities should be rehabilitated and re-vegetated as soon as practically possible.<br>• Implement erosion control measures |
| | ***Indirect impacts:***<br>• Potential disruption of ecosystem function & processes. | **Low** | **Low** | **Low** | |
| | ***Cumulative impacts:***<br>• Potential impacts such as soil erosion and habitat loss may exacerbate the infestation of alien species. | **Low** | **Low** | **Low** | |

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| | **Avifauna Impacts** | | | | |
| | ***Direct impacts:***<br>• Potential collisions on power lines.<br>• Disturbance to breeding birds | **Low** | **Low** | **Low** | • Eskom's environmental guidelines for the construction of power lines, which is designed to minimise the impact on the environment must be adhered to.<br>• Electrocutions to be monitored and recorded.<br>• The electrocution and collision threat can be mitigated through the installation of Double Loop Bird Flight Diverters. |
| | ***Indirect impacts:***<br>• Decrease in avifauna species in the study area due to and habitat disturbance. | **Low** | **Low** | **Low** | |
| | ***Cumulative impacts:***<br>• There is existing infrastructure including overhead power lines, access roads etc. in the vicinity of the proposed site and further development will add slightly to the possibility of electrocutions and collisions. | **Low** | **Low** | **Low** | |
| | **Visual Impacts** | | | | |
| | | **Low** | **Low** | **Low** | • Maintain the general appearance of the power line as a |

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| | **Direct impacts:**<br><br>• The power line will add to the dominance of the existing power line infrastructure in the study area. | | | | whole. |
| | **Indirect impacts:**<br>• None | **N/A** | **N/A** | **N/A** | **N/A** |
| | **Cumulative impacts:**<br><br>• The power line would add slightly to the existing visual impact associated with the existing power lines and planned/ proposed renewable energy facilities in the area | **Low** | **Low** | **Low** | • Maintain the general appearance of power lineas a whole. |
| | **Noise and dust pollution** | | | | |
| | **Direct impacts:**<br><br>Noise and dust may occur during maintenance of the substation. | **Low** | **Low** | **Low** | • Dust suppression and wet spraying should be implemented.<br>• Limit maintenance hours to daytime and weekday.<br>• Ensure that noise levels are to an acceptable limit. |
| | **Indirect impacts:** | **N/A** | **N/A** | **N/A** | **N/A** |

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| | None | | | | |
| | **Cumulative impacts:**<br><br>None | **N/A** | **N/A** | **N/A** | **N/A** |

| **The No-Go Alternative** |
|---|
| This is the option of not implementing the proposed expansion of the existing Wesglass substation and associated power line upgrade. This option will result in the status quo of the environment to remain unchanged, and thus mean that there will be no impacts occurring on the environment. However, this option will result in the applicant not being able to reach its development goals of strengthening the current network capacity in order to decrease overloading on other substation networks and to improve the quality of supply in the surrounding areas. Also, the opportunity to stimulate the local economic activity by way of providing construction phase employment opportunities and the utilisation of local suppliers will go unrealised. |

**DECOMMISSIONING PHASE**

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| Decommissioning and closure phase has not been considered as part of this application as the end use of the site and required decommissioning activities are not known at this time. Therefore the decommissioning phase will not be assessed in this report as the closure and decommissioning require a separate EIA process which will be conducted as and when closure is required. Also, during decommissioning the relevant legislation at the time would have to be complied with. |

A complete impact assessment in terms of Regulation 19(3) of GN 733 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.

**Comparison of Alternatives: Substation SS Alternative 1, SS Alternative 2, SS Alternative 3 and Power line Alternative 1, Alternative 2, and Alternative 3.**

This section provides a summary of the environmental assessment and conclusions drawn for the proposed Wesglass substation and associated power line upgrade to be constructed within the City of Tshwane Metropolitan Municipality, Gauteng Province. In doing so, it draws on the information gathered as part of the Basic Assessment process and the knowledge gained by the environmental consultant during the course of the process and presents an informed opinion of the environmental impacts associated with the proposed project.

Impact Rating Methodology for the below environmental impact statement:

Likelihood – **Very improbable** (probably will not happen)
**Probable** (distinct possibility)
**Improbable** (some possibility, but low likelihood)

Duration - **Very short term** (0-1 years)
**Short term** (2-5 years)
**Medium term** (5 -15 years)
**Long term** (> 15 years)

Significance - **Low** (will cause a low impact on the environment)
**Medium** (will result in the process continuing but in a controllable manner
**High** (will alter processes to the extent that they temporarily cease)

The following conclusions can be drawn from the specialist studies undertaken within this Basic Assessment

| Element/Factor | Observation/Comments |
|---|---|
| Vegetation impact | The vegetation impact of the proposed development after mitigation can summarised as follows:<br><br>Likelihood: **Probable**<br>Duration: **Medium term**<br>Significance: **Low**<br><br>The vegetation at the **existing** and **Alternative** substation and power line sites was found to be disturbed due to built-up surrounding environment with a high concentration of people and associated infrastructure, the vegetation is in a transformed state. The degradation of the vegetation is due to human-impacts such as vehicle tracks, footpaths, excavations to put infrastructure in place, communal grazing practices, etc. In its current state and due to the encroachment of alien vegetation, the vegetation around the existing Wesglass substation is not considered to be conservation worthy. However the vegetation found on the substation alternatives was found to be in a better condition than the disturbed areas in the residential and industrial area. The soil has been disturbed during the construction of the residential area and vehicle tracks and footpaths crisscross the area. A well-developed shrub community occurs although the shrubs are sparsely distributed e. The dominant tree is Acacia *tortilis*. *Hyparrhenia hirta* is a dominant grass and together with *Cynodon dactylon* are they are indicators of disturbed soil.<br><br>Vegetation clearing for pylons and substation, etc. could impact listed plant species and plant communities. Vegetation clearing will also lead to habitat loss for fauna and potentially the loss of sensitive faunal species, habitats and ecosystems. Erosion risk may result due to the loss of plant cover and soil disturbance created during the construction phase. Although the effects would probably only become apparent during the operation phase, the impact stems from the construction phase and suitable mitigation measures will also need to be applied at this stage. No protected species were found during the site assessment.<br><br>These sites are considered of a low ecological sensitivity due to the transformation of the vegetation in the study area. From an ecological perspective the project site is suitable for a development without detrimental environmental effects.<br><br>The proposed development will have a significant impact on the above-ground ecology of the site. It will however be reduced with the implementation of mitigation measures. The project site has a low ecological sensitivity because of the degraded vegetation which is widespread in the Wesglass area. |

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| Fauna and habitat Impact | The fauna and habitat impact of the proposed development after mitigation can summarised as follows:<br><br>Likelihood: **Improbable**<br>Duration: **Short term**<br>Significance: **Low**<br><br>The Fauna and habitat assessment found that the impact on fauna is expected to be small to negligent. The presence of indigenous terrestrial vertebrates within the study area is relatively low. Animals that may be permanently present can be relocated or will move away during construction, and may resettle after construction, depending on safety specifications necessitated by the development. No restricted or specific habitat of vertebrates exists on the project site that will be affected by the proposed development. |
| Wetland Impact | The Wetland impact of the proposed development after mitigation can summarised as follows:<br><br>Likelihood: **Probable**<br>Duration: **Medium term**<br>Significance: **Low**<br><br>It was found that there is an artificial wetland existing in a nearby storm water canal on western side of Wesglass near the Alternative route 2 & 3 where sensitive habitat exist.<br><br>The impact assessment found that the greatest impact that the construction of power line infrastructure is likely to have on the wetlands is the removal of vegetation and compaction of soil around the pylon footprint as well as along the servitude. If not remediated, these impacts can result in erosion and subsequent sedimentation of watercourses. Therefore, the successful re-establishment of vegetation is imperative in order to limit impacts on watercourses.<br><br>From an ecological perspective the Alternative 1 is the better option and is suitable for a development of this nature if the recommended mitigation measures are adhered to and implemented. Alternatives 2 & 3 and their associated substation are also suitable however an artificial wetland and its 50m buffer makes them less suitable than alternative 1. |
| Heritage and Cultural Impact | The Heritage and Cultural impact of the proposed development after mitigation can summarised as follows:<br><br>Likelihood: **Improbable**<br>Duration: **Permanent**<br>Significance: **Low** |

| | |
|---|---|
| | The heritage and cultural assessment found that no archaeological sites (Iron Age or Stone Age) of significance were recorded within the study area in line with other studies in the immediate vicinity. No further mitigation is recommended in terms of Section 35 for the proposed development to proceed. In terms of Section 34 of the Act no standing structures older than 60 years occur in the study area. In terms of Section 36 of the Act no burial sites were recorded that would be impacted on by the project. However if any graves are located in future they should ideally be preserved in-situ or alternatively relocated according to existing legislation.<br><br>All three alternatives of the distribution line and substation are acceptable due to the lack of heritage resources, but Power line Alternative 1 is preferred due to the proximity of Alternative 2 and 3 to the existing cemetery in the area. Similarly all three substation options are acceptable from a heritage point of view. |
| Visual and/or aesthetic elements | The Visual and/or aesthetic impact of the proposed development <u>after</u> mitigation can summarised as follows:<br><br>Likelihood: **Improbable**<br>Duration: **Very short term**<br>Significance: **Low**<br><br>The visual assessment concluded that no major significant visual impacts are expected. Alternative 1 power line route is the most preferred route as it follows an existing power line corridor which is considered more preferable as oppose to establishing a new corridor. The baseline condition is more tolerant to an additional power line due to the existing servitude and power line. The alignment will cut across a residential area, but if drastic mitigation measures are implemented such as consolidating the new with the existing power line, the impact will be much reduced.<br><br>Substation site 1 (SS Alternative 1) is the most preferred site. It will replace an existing substation and will therefore not change the visual environment in any significant way. It is also located in the industrial zone and no sensitive viewers will be affected |
| Socio-economic Impact | The Socio-economic impact of the proposed development <u>after</u> mitigation can summarised as follows:<br><br><u>Positive Socio-economic impact</u><br>Likelihood: **Very probable**<br>Duration: **Very short term**<br>Significance: **Low** |

| | |
|---|---|
| | Creation of employment and business opportunities and the increased reliability of energy services.<br><br><u>Negative socio-economic impact</u><br>Likelihood: **Very probable**<br>Duration: **Very short term**<br>Significance: **High**<br><br>Some economic and social activities will be disrupted during the construction of the proposed expansion. Eskom will have to inform the affected enterprises of planned disruptions and offer viable solutions to the affected parties during the inconvenience. The intensity and significance of the electricity disruption of the businesses are regarded as high as this impact will directly affect people's livelihoods. |
| Geotechnical impacts | The geotechnical impact of the proposed development after mitigation can summarised as follows:<br><br>Likelihood: **Probable**<br>Duration: **Short term**<br>Significance: **Low**<br><br>The geotechnical investigation found that potentially collapsible and/or compressible transported soil (colluvium) overlying residual soil or bedrock, NHBRC class C1/S1 or C2/S2 depending on the thickness thereof. The possible presence of shallow rock (gabbro) within 1,5 m of surface could result in areas of difficult excavation, NHBRC class R. In these areas a shallow perched water table could also be present during the wet season and sub-surface drainage might be required. Surface water (ponding) could be expected adjacent to the drainage/erosion ditch which could result in access problems for personnel and vehicles. This problem would be more severe during the wet season. This problem would be more severe during the wet season. Groundwater pollution is a huge threat to the groundwater (a scarce resource) and adequate measures need to be implemented for the disposal of sewage and waste water etc. During the construction process. |
| Possible degradation and long-term effects on the environment | No long term effect on the environment is expected. Mitigation measures should be employed to ensure no significant degradation of the environment. |
| Pollution released into the environment | The proposed activity is not expected to result in long term pollution of the environment. Mitigation measures are proposed to ensure pollution is restricted to short term localised effects |

**Cumulative Impacts:**

Based on the findings of the studies undertaken, in terms of environmental constraints and opportunities identified through the Environmental Basic Assessment process, no environmental fatal flaws were identified to be associated with the expansion of the proposed Wesglass substation, and associated line upgrade. The significance levels of the majority of identified negative impacts can generally be reduced to acceptable levels by implementing the recommended mitigation measures. With reference to the information available at this planning approval stage in the project cycle, the confidence in the environmental assessment undertaken is regarded as acceptable. As the development is proposed to be located within the urban edge of the project site it can be expected that more development will be taking place within close proximity of the project site. Future developments will also require the removal of vegetation which will have an impact. However, the impact will be low due to the conservation status of the vegetation which is classified as Least Threatened.

For detailed assessment of each alternative and impacts in terms of duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts, please refer to **Appendix F** attached within this Basic Assessment Report.

**Table 1: Comparative summary of specialist findings for each of the respective Alternatives (✔) depicting preferred suitability of the site for electrical infrastructure development development) and (O) depicting least preferred suitability.**

**Substation**

| Specialist | SS Alternative 1 | SS Alternative 2 | SS Alternative 3 | Preference of Alternative | | EA Comment |
|---|---|---|---|---|---|---|
| | | | | Preferred | Least preferred | |
| Vegetation | ✔ | O | O | SS Alternative 1 | SS Alternative 2<br>SS Alternative 3 | Although the vegetation specialist found that all the site alternatives are considered to be of a low ecological sensitivity due to the transformation of the vegetation in the study area, SS Alternative 1 (expansion) is considered the better alternative because lesser vegetation clearance will take place around an existing substation as part of its expansion as opposed to SS Alternative 2 & 3 (new construction) where the entire substation footprint vegetation clearance will be applicable. |
| Fauna and habitat | ✔ | ✔ | ✔ | Equally suitable | | The Fauna and habitat assessment found that the impact on fauna is expected to be small to negligent. The presence of indigenous terrestrial vertebrates within the study area is relatively low. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Wetland | ✔ | ✔ | ✔ | Equally suitable | | All the substation alternatives take place well away from any watercourse. More than 500 m away. |
| Heritage | ✔ | ✔ | ✔ | Equally suitable | | All three alternatives of the substation are acceptable from a heritage point of view due to the lack of heritage resources. |
| Visual | ✔ | O | O | **SS Alternative 1** | **SS Alternative 2**<br>**SS Alternative 3** | SS Alternative 1 substation is the most preferred location as it will be an expansion of an existing substation which is considered more preferable as opposed to establishing an entirely new substation altogether. Also SS Alternative 1 will replace an existing substation and will therefore not change the visual environment in any significant way. It is also located in the industrial zone and no sensitive viewers will be affected. |
| Geotechnical | ✔ | ✔ | ✔ | Equally suitable | | No geological faults or dykes are indicated on the geological map over the all substation site. |
| Social | ✔ | ✔ | ✔ | Equally suitable | | All alternatives will bring about employment creation and small business procurement opportunities both during the construction and operation phase. This in result will contribute to the stimulation of the local economy and contribute to the improvement of quality of life for the local communities |

**Power lines**

| Specialists | Alternative 1 | Alternative 2 | Alternative 3 | Preference of Alternatives | | EAP Comment |
|---|---|---|---|---|---|---|
| | | | | Preferred | Least preferred | |
| Vegetation | ✔ | O | O | Alternative 1 | Alternative 2<br>Alternative 3 | Although the vegetation specialist found that all the site alternatives are considered to be of a low ecological sensitivity due to the transformation of the vegetation in the study area, Alternative 1 is preferred because it is an existing line and a lesser clearance will take place as compared to Alternative 2 & 3. |
| Fauna and habit at | ✔ | ✔ | ✔ | Equally suitable | | The Fauna and habitat assessment found that the impact on fauna is expected to be small to negligent. The presence of indigenous terrestrial vertebrates within the study area is relatively low. |
| Wetland | ✔ | O | O | Alternative 1 | Alternative 2<br>Alternative 3 | It was found that there is an artificial wetland existing in a nearby storm water canal on western side of Wesglass near the Alternative route 2 & 3 where sensitive habitat exists. From an ecological perspective the Alternative 1 is the better option and is most suitable for a development of this nature if the recommended mitigation measures are adhered to and implemented. |
| Heritage | ✔ | ✔ | ✔ | Equally suitable | | All three alternatives of the substation are acceptable from a heritage point of view due to the lack of heritage resources. Although there is a community cemetery in which Alternative 2 &3 runs parallel with, the cemetery is |

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|---|---|---|---|---|---|---|
| | | | | | | fully fenced and access controlled and unlikely to be affected by the proposed development. |
| Visual | ✔ | O | O | Alternative 1 | Alternative 2<br>Alternative 3 | Alternative 1 power line is the most preferred location as it will be an upgrade of an existing power line which is considered more preferable as opposed to establishing an entirely new power line near the Ga-Rankuwa power line. |
| Geotechnical | ✔ | ✔ | ✔ | Equally suitable | | No geological faults or dykes are indicated on the geological map over all power line alternatives routes. |
| Social | ✔ | ✔ | ✔ | Equally suitable | | All alternatives will bring about employment creation and small business procurement opportunities both during the construction and operation phase. This in result will contribute to the stimulation of the local economy and contribute to the improvement of quality of life for the local communities |

It is highly unlikely that a cumulative effect could arise from the development of the power line and substation, if future and current development implement mitigation measures proposed for each individual project. It is unlikely that development will result in the reduced ability of the vegetation unit to meet its conservation targets as the conservation status of the vegetation is in a degraded state. Due to the semi-natural environment, already transformed due to some degradation, bush encroachment and the highly fractured nature that characterize this area, the earmarked area contribute little towards the functionality of the plant communities and the ecology. From a vegetation perspective this site's vegetation is similar to the region's vegetation and although situated in a Critical Biodiversity Area, it is in a highly transformed state. Therefore the impact on the vegetation within the proposed expansion site will not be significant.

There are no environmental or social impacts of substantive significance that would prevent the establishment of the proposed expansion of Wesglass substation and associated power line expansion, provided that the development is within the recommended/preferred alternatives.

As such, it is the recommendation of this basic assessment is that the expansion of the existing Wesglass substation (SS Alternative 1) to 100 m x 150 m be authorised in conjunction with the associated upgrade of the existing power line to 132 kV capacity. A number of issues requiring mitigation have been highlighted in the impact assessment. In response to these potential environmental impacts, environmental specifications for the management of these issues / impacts are detailed within the

Environmental Management Programme (EMPr) included within **Appendix G.**

**Alternative B**

**Alternative C**

**No-go alternative (compulsory)**

The No-go option implies that the Project does not proceed, and will thus comprise of Eskom not going ahead with the construction of the substation and development of the new power line and line expansion. Ideally this would be the preferred alternative as the status quo of the environment remains unchanged, however due to the growing demand for energy and new residential developments in the area that will require electricity in the area, this alternative is not feasible. Should Eskom rely on the existing network to supply future demand it is highly likely mean that present supply will be compromised due to the increased load on the network.

- Direct impacts
  - Eskom will not be able to supply sufficient electricity to customers and new developments.
  - Limited development and employment opportunities will be created (i.e. no construction phase).
- Indirect Impacts
  - Local suppliers and contractors will not benefit from the business opportunities relating to construction
  - No new business and industrial ventures due to lack of electricity
  - Power outages and uncertain power supply may be experienced in the study area
  - No increase in the economic activity in the area and as a result socio economics will be depressed.

**The 'Do nothing' alternative is, therefore, not a preferred alternative.**

## 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)? | YES✔ | NO |
|---|---|---|

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.

This Basic Assessment Report has provided a comprehensive assessment of the potential environmental impacts associated with the proposed expansion of the existing Wesglass substation and associated power line upgrade, City of Tshwane, Gauteng Province. This was done through a consultative process through the undertaking of an impact assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity. The construction of the proposed development should be implemented according to the associated EMPr and Environmental Authorisation conditions to adequately mitigate and manage potential impacts associated with construction activities. The construction activities and relevant rehabilitation of disturbed areas should be monitored against the approved EMPr, the Environmental Authorisation and all other relevant environmental legislation.

The findings of the specialists assessments also as summarised in Section D (2) (Environmental Impact Statement) of this report indicate that there are no significant environmental fatal flaws associated with the proposed development and thus, with the application of effective mitigation measures, the proposed project is regarded to be feasible and sustainable.

On plant community level there are no sensitive habitats except for the artificial wetland area near power line route Alternatives 2 & 3. The vegetation of the project site is in a transformed state due to human-impacts such as vehicle tracks, footpaths, excavations to put infrastructure in place, communal grazing practices, etc. From an ecological perspective the power line Alternative 1 (preferred) is the better option and is recommended as it is an upgrade of an existing line and is suitable for a development of this nature if the recommended mitigation measures are adhered to and implemented. From an ecological perspective the expansion of the existing Weslass substation (SS Alternative 1) is a better option and is recommended. Power line Alternatives 2 & 3 and their associated substations are also suitable however an artificial wetland and its 50m buffer makes them less suitable than Alternative 1.

From an environmental perspective, the expansion of the existing Wesglass substation (SS Alternative 1) be and the expansion of the existing 88 kV power line (Alternative 1) to 132 kV specification is selected as the preferred alternative as many of the impacts can be mitigated. It is noted, however, that the selection of the technically preferred power line alternative will be incumbent on Eskom. It is therefore the recommendation of this basic assessment that the expansion of the existing Wesglass substation **(SS Alternative 1)** be authorised in conjunction with the expansion of the existing 88 kV power line **(Alternative 1)** to 132 kV capacity. The proposed expansion should be implemented according to the EMPr to adequately mitigate and manage potential impacts associated with construction and operational activities. The construction/operational activities and relevant rehabilitation of disturbed areas should be monitored against the approved EMPr, the Environmental Authorisation and all other relevant environmental legislation. Relevant conditions to be

adhered to include:

- Eskom must adhere and be restricted to the authorised alignment servitude; disturbances must be kept to a minimum.
- A pre-construction walk-through of the substation site and power line must be done to ensure that sensitive areas are avoided and that species of conservation concern can be identified and relocated. The Provincial Authority must be consulted prior to removal and translocation of the species.
- Construction activities must be restricted to the dry season. No activities should take place during rainy events and at least two days afterwards.
- A 30 m buffer zone should be recognised from the edge of identified wetland areas.
- All declared alien vegetation must be identified and managed in accordance with the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983). There should be an alien species monitoring and eradication program to prevent encroachment of these problem plants. This should form part of the EMPr. An on-going monitoring programme should be established as per Conservation of Agricultural Resources Act. Disturbed areas must be rehabilitated as soon as possible once construction activities are completed using grass seed mix containing species that naturally occur within the project area.
- Existing access roads must be used where possible to avoid impacts on surrounding vegetation. Appropriate erosion control measures must be implemented.
- A storm water management plan must be implemented during construction to prevent deterioration of the moist grasslands and the watercourses.
- Compliance with the mitigation measures outlined in this BA report and EMPr.
- Continued consultation and engagement with all relevant stakeholders – especially the land owner, local communities and respective municipalities during labour recruitment and procurement for services and supplies during construction phase.
- The appointment of an independent ECO to conduct monthly monitoring and evaluation of the construction sites for environmental compliance.
- Eskom shall ensure that adequate protection measures are taken to minimize the potential risk of theft during the construction and operational phase.
- Applicant should provide contractual agreement with the water service provider to the Local Municipality administering the area.
- Compliance with all legal requirements in relation to environmental management and conditions of the authorisation once issued by DEA.

| Is an EMPr attached? | YES✔ | NO |
|---|---|---|

The EMPr must be attached as Appendix G.

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.

_____
NAME OF EAP

_____ _____
SIGNATURE OF EAP 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 (including terms of reference)

Appendix E: Public Participation

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