



(For official use only)

File Reference Number:

Application Number:

Date Received:

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

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. 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.
3. Where applicable **tick** the boxes that are applicable in the report.
4. An incomplete report may be returned to the applicant for revision.
5. 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.
6. This report must be handed in at offices of the relevant competent authority as determined by each authority.
7. No faxed or e-mailed reports will be accepted.
8. The report must be compiled by an independent environmental assessment practitioner.
9. 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.
10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
11. 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.

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 appointment of a specialist for each specialist thus appointed:
Any specialist reports must be contained in **Appendix D**.

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail¹:

The proposed project entails the construction of a new 13.7 km 11kV powerline in the Luiperdshoek area. The aim of this project being to supply previously disadvantaged farmers with electricity to their pumps for irrigation, as well as electricity to workshops and labourers’ houses. A pole-mounted transformer with a metering kiosk will also be installed.

The proposed line runs from the R358 provincial (un-surfaced) road that links Pofadder with the Namibian border at Onseepkans) westward towards the Orange River and the small farming settlement of Coboop located between the Coboop River confluence with the Orange River and along the Orange River.

It should be noted that due to the constraints imposed by the highly rugged and mountainous terrain that only one route is technically able to be developed through the mountainous area – along the already disturbed and existing access route down to the communal farming project that follows the Coboop River. As such no alignment alternatives have been provided, but power line design (tower type technologies) alternatives will be considered.

In terms of the 2010 EIA Regulations the proposed project requires the undertaking of a Basic Assessment in terms of Government Notice (GN) R.543 for listed activities requiring environmental authorisation from the relevant competent authority, the National Department of Environmental Affairs (DEA). The following activities listed in GN. R544 (Listing Notice 1) are applicable to the project:

Table 1: Activities triggered by the proposed activity

| Government Notice | Activity number | Description |
|-----------------------------|-----------------|---|
| No R 544 (Listing Notice 1) | 10 | The construction 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. <i>The project will entail the construction of a new 13.7km 33kV power line to be located to the north of the town Pofadder in the Northern Cape, close to the Namibian border. A pole mounted transformer with a metering kiosk will also be installed.</i> |
| No R 544 (Listing Notice 1) | 11 | The construction of: (vi) Bulk storm water outlet structures; (xi) Infrastructure or structures covering 50m ² or more Where such construction occurs within a watercourse or within 32m of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line. <i>The development will be within the Orange River flood line which therefore triggers a WULA.</i> |

General site description:

¹ Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description.

The study area is located on the Coboop settlement (Erf 89/7), Khai-Ma Local Municipality, approximately 21km north of Pofadder and within the north-western part of the Northern Cape of South Africa (next to the Namibian border), see locality map and site plan on **Figure 1** below, map and site plan also attached as **Appendix A**.

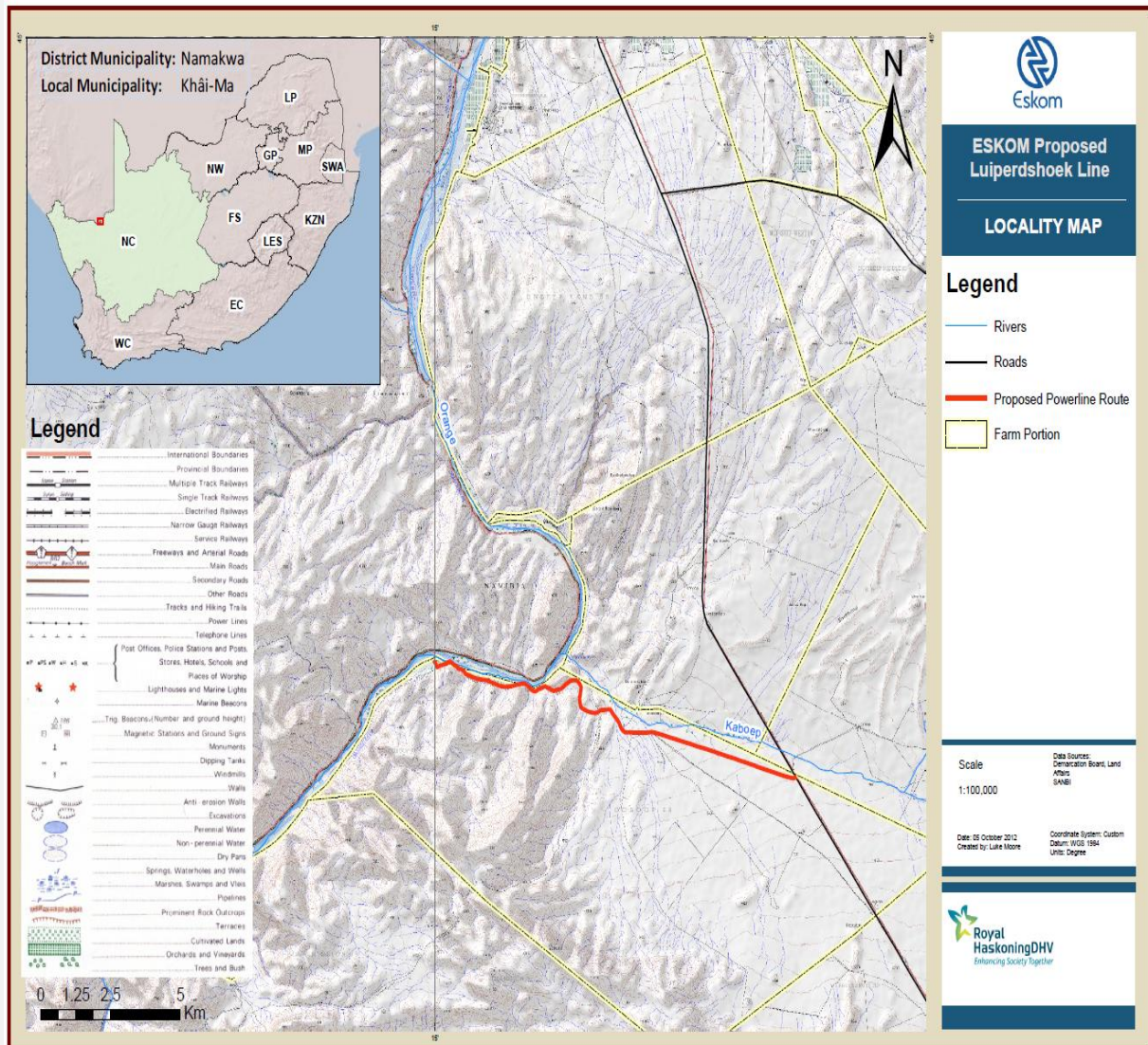


Figure 1: Locality Map and Site Plan of the proposed powerline

The study site is largely vacant except for a narrow strip of land along the Orange River which is used to cultivate fruit. The majority of the site is utilised for the communal grazing of livestock (goats). The topography of the area including the site is varied. The eastern part of the site is relatively flat sloping down to a gentle valley bottom in which the Coboop ephemeral drainage line runs. To the west of the Coboop Farmstead the topography changes dramatically becoming very rugged and mountainous. The proposed line route alternates from around 500-540m above mean sea level (a.m.s.l.) on the higher-lying eastern flat area, down to 330m a.m.s.l. along the Orange River. Three (3) major vegetation types occur in the study area, differentiated by topography and landscape setting; on the flat eastern plains the Eastern Gariiep Plains Desert vegetation type occurs, while the more rugged terrain contains the Eastern Gariiep Rocky Desert vegetation type. A narrow strip along the Orange River contains the Lower Gariiep Alluvial Vegetation type.

Powerline alignment site controls:

Table 2 indicates the minimum standards to be used of vegetation clearing for the construction of a new powerline.

Once the centre line has been cleared, the surveyor pegs every tower position and marks the crossing point with existing fences for new gate installation. Once the tower positions have been marked, the vegetation clearing team will return to every tower position and clear vegetation (in accordance with the Environmental Management Programme (EMPr)) for assembling and erection purposes.

Table 2: Minimum Standards to be used for vegetation clearing for the construction of a new Sub-Transmission line

| Item | Standard | Follow up |
|---|---|--|
| Centre line of the proposed Sub-transmission line | Clear to a maximum (depending on tower type and voltage) of an 8m wide strip of all vegetation along the centre line. Vegetation to be cut within 100mm of the ground. Treat stumps with herbicide. | Re-growth shall be cut within 100mm of the ground and treated with herbicide, as necessary. |
| Inaccessible valleys (trace line) | Clear a 1m strip for access by foot only, for the pulling of a pilot wire by hand. | Vegetation not to be disturbed after initial clearing – vegetation to be allowed to re-grow. |
| Access / service roads | Clear a maximum (depending on tower type) 5m wide strip for vehicle access within the maximum 8m width, including de-stumping/cutting stumps to ground level, treating with a herbicide and re-compaction of soil. | Re-growth to be cut at ground level and treated with herbicide as necessary. |
| Proposed tower position and proposed support / stay wire position | Clear all vegetation within proposed tower position and within a maximum (depending on tower type) radius of 5m around the position, including de-stumping/cutting stumps to ground level, treating with an herbicide and re-compaction of soil. Allow controlled agricultural practices, where feasible. | Re-growth to be cut at ground level and treated with herbicide as necessary. |
| Indigenous vegetation within servitude area (outside of maximum 8m strip) | Area outside of the maximum 8m strip and within the servitude area, selective trimming or cutting down of those identified plants posing a threat to the integrity of the proposed Sub-transmission line. | Selective trimming |
| Alien species within servitude area (outside of maximum 8m strip) | Area outside of the maximum 8m strip and within the servitude area, remove all alien vegetation within servitude area and treat with appropriate herbicide. | Cut and treat with appropriate herbicide. |

Foundations:

The type of terrain encountered, as well as the underlying geotechnical conditions, determines the choice of foundation. The actual size and type of foundation to be installed will depend on the soil bearing capacity (actual sub-soil conditions).

Strain structures require more extensive foundations for support than in-line suspension structures, which contribute to the cost of the construction of the line.

The minimum working area required around a structure position is 20m × 20m.

Foundations will be mechanically excavated where access to the pole position is readily available. The same applies to the pouring of concrete required for the setting of the foundations. Prior to erecting the poles and filling of the foundations, the excavated foundations will be covered in order to safeguard unsuspecting animals and people from injury. All foundations are back-filled, stabilised through compaction, and capped with concrete at ground level.

Insulators:

Composite insulators are used to connect the conductors to the towers.

Glass and porcelain have previously been used to connect the conductors for many years, and are the most common.

They are, however, heavy and susceptible to breakage by vandals, as well as contamination by pollution. Composite insulators have a glass-fibre core with silicon sheds for insulation. Composite insulators are lightweight and resistant to both vandalism and pollution.

Composite (Long rod type) insulators with silicone based weather-shed material will be used for strain assemblies. Composite horizontal line post insulators will be used for the intermediate structures and on the jumper supports.

Access:

Access to the site will be determined by the Provincial Agriculture Department as per the arrangements with Eskom and the provincial department.

Project Timing:

Construction of the powerline will be approximately six (6) months.

On-going Maintenance:

The powerline has a life-span of approximately fifty (50) years and will require ongoing maintenance. This maintenance work is undertaken by contractors employed by Eskom, and in compliance with the Environmental Management Programme (EMPr) once approved.

Construction process for Sub-Transmission lines:

Sub-transmission lines are constructed in the following simplified sequence:

- Step 1:** Determination of technically feasible alternatives.
- Step 2:** Basic Assessment input into route selection and obtaining of relevant environmental permits and Authorisations.
- Step 3:** Negotiation of final route with affected landowners.
- Step 4:** Survey of the route.
- Step 5:** Selection of best-suited structures and foundations.
- Step 6:** Final design of sub-transmission line and placement of towers.
- Step 7:** Issuing of tenders and award of contract to construction companies.
- Step 8:** Vegetation clearance and construction of access roads (where required).
- Step 9:** Pegging of structures.
- Step 10:** Construction of foundations.
- Step 11:** Assembly and erection of structures.
- Step 12:** Stringing of conductors.
- Step 13:** Rehabilitation of disturbed area and protection of erosion sensitive areas.
- Step 14:** Testing and commissioning.
- Step 15:** Continued maintenance.

Biophysical environment

Ecology

The proposed site falls within the Bushmanland Bioregion and is separated from other bioregions within the Kama Karoo Biome by having low mean precipitation and high mean temperatures. The vegetation is dominated by arid shrublands and grasslands. The study area is located within the arid region of South Africa and annually receives between 45 – 80mm of rain. The rainfall peaks in late summer and early autumn, becoming more pronounced eastwards. Summer temperatures are often higher than 40°C and occasionally reaching 50°C at low altitudes. Frost is very rare but occurs at higher altitudes (*Mucina & Rutherford 2006*).

Aquatics

The study area falls within the Lower Orange River Water Management Area (WMA), Quaternary Catchment D81F. In fact, the proposed development belt is situated along the Coboop River as well as the Orange River left hand banks. The Coboop River is a seasonal or ephemeral tributary of the Orange River. The hydrology of the site is characterised by the mountainous terrain setting, serving as a watershed on a microclimate perspective to the study site. On a broader sense, the ephemeral/seasonal Coboop River drains the surrounding areas hydrology to the study site and ultimately to the Orange River found onsite. Associated wetlands features are limited to drainage belts and no wetlands are found outside the direct floodplains of the major drainage features. Wetland type is classed as Gariep Desert Floodplain wetland with a sub-national biodiversity priority status (NFEPA class 4). The Orange River as well as the Coboop River is classed as a Freshwater Ecological Priority Area, with the former having an endangered status and the later being regarded as important for fish conservation as well as ecological support. In terms of the Present Ecological State of the drainage tributaries within the general vicinity of the study area, a general natural to good class is given to all ephemeral and seasonal streams as a result of its uniqueness and the inability at present for DWA or SANBI to qualify its actual PES (No methods available due to the difficulty of providing reference conditions to these type of hydrogeomorphic features). In general the Lower Orange River catchment in the study area is regarded to have a PES of B (good class) and is considered essential for conservation but not very important in terms of its irreplaceability and sensitivity (Status is not threatened).

Heritage

Most of the studies that have been done in the area indicate that overall, archaeological remains are quite thin on the ground, limited to sparse heritage traces and occasional isolated stone artefacts of Later and Middle Stone Age origin (*Beaumont 2008; Halkett 2010a, b; Morris 2010, 2005a, b; Morris & Seliane 2006; Orton & Webley 2012a, b; Pelsler 2012, 2011*). Orton (*pers. comm.*) also encountered very sparse scatters of Later Stone Age material at a site east of Onseepkans, while Dreyer (2008) found no archaeological remains during an assessment of 14 existing borrow pits intended for the upgrading of the R358 / Onseepkans road. Most of these traces probably represent the transient movement by hunter-gatherers and possibly herders crossing this seemingly arid and inhospitable landscape. This is in stark contrast to the floodplains of the Orange River where pre-colonial settlement was visibly more focussed and 'permanent' (*Morris 2010*). Larger scatters of Later Stone Age remains, including tools, pottery and ostrich eggshell, tend to cluster around seasonal pans and springs, alongside streams/drainage channels, in overhangs and caves among granite inselbergs, and among sheltered dunes (*Morris 2010; Orton and Webley 2012a, b*). Rock art is scarce in the region but does occur, including rare cupule sites (*Orton & Webley 2012a, b*), while Morris (1998 & *personnel observation of the specialist*) reports that rock engravings occur along the Orange River.

Two isolated Later Stone Age flakes, one in quartz and one in banded iron stone, and one larger quartz Middle Stone Age flake, were located during the survey of the proposed powerline route. The small numbers mean that the archaeological remains have been rated as having low (Grade 3C) significance. No graves or stone cairns were found during the walk through survey of the proposed route.

Alternatives

Due to the constraints imposed by the highly rugged and mountainous terrain only one route is technically able to be

developed through the mountainous area. As such no alignment alternatives have been provided.

However, technical alternatives such as underground distributions and cables were considered. None of these alternatives are preferred as they would have not been feasible economic wise. Underground distributions are far too expensive to construct, they sterilise large servitudes of land, they have technical constraints in terms of overheating, and, these factors combine to result in higher maintenance costs. They also detrimentally impact the environment as they (a) sterilise and require large areas of land above the trench area to be cleared of vegetation (and kept cleared), and (b) come with a higher risk of careless digging leading to damage to the infrastructure (during operation). The use of underground cables for transmission can also result in significant reactive control problems at the transmission level. That in turn means that additional equipment is required to address those reactive control measures problems, further increasing the effective cost of underground distribution lines compared with overhead lines. Furthermore the use of cables will have a bigger impact on the environmental seeing that 14 km of surface will have to be disturbed to lay the cables whereas with poles the impact will be less as it is limited to trimming of trees under the line and footprints of the poles. It will also be more practical to for maintenance purposes seeing that faults will be located faster than with cables and power supply will be restored quicker. Whereas with cables it will take much longer and ground surface will have to be disturbed in order to locate the fault.

On the other hand overhead lines using wood pylons (larger metal pylons are not required) are most suitable for the terrain as they are cost effective, easier to maintain and because they are overhead aside from trees directly below the line, agricultural operations may continue under them.

For this reason wood pylons are opted for as the preferred alternatives along the existing alignment.

Historically there used be and illegal electricity supply from Namibia. The option to re-establish a connection from Namibia won't be practical seeing the service provider from Namibia already indicated that it will not be practical in terms of cost.

Estimated Costs comparison

Cable costs per km: R 1 035 420.40 (material and labour)

Overhead line per km: R149 588.42 (material and labour) (approximately 10 times cost saving)

Fox line = 4.06 per m

185 PILC CU cable = 777 per m.

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. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity 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.

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

3. ACTIVITY POSITION

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.

List alternative sites, if applicable.

Alternative:

- Alternative S1² (preferred or only site alternative)
- Alternative S2 (if any)
- Alternative S3 (if any)

| Latitude (S): | | Longitude (E): | |
|---------------|---|----------------|---|
| o | ' | o | ' |
| o | ' | o | ' |
| o | ' | o | ' |

In the case of linear activities:

Alternative:

Alternative 1 (preferred or only route alternative)

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

| Latitude (S): | | Longitude (E): | |
|---------------|------------|----------------|------------|
| 28° | 55' 59.78" | 19° | 21' 39.04" |
| 28° | 55' 33.42" | 19° | 19' 56.58" |
| 28° | 54' 59.34" | 19° | 18' 20.99" |

Alternative 2 (if any)

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

| | | | |
|-----|------------|-----|------------|
| 28° | 54' 35.80" | 19° | 17' 42.01" |
| 28° | 54' 39.76" | 19° | 17' 6.77" |
| 28° | 54' 39.72" | 19° | 16' 20.92" |

Alternative S3 (if any)

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

| | | | |
|---|---|---|---|
| o | ' | o | ' |
| o | ' | o | ' |
| o | ' | o | ' |

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

Note: *It should be noted that due to the constraints imposed by the highly rugged and mountainous terrain that only one route is technically able to be developed through the mountainous area – along the already disturbed and existing access route down to the communal farming project that follows the Coboop River. As such no alignment alternatives have been provided, but power line design (tower type) alternatives will be considered.*

² "Alternative S.." refer to site alternatives.

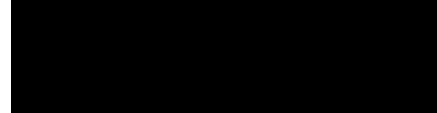
4. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative A:

- Alternative A1³ (preferred activity alternative)
- Alternative B (if any)
- Alternative C (if any)

Size of the activity:



or, for linear activities:

Alternative: (Powerline)

- Alternative A1 (preferred activity alternative)
- Alternative A2 (if any)
- Alternative A3 (if any)

Length of the activity:

| |
|--------------------------------------|
| 13.7km |
| N/A (see consideration in Section 1) |
| N/A (see consideration in Section 1) |

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

Alternative:

- Alternative A1 (preferred activity alternative)

- Alternative A2 (if any)
- Alternative A3 (if any)

Size of the site / servitude:

| |
|--|
| (9m building restriction on either side of the centreline) |
| N/A (see consideration in Section 1) |
| N/A (see consideration in Section 1) |

5. SITE ACCESS

Does ready access to the site exist?

| | |
|----------|----|
| YES ✓ | NO |
| N/A | |

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

Describe the type of access road planned:

An existing R358 provincial (un-surfaced) road will be used for the construction and operation.

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.

6. SITE OR ROUTE PLAN – REFER TO APPNEDIX A

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:

- 6.1 the scale of the plan which must be at least a scale of 1:500;
- 6.2 the property boundaries and numbers of all the properties within 50 metres of the site;
- 6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 6.4 the exact position of each element of the application as well as any other structures on the site;

³ "Alternative A.." refer to activity, process, technology or other alternatives.

- 6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
- 6.6 all trees and shrubs taller than 1.8 metres;
- 6.7 walls and fencing including details of the height and construction material;
- 6.8 servitudes indicating the purpose of the servitude;
- 6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
 - rivers;
 - the 1:100 year flood line (where available or where it is required by DWA);
 - ridges;
 - cultural and historical features;
 - areas with indigenous vegetation (even if it is degraded or invested with alien species);
- 6.10 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
- 6.11 the positions from where photographs of the site were taken.

7. SITE PHOTOGRAPHS – REFER TO APPENDIX B

Colour photographs from the centre of the site must be taken in at least the eight (8) major compass directions with a description of each photograph. Photographs must be attached under **Appendix B** to this form. It must be supplemented with additional photographs of relevant features on the site, if applicable.

8. FACILITY ILLUSTRATION – REFER TO APPENDIX B

A detailed illustration of the activity must be provided at a scale of 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.

9. ACTIVITY MOTIVATION

9(a) Socio-economic value of the activity

- What is the expected capital value of the activity on completion?
- What is the expected yearly income that will be generated by or as a result of the activity?
- Will the activity contribute to service infrastructure?
- Is the activity a public amenity?
- How many new employment opportunities will be created in the development phase of the activity?
- What is the expected value of the employment opportunities during the development phase?
- What percentage of this will accrue to previously disadvantaged individuals?
- How many permanent new employment opportunities will be created during the operational phase of the activity?
- What is the expected current value of the employment opportunities during the first 10 years?

| | |
|---|---------------|
| | R4,507,496.50 |
| This information will be provided at a later stage. | |
| YES ✓ | NO |
| YES ✓ | NO |
| These assessments are done later in the process, during construction phase. | |
| These assessments are done later in the process, during construction phase. | |
| This information will be provided at a later stage. | |
| This information will be provided at a later stage. | |
| These assessments are done later in the process, during construction phase. | |

What percentage of this will accrue to previously disadvantaged individuals?

These assessments are done later in the process, during construction phase.

9(b) Need and desirability of the activity

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

NEED: Luiperdshoek-Pofadder powerline is needed to supply previously disadvantaged farmers with electricity to their pumps for irrigation as well as electricity to workshops and labourers houses. The previous supply of electricity was an illegal connection from Namibia.

| | | | |
|----|---|----------|----|
| 1. | Was the relevant provincial planning department involved in the application? | YES ✓ | NO |
| 2. | Does the proposed land use fall within the relevant provincial planning framework? | YES ✓ | NO |
| 3. | If the answer to questions 1 and/or 2 was NO, please provide further motivation / explanation: N/A | | |

DESIRABILITY:

| | | | |
|----|---|----------|---------|
| 1. | Does the proposed land use / development fit the surrounding area? | YES ✓ | NO |
| 2. | Does the proposed land use / development conform to the relevant structure plans, SDF and planning visions for the area? | YES ✓ | NO |
| 3. | Will the benefits of the proposed land use / development outweigh the negative impacts of it? | YES ✓ | NO |
| 4. | If the answer to any of the questions 1 – 3 was NO, please provide further motivation / explanation: N/A The development in the form of the powerline is associated with an existing linear structure in the form of the road, although visually different from the existing situation, the line will help facilitate and enhance the existing agricultural operations in the area. | | |
| 5. | Will the proposed land use / development impact on the sense of place? | YES | NO ✓ |
| 6. | Will the proposed land use / development set a precedent? | YES | NO ✓ |
| 7. | Will any person's rights be affected by the proposed land use / development? | YES | NO ✓ |
| 8. | Will the proposed land use / development compromise the "urban edge"? | YES | NO ✓ |
| 9. | If the answer to any of the question 5 – 8 was YES, please provide further motivation / explanation. There is an already existing servitude from the illegal connection from Namibia; therefore the impact on the sense of place will be minimal. There are also existing visual impacts associated with the existing illegal power line connection. | | |

BENEFITS:

| | | | |
|--|---|----------|----|
| 1. | Will the land use / development have any benefits for society in general? | YES ✓ | NO |
| The proposed transmission line and pole mounted transformer with a metering kiosk will enable reliable and continued power supply to the surrounding agricultural and mining activities. Existing transformers will soon reach their rated capacity which will result in power supply and growth problems for the area in the future. Further, the proposed powerline and thus reliable electricity supply will benefit previously disadvantaged farmers as they will have electricity for their irrigation pumps, as well as electricity to workshops and labourers houses. | | | |
| 3. | Will the land use / development have any benefits for the local communities where it will be located? | YES ✓ | NO |
| The surrounding land uses are primarily agricultural and mining activities. A reliable power supply is essential for continued operations and therefore ongoing economic growth and employment within these sectors. | | | |

10. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES, 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: | Administering authority: | Date: |
|--|--------------------------|-------------------|
| National Environmental Management Act EIA Regulations (2010) – List 1(GN 544) and List 3 (GNR 546) | National and Provincial | 18 June 2010 |
| The Constitution of the Republic of South Africa (1996) | National and Provincial | 18 December 1996 |
| The Conservation of Agricultural Resources Act (No 43 of 1983) | National and Provincial | 21 April 1983 |
| South African Heritage Resources Act (No 25 of 1999) | National and Provincial | 14 April 1999 |
| National Environmental Management: Air Quality Act (No. 39 of 2004) | National and Provincial | 11 September 2005 |
| Occupational Health and Safety Act (No 85 of 1993) | National and Provincial | 23 June 1993 |
| Nature Conservation Ordinance (Transvaal) (No 12 of 1983) | National and Provincial | 1 November 1983 |
| National Water Act (Act 36 of 1998) | National and Provincial | 26 August 1998 |
| National Environmental Management Biodiversity Act (Act 10 of 2004) | National and Provincial | 07 June 2004 |
| National Environmental Management: Waste Act (No 59 of 2008) | National and Provincial | 10 March 2009 |

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

11(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? | 5m ³ per 90 days | |
| How will the construction solid waste be disposed of (describe)? | Solid waste will be collected and removed to a registered landfill site by a contractor. | |
| Where will the construction solid waste be disposed of (describe)? | Waste will be disposed off at a registered appropriate landfill site. | |
| Will the activity produce solid waste during its operational phase? | YES | NO ✓ |
| If yes, what estimated quantity will be produced per month? | N/A | |
| How will the solid waste be disposed of (describe)? | N/A | |
| Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)? | The solid waste will, as far as possible be directed to the Municipality solid waste disposal system. | |
| 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 relevant legislation? | YES | NO ✓ |
| If yes, inform the competent authority and request a change to an application for scoping and EIA. | | |
| 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.

11(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?
 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: N/A
 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:

N/A

11(c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere?

| | |
|-----|----|
| YES | NO |
| ✓ | |

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

| | |
|-----|----|
| 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.

If no, describe the emissions in terms of type and concentration:

The force of wheels of vehicles travelling on unpaved roadways causes the pulverisation of the surface material. Particles are lifted and dropped from the rotating wheels and the road surface is exposed to strong air currents in turbulent shear with the surface. The turbulent wake behind the vehicle continues to act on the road surface after the vehicle has passed. The quantity of dust emissions from unpaved roads varies linearly with the volume of traffic as well as the speed of the vehicles. The movement of construction vehicles and the transportation of materials will result in unusually heavy loads being placed on the roads, which is likely to result in additional damage to the road surface. The primary source of 'non-dust' emissions therefore will be due to vehicle entrained dust from access roads and vehicle exhaust emissions during the construction phase as well as when maintenance is undertaken. Management measures to minimise vehicle entrained dust and exhaust emissions will be addressed in the EMPr.

11(d) 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 |
| ✓ | |

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.

If no, describe the noise in terms of type and level:

Noise will be generated during the **construction phase**, but will be limited to day-time working hours and for a limited duration. Mitigation and management of noise will be addressed in the EMP. In this regard, compliance with SANS 10103 will be required.

12. 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:

Does the activity require a water use permit from the Department of Water Affairs?

| | |
|-----|----|
| YES | NO |
| ✓ | |

If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.

The WULA process is being run as a parallel process and will be concluded once the EIA process is completed.

Note: Water will be trucked in for minimal water needs (e.g. use in cementing of poles), and will be used as required for dust suppression need.

13. ENERGY EFFICIENCY

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

Alternatives for energy efficiency are not feasible in remote areas.

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

None.

SECTION B: SITE / AREA / PROPERTY DESCRIPTION

Important notes:

- 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 C and indicate the area, which is covered by each copy No. on the Site Plan.

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

Copy 1 of 1

Due to the constraints imposed by the highly rugged and mountainous terrain only one route is technically able to be developed through the mountainous area. However, technical alternatives such as underground distributions and overhead lines are considered as alternatives. As such only 1 (one) site / area / property description copies are provided as only 1 (one) alignment alternative has been provided for making the biophysical environment of the proposed powerline the same.

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

All specialist reports must be contained in **Appendix D**.

Property description / physical address:

Refer to **Appendix G** for a list of Farms

(Farm name, portion etc.) Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application.

The site is located to the north-west of the town of Pofadder (25km to the south) and falls within the jurisdiction of the Khâi-Ma Local Municipality within the Northern Cape Province.

In instances where there is more than one town or district involved, please attach a list of towns or districts to this application.

Current land-use zoning:

Agricultural

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 ✓ |
| YES | NO ✓ |

Must a building plan be submitted to the local authority?

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 indication of the project site position as well as the positions of the alternative sites, if any;
- 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)

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative 1:

Rocky and mountainous

Alternative 2

Alternative S3 (if any):

2. LOCATION IN LANDSCAPE

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

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

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

| | Alternative S1: | Alternative S2 | Alternative S3 |
|--|-----------------|----------------|----------------|
| Shallow water table (less than 1.5m deep) | NO YES ✓ | | |
| Dolomite, sinkhole or doline areas | NO YES ✓ | | |
| Seasonally wet soils (often close to water bodies) | YES ✓ NO | | |
| Unstable rocky slopes or steep slopes with loose soil | YES ✓ NO | | |
| Dispersive soils (soils that dissolve in water) | YES ✓ NO | | |
| Soils with high clay content (clay fraction more than 40%) | YES NO ✓ | | |
| Any other unstable soil or geological feature | YES NO ✓ | | |
| An area sensitive to erosion | YES ✓ NO | | |

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this

section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

4. GROUNDCOVER

Indicate the types of groundcover present on the site:

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

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

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

5. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that does 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:

5.1 Natural area ✓

- ~~5.2 Low density residential~~
- ~~5.3 Medium density residential~~
- ~~5.4 High density residential~~
- ~~5.5 Informal residential^A~~
- ~~5.6 Retail commercial & warehousing~~
- ~~5.7 Light industrial~~
- ~~5.8 Medium industrial^{AN}~~
- ~~5.9 Heavy industrial^{AN}~~
- ~~5.10 Power station~~
- ~~5.11 Office/consulting room~~
- ~~5.12 Military or police base/station/compound~~
- ~~5.13 Spoil heap or slimes dam^A~~
- ~~5.14 Quarry, sand or borrow pit~~
- ~~5.15 Dam or reservoir~~
- ~~5.16 Hospital/medical centre~~
- ~~5.17 School~~
- ~~5.18 Tertiary education facility~~
- ~~5.19 Church~~
- ~~5.20 Old age home~~
- ~~5.21 Sewage treatment plant^A~~
- ~~5.22 Train station or shunting yard^N~~
- ~~5.23 Railway line^N~~
- ~~5.24 Major road (4 lanes or more)^N~~
- ~~5.25 Airport^N~~
- ~~5.26 Harbour~~
- ~~5.27 Sport facilities~~
- ~~5.28 Golf course~~
- ~~5.29 Polo fields~~
- ~~5.30 Filling station^H~~
- ~~5.31 Landfill or waste treatment site~~

- 5.32 Plantation
- 5.33 Agriculture ✓
- 5.34 River, stream or wetland ✓
- 5.35 Nature conservation area
- 5.36 Mountain, koppie or ridge ✓
- 5.37 Museum
- 5.38 Historical building
- 5.39 Protected Area
- 5.40 Graveyard
- 5.41 Archaeological site
- 5.42 Other land uses (describe)

The land use on the site is largely vacant except for a narrow strip of land along the Orange River which is used to cultivate fruit. The majority of the site is utilised for the communal grazing of livestock (goats).
The proposed powerline will potentially affect the Orange River mainstream and its tributaries, a water use license application will be applied for in this regard.

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

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

If YES, specify and explain:
If YES, specify:

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

If YES, specify and explain:
If YES, specify:

6. 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 palaeontological sites, on or close (within 20m) to the site? | YES | NO ✓ |
| | Uncertain ✓ | |
| If YES, explain: [REDACTED] If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist: | | |
| Two isolated Later Stone Age flakes, one in quartz and one in banded iron stone, and one larger quartz Middle Stone Age flake, were found during the survey of the proposed powerline route. Please find attached Heritage Specialist Study attached as Appendix D . | | |
| 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 submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made. | | |

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

- (a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
 - (i) the site where the activity to which the application relates is or is to be undertaken; and
 - (ii) any alternative site mentioned in the application;
- (b) giving written notice to—
 - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
 - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
 - (v) the municipality which has jurisdiction in the area;
 - (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
 - (vii) any other party as required by the competent authority;
- (c) placing an advertisement in—
 - (i) one local newspaper; or
 - (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
- (e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
 - (i) illiteracy;
 - (ii) disability; or
 - (iii) any other disadvantage.

2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

- (a) indicate the details of the application which is subjected to public participation; and
- (b) state—

- (i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;
- (ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;
- (iii) the nature and location of the activity to which the application relates;
- (iv) where further information on the application or activity can be obtained; and
- (iv) the manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

4. DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. **Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.**

5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before the application 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 this application. The comments and response report must be attached under **Appendix E**.

6. AUTHORITY PARTICIPATION

Please note that a complete list of all organs of state and or any other applicable authority with their contact details must be appended to the basic assessment report or scoping report, whichever is applicable.

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input.

List of authorities informed:

| |
|---|
| Northern Cape Department of Environment and Nature Conservation Northern Cape Department of Agricultural Affairs Department of Water Affairs Department of Environmental Affairs Khai-Ma Local Municipality |
|---|

List of authorities from whom comments have been received:

| |
|---|
| No comments have been received from the authorities to date. |
|---|

7. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for linear activities, or 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.

Has any comment been received from stakeholders?

| | |
|------------|----------------|
| YES | NO ✓ |
|------------|----------------|

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

| |
|---|
| The farmers in communication with the heritage specialist are very anxious to find out when the line is going to be built, as they say without the power they cannot move the project forward and put their development plans in place. |
|---|

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

To be completed after the comment period.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report as **Annexure E**):

To be completed after the comment period.

2. 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

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) 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.

The following parameters are used to describe the impact/issues in this assessment:

- The risk or likelihood of the impact/issue occurring; and
- The degree of confidence placed in the assessment of the impact/issue

Please note that the rating number is provided in brackets next to the scale interval. Negative impacts are minus (-) values and positive impacts are plus (+) values. Higher negative valued impacts are more detrimental than lower negative valued impacts.

Temporal Scale

The temporal scale defines the significance of the impact at various time scales, as an indication of the duration of the impact.

| Class | Description | Value |
|-------------|---|-------|
| Short Term | less than 5 years | (1) |
| Medium Term | between 5 and 15 years | (2) |
| Long Term | between 15 and 30 years | (3) |
| Permanent | over 30 years (i.e. longer than the minimum lifespan of the infrastructure) and resulting in a permanent and lasting change that will effectively always be there | (4) |

Spatial Scale

The spatial scale defines physical extent of the impact.

| Class | Description | Value |
|---------------|---|-------|
| Individual | this scale applies to person/s in the area | (0) |
| Household | this scale applies to households in the area. | (1) |
| Localised | small scale impacts from a few hectares in extent e.g. local district area. | (2) |
| Regional | the scale applies to impacts on a provincial level. | (3) |
| National | the scale applies to impacts that will affect the whole South Africa. | (4) |
| International | the scale of the impact will extend beyond the borders of South Africa. | (5) |

Extent Scale

| Class | Description | Value |
|-----------------|--|-------|
| Non-significant | There are no primary or secondary effects at all that are important to scientists or the public. | (0) |
| Low | These impacts will usually result in medium to short term effects on the social and/or natural environment. Impacts rated as <i>Low</i> will need to be considered by the public and/or the specialist as constituting a fairly unimportant and usually short term change to the environment. These impacts are not substantial and are likely to have little real effect. | (1) |
| Moderate | These impacts will usually result in medium- to long-term effects on the social and/or natural environment. Impacts rated as <i>Moderate</i> will need to be considered by society as constituting a fairly important and usually medium term change to the environment, These impacts are real but not substantial. | (2) |
| High | These impacts will usually result in long term effects on social and/or natural environment. Impacts rated as <i>High</i> will need to be considered by society as constituting an important and usually long term change to the environment, Society would probably view these impacts in a serious light. | (3) |
| Very High | The impacts would be considered by society as constituting a major and usually permanent change to the environment, and usually result in severe or very severe effects, or beneficial or very beneficial effects. | (4) |

Risk or likelihood

The risk or likelihood of all impacts taking place as a result of project actions differs. Although these impacts may be severe, the likelihood of them occurring may affect their overall significance and will be taken into account.

| Class | Description | Value |
|------------------------|--|-------|
| Very unlikely to occur | the chance of these impacts occurring is extremely slim. | (1) |
| Unlikely to occur | the risk of these impacts occurring is slight. | (2) |
| May occur | the risk of these impacts is more likely, although not definite. | (3) |
| Will definitely occur | this impact will occur. | (4) |

Degree of confidence or certainty

It is also necessary to state the degree of certainty or confidence with which one has predicted the significance of an impact. For this reason, a 'degree of certainty' scale has been provided to enable the reader to ascertain how certain we are of our assessment of significance:

| Class | Description | Value |
|----------|---|-------|
| Unsure | Less than 40% sure of a particular fact or the likelihood of an impact occurring. | (1) |
| Possible | Only over 40% sure of a particular fact or of the likelihood of an impact occurring. | (2) |
| Probable | Over 70% sure of a particular fact, or of the likelihood of that impact occurring. | (3) |
| Definite | More than 90% sure of a particular fact. The use this one will need to have substantial | (4) |

supportive data.

Taking the matrix below into consideration, each potential issue for the project was thus quantified according to the parameters given. Each of the first 5 (five) parameters are split into 4 (four) classes given a value of 1 to 4 (e.g. Category 1 for parameter equals value of 1), with 1 being the least significant, and 4 the most significant for that parameter.

The final risk of an issue occurring is modified simply (i.e. divided by 256 – maximum possible value) to create a value out of 1 (one) which is then presented as a percentage between 0% (value of 0, minimum) and 100% (value of 1, maximum). The risk of occurring is finally indicated as being either positive (beneficial) or negative (detrimental). For simplicity the categories given in the Table below have been rounded up to the nearest whole number.

Risk category assignment

| | | |
|-------------|---|---|
| Key: | Extreme (Ex) – more than 90% | Negative (detrimental) |
| | Very high (vH) – between 75 – 90% | |
| | High (H) – between 50 – 74% | |
| | Moderate (M) – between 25 – 49% | |
| | Low (L) – between 10 – 24% | |
| | Neutral – very low (vL) – less than 10% | |
| | <u>Positive – irrespective of value – ranking as above</u> | Positive (beneficial) ~ shown in bold , <i>italics</i> , <u>underlined</u> |

| | | Risk = (probability + frequency) x (extent + duration) x (magnitude) / 256 | | | |
|------------|---|--|-------------|---------------|-----------------------|
| | | 1 | 2 | 3 | 4 |
| Categories | 1 | 1 (below 6%) (vL) | 2 (12%) (L) | 3 (18%) (L) | 4 (25%) (M) |
| | 2 | 2 (12%) (L) | 4 (25%) (M) | 6 (37%) (M) | 8 (50%) (H) |
| | 3 | 3 (18%) (L) | 6 (37%) (M) | 9 (56%) (H) | 12 (75%) (vH) |
| | 4 | 4 (25%) (M) | 8 (50%) (H) | 12 (75%) (vH) | 16 (90%+) (Ex) |

Each set of factors in considered within a factor type. The specifics for each issue (i.e. combination of factor and project phase) relevant to that site and type of development are presented in the Table below.

The **nature of each issue** is considered in terms of ‘what is the cause, what is affected, and how is it affected?’ This is discussed below each identified combination of factor and project phase. Such a detailed discussion of the nature of the issue is provided if the risk of occurrence is deemed be of moderate or higher potential. Obviously a specific risk classified as ‘very high’ or ‘extreme’ unless mitigable to reasonable levels would be deemed a fatal flaw for the project as a whole.

The **effect of potential mitigation measures** to reduce the overall significance level is also considered in the matrix given in the Table below. That is, two sets of values are given per parameter considered:

- Without mitigation, and;
- With mitigation as described through the report and accompanying documentation.

Note that an impact may be either positive or negative, and that should the impact been deemed to be low or positive (irrespective of level) mitigation is not provided. Mitigation measures are provided or considered for all moderate or higher negative risk percentages.

Impact Assessment:

Alternative 1: Powerline route

| Potential Impacts | Significance rating of impacts | Proposed mitigation | Significance rating of impacts after mitigation |
|--|--|--|--|
| Direct impacts | | | |
| <p>1. Topography and Soils: The direct impact on landforms with the establishment of power lines is mainly one of disruption of surface soils. Potential erosion impacts are anticipated to be limited to the Construction Phase during site clearing activities.</p> | <p>Temporal: Medium term (-2) Spatial: Household (-1) Significance: Moderate (-2) Risk/Likelihood: May occur (-3) Degree of confidence/Certainty: Possible Significance Rating: (-8)</p> | <ul style="list-style-type: none"> Remove and store topsoil separately in areas where excavation / degradation takes place. Topsoil should be used for rehabilitation purposes in order to facilitate re-growth of species that occur naturally in the area. Disturbed areas of natural vegetation as well as cut and fill areas must be rehabilitated immediately to prevent soil erosion. Limit construction-, maintenance- and inspection activities to dry periods in order to curb occurrence/ augmentation of erosion in areas of existing erosion. | <p>Temporal: Medium Term (-2) Spatial: Household (-1) Significance: Low (-1) Risk/Likelihood: Unlikely (-2) Degree of confidence/Certainty: Unsure Significance Rating: (-6)</p> |
| <p>2. Water Quality: Impacts on current water quality in watercourses</p> | <p>Temporal: Short term (-1) Spatial: Localised (-2) Significance: Low (-1) Risk/Likelihood: Very unlikely to occur (-1) Degree of confidence/Certainty: Definite Significance Rating: (-5)</p> | <ul style="list-style-type: none"> Implementation of an EMP and waste minimisation activities. There will be no significant impact on water quality, should the development take place outside of river (riparian) areas as planned. However, implementation of stormwater management during the construction phase should take place so as to prevent any construction material (sedimentation) from entering the water resources. As a result, construction of cables or wood pylons associated with the development must take place during the preferably during the dry season. | <p>Temporal: Short term (-1) Spatial: Household (-1) Significance: Low (-1) Risk/Likelihood: Very unlikely to occur (-1) Degree of confidence/Certainty: Definite Significance Rating: (-4)</p> |
| <p>3. Water Resources: Potential pollution of the Gariiep (Orange) River and non-perennial drainage lines with associated riparian zone.</p> | <p>Temporal: Long Term (-3) Spatial: Regional (-3) Significance: Moderate (-2) Risk/Likelihood: May occur (-3) Degree of confidence/Certainty: Possible (3) Significance Rating: (-7)</p> | <ul style="list-style-type: none"> Waste water should be directed into the proper systems. Sewage water should not be channelled through surface water bodies or be allowed to flow freely or stagnate on the soil surface. Adequate sanitary facilities and ablutions must be provided for construction workers. Use and or storage of materials, fuels and chemicals which could potentially leak into the ground must be controlled. | <p>Temporal: Short term (-1) Spatial: Localised (-2) Significance: Low (-1) Risk/Likelihood: Very unlikely to occur (-1) Degree of confidence/Certainty: Definite Significance Rating: (-5)</p> |

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| <p>4. Loss of wetland habitat: Potential loss of wetland habitat</p> | <p>No impact</p> | <ul style="list-style-type: none"> • Development of structures outside of floodlines as far as possible. Compliance with the EMPr. | <p>No impact</p> |
| <p>5. Flora and Fauna: Potential loss of red data animal species and plant species as well as vegetation around the proposed powerline.</p> | <p>Temporal: Short Term (1) Spatial: Localised (2) Significance: Moderate (2) Risk/Likelihood: May Occur (3) Degree of confidence/Certainty: Possible (2)</p> <p>Significance Rating: (9)</p> | <ul style="list-style-type: none"> • Due to extensive habitat transformation and degradation (overgrazing and soil erosion) within and immediately adjacent to the proposed alignment it is unlikely that the study area comprises significant habitat for more than one species of threatened mammals. • Activities should be restricted away from any rocky hills and outcrops as well as riparian habitats along the non-perennial drainage lines and the Orange River. • No hunting or poaching activities must be allowed along the servitudes during the construction phase. • No further rock removal should occur adjacent to the proposed tower pylons. • No termite mounds should be intentionally destroyed. • Trees including stumps; bark and holes in trees are vital habitats for numerous arboreal reptiles (chameleons, snakes, agamas, geckos and monitors). • The removal of indigenous vegetation clearance must be kept to the minimum. • Any lizards, geckos, 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. • Several venomous snake species occur along the proposed alignments including <i>Cape Cobra (Naja nivea)</i>, <i>Horned Adder (Bitis caudalis)</i>, <i>Common or Rhombic Night Adder (Causus rhombeatus)</i> and <i>Puff Adder (Bitis arietans)</i>. • Construction activities of the proposed Luiperdshoek powerline should be restricted to daylight hours reducing the potential impact on the nocturnal breeding activities of the majority of amphibian species. • Ideally the installation of the new pylons should be undertaken during the dry winter months (May-September) when the majority of amphibian species are dormant. • Activities around the adjacent non-perennial drainage lines | <p>Temporal: Permanent (-4) Spatial: household (-1) Significance: Low (-1) Risk/Likelihood: Very unlikely to occur (-1) Degree of confidence/Certainty: Possible</p> <p>Significance Rating: (- 7)</p> |

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| <p>6. Avifauna: Construction activities in sensitive avifaunal habitats could lead to disturbance of sensitive or threatened species that could result in them moving away from the area, thus adversely affecting natural foraging habits. Terrestrial nesting species could be disturbed by construction activities, potentially resulting in the death of fledglings or destruction of the nest, and the failure of the breeding attempt. For threatened species, this could be significant at the regional population level.</p> | <p>Temporal: Long-term (-3) Spatial: Localised (-2) Significance: Moderate (-2) Risk/Likelihood: May occur (-3) Degree of confidence/Certainty: Possible Significance Rating: (-10)</p> | <p>must be strictly limited.</p> <ul style="list-style-type: none"> • Construction to be guided by Eskom guidelines for construction. • The ECO and Contractor's EO must be made aware and trained in recognition of certain key species, especially those species that nest in non-wetland grasslands. • An Avifaunal specialist in associated with the ECO/ EO must walk the line in order to identify the presence of any nests just prior to construction. • Construction workers must also be trained in awareness of priority species in the vent that a ground-based nest is discovered. • Priority species identified at the proposed development include <i>Black Stork, Secretarybird, Martial Eagle, Booted Eagle, African Fish-Eagle, Peregrine Flacon, Lanner Falcon, Kori Bustard, Ludwig's Bustard and Red Lark.</i> • Should active nest of a priority species be discovered in or near the servitude, construction activities should be halted until such time as the young have successfully fledged as far as possible. Should this not be possible, the guidance of an Avifaunal specialist and BirdLife South Africa or the Endangered Wildlife Trust must be sought. • Construction activities must be restricted to the servitude, and the footprint of the construction area must not be expanded unnecessarily. | <p>Temporal: Long-term (-3) Spatial: Localised (-2) Significance: Moderate (-2) Risk/Likelihood: Unlikely to occur (-2) Degree of confidence/Certainty: Possible Significance Rating: (-9)</p> |
| <p>7. Collisions: Power line-sensitive species (i.e. those species that are poorly mobile in flight), in particular large birds that are threatened are at risk of collisions with overhead lines, resulting in injury and death. Power lines placed in bird-sensitive habitats in the area – i.e. wetlands and high-altitude grasslands.</p> | <p>Temporal: Short-term (-1) Spatial: Localised (-2) Significance: Moderate (-2) Risk/Likelihood: May occur (-3) Degree of confidence/Certainty: Possible Significance Rating: (-8)</p> | <ul style="list-style-type: none"> • Spans in the mountainous areas, and in areas where the line runs within the Orange River Valley must be marked by bird diverters. • Operational monitoring of the lines, especially those areas not marked with bird diverters must occur if the power lines are constructed, and more spans marked if bird fatalities are noted. | <p>Temporal: Short-term (-1) Spatial: Localised (-2) Significance: Low (-1) Risk/Likelihood: Unlikely (-2) Degree of confidence/Certainty: Possible Significance Rating: (-6)</p> |

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| <p>8. Electrocutions: Certain larger species, especially storks and certain eagle species may be electrocuted as their long wingspan could bridge the gap between lines or other live electrical equipment. Bird mortalities due to electronics could be potentially significant in the case of species with low population numbers.</p> | <p>Temporal: Short-term (-1) Spatial: Localised (-2) Significance: Moderate (-2) Risk/Likelihood: May occur (-3) Degree of confidence/Certainty: Possible Significance Rating: (-8)</p> | <ul style="list-style-type: none"> • Ensure bird friendly tower types that prevent electrocution are utilised for this project. • Ensure phase-phase and phase-earth clearances of at least 2,000mm are maintained in tower design. | <p>Temporal: Short-term (-1) Spatial: Localised (-2) Significance: Low (-1) Risk/Likelihood: Unlikely (-2) Degree of confidence/Certainty: Possible Significance Rating: (-6)</p> |
| <p>9. Increase perching and nesting locations for certain species: The development of power lines could represent a positive impact on a number of raptor species and for the Sociable Weaver, in terms of providing new perching, roosting and even nesting habitats (on the towers).</p> | <p>Temporal: Short-term (-1) Spatial: Localised (-2) Significance: Moderate (-2) Risk/Likelihood: May occur (-3) Degree of confidence/Certainty: Possible Significance Rating: (-8)</p> | <ul style="list-style-type: none"> • Not applicable | <p>Temporal: Short-term (-1) Spatial: Localised (-2) Significance: Low (-1) Risk/Likelihood: Unlikely (-2) Degree of confidence/Certainty: Possible Significance Rating: (-6)</p> |
| <p>10. Heritage: No sites of archaeological importance were identified during the specialist study. Impact on sites of cultural significance, e.g. graves. Archaeological material, by its very nature, occurs below ground. The Applicant and Contractors should therefore keep in mind that archaeological sites might be exposed during the construction work.</p> | <p>No impact.</p> | <ul style="list-style-type: none"> • No further archaeological mitigation is required. • Should any unmarked human burials/remains or ostrich eggshell water flask caches for example, be uncovered, or exposed during excavation of the powerline poles, these must immediately be reported to the archaeologist (Jonathan Kaplan 082 321 0172), or the South African Heritage Resources Agency SAHRA) – Att Ms Katie Smuts 021 462 4502. | <p>No impact.</p> |
| <p>11. Waste: Waste generation during the construction phase will have a negative impact on the environment, if not controlled adequately. Waste includes: general construction rubble, hazardous waste (used oil, cement and concrete etc.).</p> | <p>Temporal: Short-term (-1) Spatial: Localised (-2) Significance: Moderate (-2) Risk/Likelihood: May occur (-3) Degree of confidence/Certainty: Possible</p> | <ul style="list-style-type: none"> • Where possible, construction waste on site must be reused or recycled. • Disposal of waste must be in accordance with relevant legislative requirements. • The Contractor must familiarise themselves with the definitions of waste and the handling, storage and transport of it as prescribed in the applicable environmental legislation. | <p>Temporal: Short-term (-1) Spatial: Localised (-2) Significance: Low (-1) Risk/Likelihood: Unlikely (-2) Degree of confidence/Certainty: Possible</p> |

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| | Significance Rating: (-8) | <ul style="list-style-type: none"> Burning of waste material will not be permitted. | Significance Rating: (-6) |
| <p>12. Dust: Dust emissions will vary from day to day depending on the phase of construction, the level of activity, and the prevailing meteorological conditions. The following possible sources of fugitive dust have been identified as activities which could potentially generate dust during construction operations at the site: vehicle activities associated with the transport of equipment to the site; preparation of the surface areas which may be required prior to the set up of new infrastructure; and the removal of construction equipment from site after the set up of new equipment.</p> | <p>Temporal: Short-term (-1) Spatial: Localised (-2) Significance: Moderate (-2) Risk/Likelihood: May occur (-3) Degree of confidence/Certainty: Possible</p> <p>Significance Rating: (-9)</p> | <ul style="list-style-type: none"> Frequent and effective dust suppression is advised, particularly along dirt roads. Dust must be suppressed at the construction site during dry periods by the regular application of water. Water used for this purpose must be used in quantities that will not result in the generation of run-off. | <p>Temporal: Short-term (-1) Spatial: Localised (-2) Significance: Low (-1) Risk/Likelihood: Unlikely (-2) Degree of confidence/Certainty: Possible</p> <p>Significance Rating: (-6):</p> |
| <p>13. Noise: During the construction phase there is likely to be an increase in noise pollution. The following possible sources of noise could potentially generate noise pollution during construction: construction activities (excavating and site clearing); construction vehicles; and construction staff.</p> | <p>Temporal: Short-term (-1) Spatial: Localised (-2) Significance: Moderate (-2) Risk/Likelihood: May occur (-3) Degree of confidence/Certainty: Possible</p> <p>Significance Rating: (-9)</p> | <ul style="list-style-type: none"> Adjacent landowners are to be notified upfront of noisy construction activities. Provide all equipment with standard silencers. Maintain silencer units on vehicles and equipment in good working order. Construction staff working in areas where the 8-hour ambient noise levels exceed 85 dBA should wear ear protection equipment. | <p>Temporal: Short-term (-1) Spatial: Localised (-2) Significance: Low (-1) Risk/Likelihood: Unlikely (-2) Degree of confidence/Certainty: Possible</p> <p>Significance Rating: (-6)</p> |
| Cumulative impacts | | | |
| Avifaunal Impact Assessment | | | |
| <p>The proposed lines would be unlikely to result in cumulative impacts for most bird species. However, the lines could contribute to cumulative impacts for a number of regionally and nationally threatened species that have a possibility of occurrence in certain parts of the study area. Any impact of the lines on these species could contribute to the existing impacts on these species (related to other factors especially habitat loss), and thus cause a cumulative impact.</p> | | | |
| Aquatic Impact Assessment | | | |
| <p>With effective implementation of the recommended mitigation measures, as well as the sound implementation of the construction phase EMP, the condition of the wetlands and rivers found within the proposed development footprint should be maintained at an acceptable level and cause no change to its current status quo as determined.</p> | | | |

Summary of Impacts and Average Points allocated to each Powerline Alternative during the Construction Phase

| IMPACTS | Alternative 1 - Without Mitigation | Alternative 1 - With Mitigation |
|--|------------------------------------|---------------------------------|
| Water quality | -5 | -4 |
| Topography and Soils | -8 | -6 |
| Water Resources | -7 | -5 |
| Loss of wetland | No impact | No impact |
| Flora and Fauna | 9 | -7 |
| Avifauna | -10 | -9 |
| Collisions | -8 | -6 |
| Electrocutions | -8 | -6 |
| Increase in perching and nesting locations for certain species | -8 | -6 |
| Heritage | No impact | No impact |
| Waste | -8 | -6 |
| Noise | -9 | -6 |
| Dust | -9 | -6 |
| Average Total | -7.4 | -6.33 |
| | | INDIRECT |
| Avifauna | -10 | -9 |
| Average Total | -10.00 | -9.00 |

3. 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.

Due to the constraints imposed by the highly rugged and mountainous terrain only one route is technically able to be developed through the mountainous area. As such no alignment alternatives have been provided.

However, technical alternatives such as underground distributions and cables were considered. None of these alternatives are preferred as they would have not been feasible economic wise. On the other hand overhead lines using wood pylons are most suitable for the terrain as they are cost effective, easier to maintain and most suitable for the environment.

For this reason wood pylons are opted for as the preferred alternatives along the existing alignment.

The most significant potential impact relates to collision of large, relatively immobile bird species (e.g. the Black Stork, Secretarybird, Martial Eagle, Peregrine Falcon, Kori Bustard, Ludwig's Bustard, Black Harrier, Red Lark and the Lanner Falcon) or those species whose behavioural habits would be likely to bring them into contact with the overhead lines. Disturbance of these birds, in particular of ground-nesting birds has also been identified to be a significant potential impact. In this context a number of mitigation measures have been recommended both in the EMPr and BAR; most importantly all spans within the mountainous, rocky areas and all spans that run within the Orange River valley will be marked with bird diverters.

The aquatic delineation assessment indicates that there is no endemic or priority aquatic vegetation around the wetland areas within the proposed development area, resulting in impacts being localised. The natural vegetation around wetland areas impacted by the development is expected to recover in the mid term as a result of the small development footprint of the proposed development.

It is hereby recommended that the preferred alternative along with the recommendations provided for in the EMPr recommendations be chosen as the alternative.

No-go alternative (compulsory)

There are no alternatives due to the in-hospitality of the area (terrain), there is only one route alignment as discussed in the section above.

In the past there was an illegal electricity connection coming from Namibia. Currently this is a "no-go" seeing that there will be complication in terms of maintenance of the line as well as distance.

From a technical point of view as alternatives, cables will be considered, but this is not a feasible option for Eskom.

The reason to choose wooden poles rather than cables is because there is no expertise in the Northern Cape when it comes to cables. Cables will be more efficient in urbanised areas and is not ideal in rural areas. Furthermore the environmental impact in terms of disturbance of the ground area will be more when cables will be used, wooden pylons will have a lesser impact on surface disturbance. The cost of cables is also very expensive and if there are any defects during operation, the ground surface will have to be disturbed again in order to locate and fix the defect.

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):

N/A

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:

Mitigation measures contained within the Basic Assessment Report, Specialist studies and Environmental Management Programme must be implemented in order to mitigate negative impacts to the bio-physical environment, particularly during the construction phase of the project.

Is an EMPr attached?

| | |
|-----|---------|
| YES | NO ✓ |
|-----|---------|

The EMPr must be attached as **Appendix F**.

SECTION F: APPENDIXES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s) and Locality Map

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix D1-Ecological Study

Appendix D2-Aquatic Study

Appendix D3-Heritage Study

Appendix D4- Avifauna Study

Appendix E: Public Participation

Appendix E1-Advert

Appendix E2-I&AP Notification

Appendix E3-Site Notice

Appendix E3-Proof of Site Notice placement

Appendix E4- Background Information

Appendix F: Environmental Management Programme (EMPr)

Appendix G: Other information

APPENDIX A

