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BASIC ASSESSMENT REPORT

MULILO STRUISBULT PV2 GRID CONNECTION



BASIC ASSESSMENT REPORT

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INTRODUCTION

Mulilo Renewable Project Developments (Pty) Ltd (hereafter Mulilo) has appointed Environmental Impact Management Services (Pty) Ltd (EIMS) as the Environmental Assessment Practitioner (EAP) to assist with undertaking the required Environmental Authorisation (EA) processes, including the statutory public participation, and to compile and submit the required documentation in support of the application for EA in accordance with the National Environmental Management Act (Act 107 of 1998 – NEMA)

Mulilo is in the process of preparing Struisbult PV2 solar facility for a private off-taker. One of the Eskom conditions received for connecting the project to the grid is to build an additional 8.8 km 132 kV line between Kronos and Cuprum substations. The Applicant proposes construction of the required 132 kV line alongside an existing powerline servitude with associated grid connection infrastructure as follows:

1. An access road to the Struisbult PV2 On-site Substation consisting of a 132 kV Switching Station back-to-back with the IPP substation
2. An approximately 1 km Loop-In Loop-Out line (LILO); and
3. An approximately 8.8 km 132 kV Transmission Line along the existing Kronos-Cuprum Transmission Line.

EIMS has compiled this Basic Assessment Report (BAR) in accordance with the procedures defined in the Environmental Impact Assessment (EIA) Regulations, 2014 (GN R. 982, as amended) for undertaking of a Basic Assessment (BA) process, including public participation in accordance with Chapter 6 of the EIA Regulations.

BASIC ASSESSMENT REPORT

1. REPORT STRUCTURE

This report has been compiled in accordance with the EIA Regulations, 2014 (Government Notice (GN) R982), as amended. A summary of the report structure, and the specific sections that correspond to the applicable regulations, is provided in Table 1 below.

Table 1: Report Structure

Environmental Regulation	Description	Section in Report
NEMA EIA Regulations 2014 (as amended)		
Appendix 1(3)(a):	Details of – <ul style="list-style-type: none"> (i) The EAP who prepared the report; and (ii) The expertise of the EAP, including a curriculum vitae; 	Appendix H
Appendix 1(3)(b):	The location of the activity, including: <ul style="list-style-type: none"> (i) The 21 digit Surveyor General code of each cadastral land parcel; (ii) Where available, the physical address and farm name; and (iii) Where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties; 	Section B: Site/Area/Property Description
Appendix 1(3)(c):	A plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is – <ul style="list-style-type: none"> (i) A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; (ii) On land where the property has not been defined, the coordinates within which the activity is to be undertaken; 	Appendix A
Appendix 1(3)(d):	A description of the scope of the proposed activity, including – <ul style="list-style-type: none"> (i) All listed and specified activities triggered and being applied for; and (ii) A description of the activities to be undertaken including associated structures and infrastructure; 	Section A: Activity Information

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Environmental Regulation	Description	Section in Report
Appendix 1(3)(e):	<p>A description of the policy and legislative context within which the development is proposed including –</p> <ul style="list-style-type: none"> (i) An identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and (ii) How the proposed activity complies with and responds to the legislation and policy context plans, guidelines, tools frameworks, and instruments; 	Section A: Activity Information
Appendix 1(3)(f):	A motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location;	Section A: Activity Information
Appendix 1(3)(g):	A motivation for the preferred site, activity and technology alternative;	Section A: Activity Information Appendix J
Appendix 1(3)(h):	<p>A full description of the process followed to reach the proposed alternative within the site, including:</p> <ul style="list-style-type: none"> (i) Details of all the alternatives considered; (ii) Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; (iii) A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them; (iv) The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage, and cultural aspects; (v) The impacts and risks identified for each alternative including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which these impacts – <ul style="list-style-type: none"> (aa) Can be reversed; (bb) May cause irreplaceable loss of resources; and (cc) Can be avoided, managed or mitigated; 	Section A: Activity Information Appendix J Section C: Public Participation Section B: Site/Area/Property Description Section D: Impact Assessment Appendix F

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Environmental Regulation	Description	Section in Report
	<ul style="list-style-type: none"> (vi) The methodology used in determining and ranking the nature, significance, consequences, extent duration and probability of potential environmental impacts and risks associated with the alternatives; (vii) Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological social, economic, heritage and cultural aspects; (viii) The possible mitigation measures that could be applied and level of residual risk; (ix) The outcome of the site selection matrix; (x) If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and (xi) A concluding statement indicating the preferred alternatives, including preferred location of the activity; 	
Appendix 1(3)(i):	<p>A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including –</p> <ul style="list-style-type: none"> (i) A description of all environmental issues and risks that were identified during the environmental impact assessment process; and (ii) An assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures; 	<p>Section D: Impact Assessment</p> <p>Appendix F</p>
Appendix 1(3)(j):	<p>An assessment of each identified potentially significant impact and risk, including –</p> <ul style="list-style-type: none"> (i) Cumulative impacts; (ii) The nature, significance and consequence of the impact and risk; (iii) The extent and duration of the impact and risk; (iv) The probability of the impact and risk occurring; (v) The degree to which the impact and risk can be reversed; (vi) The degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) The degree to which the impact and risk can be mitigated; 	<p>Section D: Impact Assessment</p> <p>Appendix F</p>

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Environmental Regulation	Description	Section in Report
Appendix 1(3)(k):	Where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;	Appendix D
Appendix 1(3)(l):	An environmental impact statement which contains – (i) A summary of the key findings of the environmental impact assessment; (ii) A map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and (iii) A summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	Section E: Recommendation of Practitioner
Appendix 1(3)(m):	Based on the assessment, and where applicable, impact management measures from specialist reports, the recording of proposed impact management outcomes for the development for inclusion in the EMPR;	Appendix G
Appendix 1(3)(n):	Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;	Section E: Recommendation of Practitioner
Appendix 1(3)(o):	A description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Appendix J
Appendix 1(3)(p):	A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	Section E: Recommendation of Practitioner
Appendix 1(3)(q):	Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, and the date on which the activity will be concluded, and the post construction monitoring requirements finalised;	N/A
Appendix 1(3)(r):	An undertaking under oath or affirmation by the EAP in relation to- (i) The correctness of the information provided in the reports;	Section E: Recommendation of Practitioner

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Environmental Regulation	Description	Section in Report
	(ii) The inclusion of comments and inputs from stakeholders and I&Ps; (iii) The inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties;	
Appendix 1(3)(s):	Where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	N/A
Appendix 1(3)(t):	Any specific information that may be required by the competent authority; and	N/A
Appendix 1(3)(u):	Any other matters required in terms of section 24(4)(a) and (b) of the Act.	N/A

2. SPECIALIST CONSULTANTS

Specialist studies have been undertaken to address the key impacts that require investigation, and these include:

- Terrestrial Ecological Impact Assessment;
- Aquatic Ecological Specialist Opinion;
- Avifaunal Impact Assessment;
- Heritage Impact Assessment (HIA); and
- Paleontological Desktop Assessment (PDA).

The specialist studies involved the gathering of data relevant to identifying and assessing environmental impacts that may occur as a result of the proposed project. These impacts were assessed according to pre-defined impact rating methodology (Appendix F). Mitigation / management measures to minimise potential negative impacts or enhance potential benefits are put forward in this BAR. The specialist reports that informed this EIA level report are included in Appendix D.

BASIC ASSESSMENT REPORT



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Environment & Nature Conservation
NORTHERN CAPE PROVINCE
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(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, 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 07 April 2017. 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.

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. ACTIVITY DESCRIPTION

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

The Applicant is in the process of preparing Struisbult PV2 solar facility for a private off-taker. One of the Eskom conditions received for connecting the project to the grid is to build an additional 8.8 km 132 kV line between Kronos and Cuprum substations. The Applicant proposes construction of the required 132 kV line alongside an existing powerline servitude with associated grid connection infrastructure as follows:

- An access road to the Struisbult PV2 On-site Substation;
 - The On-site Substation consists of a 132 kV Switching Station (assessed here) back-to-back with the IPP substation
- An approximately 1 km LILO;
- 132 kV Feeder Bay at both Cuprum and Kronos Substations; and
- An approximately 8.8 km 132 KV Transmission Line along the existing Kronos-Cuprum overhead line (OHL), which will be handed over to Eskom once completed. The OHL will consist of the following:
 - High Voltage (HV) Lines: Examples of the HV tower structures are presented in Appendix C: Facility illustration(s).
 - The proposal is to construct the new line approximately 15 m to the eastern side of the current 1 and 2 Kronos-Cuprum OHL. This will not require a HV crossing (3 x rural Medium Voltage (MV) overpass crossings: 2 at Kronos Substation, 1 on route).

Table 2 indicates the details of the of the affected properties for the proposed project. The proposed project site is within the following properties near Copperton, Siyathemba Local Municipality, Pixley ka Seme District Municipality, Northern Cape. The locality of the proposed project is shown in Figure 1.

Table 2: Property details

Property	21-digit Surveyor General Code
Farm Vogelstruisbult 104 Portion 1	C06000000000010400001
Farm Vogelstruisbult 104 Portion 5	C06000000000010400005
Farm Klipgats Pan 117 Portion 4	C06000000000011700004
Farm Klipgats Pan 117 Portion 7	C06000000000011700007

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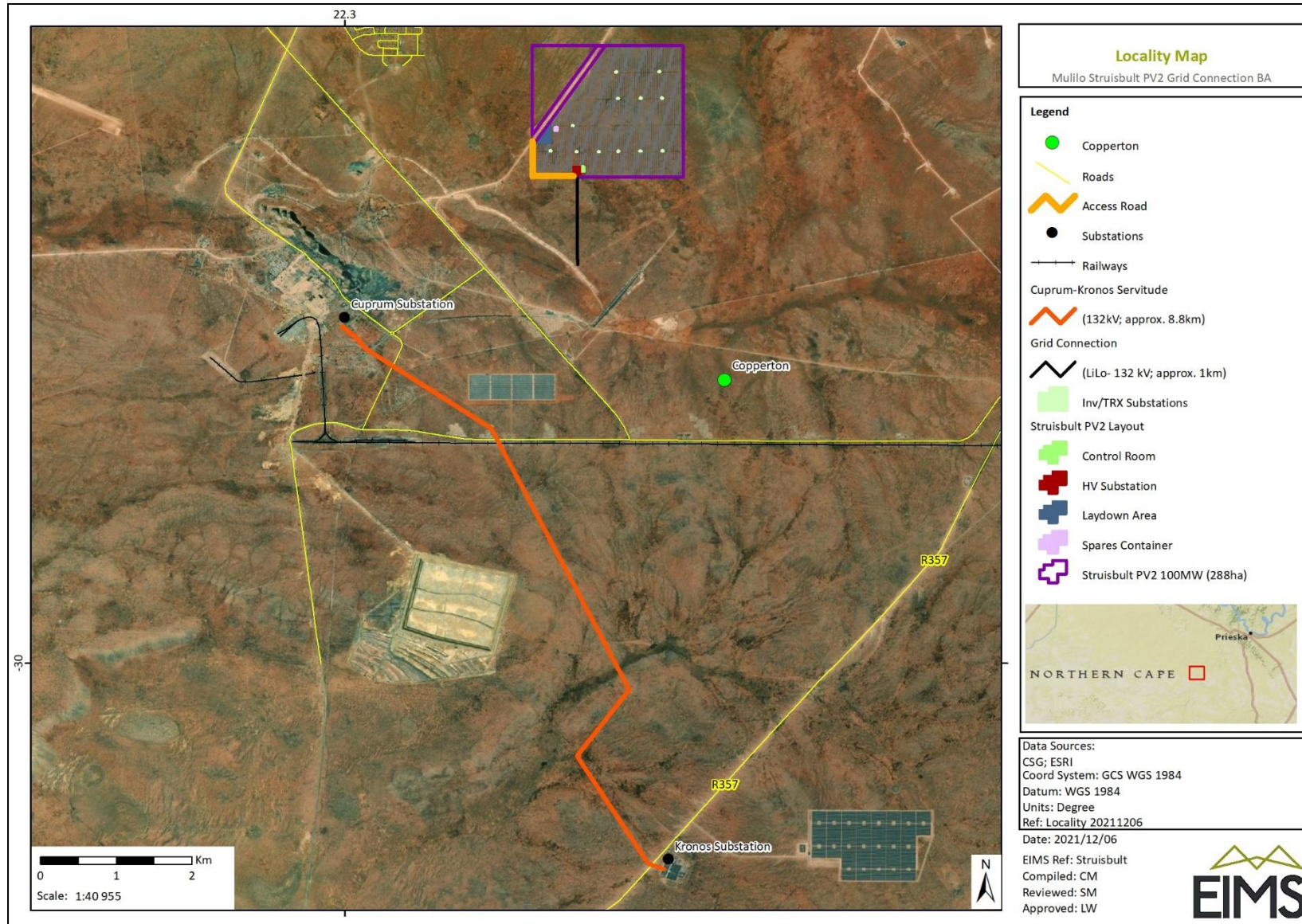


Figure 1: Locality map

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

Listed activity as described in GN 327, 325 and 324	Description of project activity
<p>GNR 983, Listing Notice 1: Activity 11: 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;</p>	<p>The development will entail the construction of an approximately 8.8 km 132 KV Transmission Line along the existing Kronos-Cuprum Transmission Line, an approximately 1 km LILO, on-site 132 kV Switching Station and 132 kV Feeder Bay at both Cuprum and Kronos Substations.</p>

2. FEASIBLE AND REASONABLE ALTERNATIVES

“**alternatives**”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

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

Describe alternatives that are considered in this application as required by 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.

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, 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

No site alternatives were assessed (other than the development proposal) during the impact assessment. Please refer to Appendix J1: Alternative Assessment for further details.

Alternative 1 (preferred alternative)

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Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

Alternative:

Latitude (S):

Longitude (E):

Alternative S1 (preferred) 132 KV Transmission Line

• Starting point of the activity	30°01'25.43"S	22°20'17.36"E
• Middle/Additional point of the activity	29°59'24.65"S	22°19'39.06"E
• End point of the activity	29°57'33.45"S	22°18'02.27"E.

Alternative S1 (Preferred) LILO Line

• Starting point of the activity	29°56'31.94"S	22°19'38.99"E
• Middle/Additional point of the activity	29°56'49.14"S	22°19'39.43"E
• End point of the activity	29°57'9.54"S	22°19'39.64"E

Alternative S1 (Preferred) Access Road

• Starting point of the activity	29°56'16.91"S	22°19'20.32"E
• Middle/Additional point of the activity	29°56'31.73"S	22°19'20.36"E
• End point of the activity	29°56'31.76"S	22°19'37.80"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.

Please refer to Appendix A for a list of coordinates for the proposed 132 KV Transmission Line.

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.

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b) Lay-out alternatives

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

Alternative 1 (preferred alternative)
Please refer to Appendix J1: Alternative Assessment for further details.
Alternative 2
Alternative 3

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

Alternative 1 (preferred alternative)
Please refer to Appendix J1: Alternative Assessment for further details.
Alternative 2
Alternative 3

e) No-go alternative

Please refer to Appendix J1: Alternative Assessment for further details.
--

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

3. PHYSICAL SIZE OF THE ACTIVITY

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

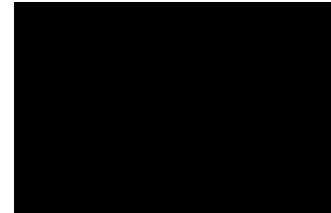
Alternative:

Size of the activity:

Alternative A1¹ (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)



or, for linear activities:

Alternative:

Length of the activity:

Alternative S1 (preferred) 132 KV Transmission Line

Alternative S2 (Preferred) LILO Line

Alternative S3 (Preferred) Access Road

	8 800 m
	1 000 m
	925 m

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

Alternative:

Size of the site/servitude:

Alternative S1 (preferred) 132 KV Transmission Line

Alternative S2 (Preferred) LILO Line

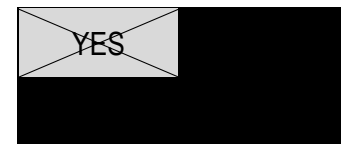
Alternative S3 (Preferred) Access Road

	132 000 m ²
	15 000 m ²
	4 625 m ²

4. SITE ACCESS

Does ready access to the site exist?

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



Describe the type of access road planned:

Access to the powerline servitudes is existing. An approximately 5 m wide gravel access road to the Struisbult PV2 On-site Substation will be constructed. A jeep track of approximately 1km and less than 6 m wide will be constructed beneath the LILO line.

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

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

5. LOCALITY MAP

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

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

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.

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;

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

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

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.

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.

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?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	Please explain
The development will take place along existing power line servitudes and on land where renewable energy projects have received prior approval.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	Please explain
Several areas of the Northern Cape have been identified as key renewable energy development areas, and this project will provide a strengthening of the existing Eskom infrastructure to allow for the utilisation of renewable energy generated by the Struisbult PV2 facility.			
(b) Urban edge / Edge of Built environment for the area	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	Please explain
This project will not fall within the urban edge of a town.			
(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?).	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	Please explain
The development will take place along existing power line servitudes and on land where renewable energy projects have received prior approval and will allow for the utilisation of renewable energy generated by the Struisbult PV2 facility.			

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(d) Approved Structure Plan of the Municipality	YES	Please explain
The greater Copperton area is home to a number of large renewable energy developments and this project serves to provide additional strengthening of the Kronos-Cuprum line and will run adjacent to the existing transmission lines between these Eskom Substations.		
(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?)		
N/A		
(f) Any other Plans (e.g. Guide Plan)		
N/A		
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 ✓	Please explain
The greater Copperton area is home to a number of large renewable energy developments and this project serves to provide additional strengthening of the Kronos-Cuprum line and will run adjacent to the existing transmission lines between these Eskom Substations.		
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	Please explain
The greater Copperton area is home to a number of large renewable energy developments and this project serves to provide additional strengthening of the Kronos-Cuprum line.		
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	Please explain
Additional services will not be required for this development.		

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<p>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>		NO	Please explain
<p>Considering the limited scope and extent of the proposed development, it is not anticipated to significantly affect the local infrastructure planning.</p>			
<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>		NO	Please explain
<p>The greater Copperton area is home to a number of large renewable energy developments and this project serves to provide additional strengthening of the Kronos-Cuprum line and will run adjacent to the existing transmission lines between these Eskom Substations.</p>			
<p>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</p>	YES		Please explain
<p>The greater Copperton area is home to a number of large renewable energy developments and this project serves to provide additional strengthening of the Kronos-Cuprum line and will run adjacent to the existing transmission lines between these Eskom Substations.</p>			
<p>9. Is the development the best practicable environmental option for this land/site?</p>	YES		Please explain
<p>No site alternatives were assessed (other than the development proposal) during the impact assessment. Please refer to Appendix J1: Alternative Assessment for further details.</p>			
<p>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</p>	YES		Please explain
<p>It is not anticipated that the development will lead to long term, irreversible impacts and will allow for the utilisation of renewable energy generated by the Struisbult PV2 facility.</p>			
<p>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</p>		NO	Please explain
<p>The greater Copperton area is home to a number of large renewable energy developments and this project serves to provide additional strengthening of the Kronos-Cuprum line and will run adjacent to the existing transmission lines between these Eskom Substations.</p>			

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12. Will any person's rights be negatively affected by the proposed activity/ies?		NO	Please explain
The greater Copperton area is home to a number of large renewable energy developments and this project serves to provide additional strengthening of the Kronos-Cuprum line and will run adjacent to the existing transmission lines between these Eskom Substations.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		NO	Please explain
The activity will take place outside the urban edge of Copperton. The greater Copperton area is home to a number of large renewable energy developments and this project serves to provide additional strengthening of the Kronos-Cuprum line and will run adjacent to the existing transmission lines between these Eskom Substations.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?		NO	Please explain
Mulilo is in the process of preparing Struisbult PV2 solar facility for a private off-taker. One of the Eskom conditions received for connecting the project to the grid is to build an additional 8.8 km 132 kV line between Kronos and Cuprum substations.			
15. What will the benefits be to society in general and to the local communities?	Please explain		
This project will allow for the utilisation of renewable energy generated by the Struisbult PV2 facility.			
16. Any other need and desirability considerations related to the proposed activity?	Please explain		
N/A			
17. How does the project fit into the National Development Plan for 2030?	Please explain		
The development of renewable energy infrastructure has been identified as a key development objective in the National Development Plan.			
18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.			
By virtue of this Basic Assessment Process, the associated specialist investigations, public participation process and the Environmental Management Programme the project has taken the general considerations of integrated environmental management as set out in Section 23 of NEMA into account.			
19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.			
By virtue of this Basic Assessment Process, the associated specialist investigations, public participation process and the Environmental Management Programme the project has taken the general considerations of integrated environmental management as set out in Section 2 of NEMA into account.			

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 (Act 107 of 1998)	The proposed project requires an Environmental Authorisation in terms of the NEMA and associated regulations. The regulations set forth the process to be followed in the event that a specific listed activity is triggered by the proposed development (which is the case for this project)	Northern Cape Department Agriculture, Environmental Affairs, Rural Development and Land Reform.	4 December 2014
National Environmental Management Act (Act 107 of 1998) – GNR 983, Listing Notice 1: Activity 11.	The development will entail the construction of an approximately 8.8 km 132 KV Transmission Line along the existing Kronos-Cuprum Transmission Line, an approximately 1 km LILO, on-site 132 kV Switching Station and 132 kV Feeder Bay at both Cuprum and Kronos Substations.	Northern Cape Department Agriculture, Environmental Affairs, Rural Development and Land Reform.	4 December 2014
National Heritage Resources Act, 1999 (Act No 25 of 1999)	Section 38 of the National Heritage Resources Act requires that the applicant must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.	South African Heritage Resources Agency (SAHRA) and Northern Cape Heritage Resources Agency (NBKB)	28 April 1999
The National Environmental Management: Biodiversity Act (Act No. 10 of 2004 – NEMBA) Section 57 and 87	Regulations published under NEMBA provides a list of protected species (flora and fauna), according to the Act (GN R. 151 dated 23 February 2007, as amended	Northern Cape Department Agriculture, Environmental Affairs, Rural Development and Land Reform.	7 June 2004

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Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	in GN R. 1187 dated 14 December 2007) which require a permit in order to be disturbed or destroyed.		
National Environmental Management: Waste Act (Act No. 59 of 2008 – NEMWA) Section 20 (b) Government Notice (GN) 921	Government Notice (GN) 718 provides the list of waste management activities in respect of which a Waste Management License (WML) is required in accordance with Section 20(b) of NEMWA. It is important to be aware of the specific listed activities applicable to the temporary storage of hazardous and general waste. The proposed development will need to apply for a WML should it trigger any of the listed activities.	Northern Cape Department Agriculture, Environmental Affairs, Rural Development and Land Reform.	29 November 2013
National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) - GN R. 827	Due to the dry climate, it is expected that the activity will give rise to dust during construction. Dust suppression measures will be included in the EMP, which will be adhered to for the duration of the construction period. The dust fall rate shall comply with the national dust control regulations (as published in GN R. 827 of 1 November 2013) in terms of Section 53, read with Section 32 of the National Environmental Management: Air Quality Act (No. 39 of 2004 – NEM:AQA) of 600 < D <1200 mg/m ² /day (30 days average) within a non-residential area, and D < 600 mg/m ² /day (30 days average) within a residential area.	Northern Cape Department Agriculture, Environmental Affairs, Rural Development and Land Reform.	1 November 2013

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

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

YES	
	5 m ³ /month

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

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

All construction related waste will be disposed of at a suitably licensed facility.

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

Waste will be disposed of at the closest suitably licensed waste disposal facility.

Will the activity produce solid waste during its operational phase?

	NO
--	----

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

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

No waste will be generated during the operational phase.

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



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



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	
-----	--

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.

Although some hazardous waste may be generated as part of this activity, a waste licence will only be required should the hazardous waste be disposed of at a facility not licenced for such disposal or stored in excess of the allowable thresholds. The EMP_r for this project will include conditions for the adequate storage and disposal of hazardous waste at a suitably licenced facility.

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Is the activity that is being applied for a solid waste handling or treatment facility?

NO

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

NO

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

Will the activity produce any effluent that will be treated and/or disposed of on site?

NO

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?

NO

If YES, provide the particulars of the facility:

Facility name:

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:

Wastewater will be reused where possible when washing construction equipment or during mixing of mortar.

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?

NO

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

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.

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

Emissions will result from dust during the construction phase. Dust suppression measures will be included in the EMPr, which will be adhered to for the duration of the construction period. The dust fall rate shall comply with the national dust control regulations (as published in GN R. 827 of 1 November 2013) in terms of Section 53, read with Section 32 of the National Environmental Management: Air Quality Act (No. 39 of 2004 – NEM:AQA) of $600 < D < 1200$ mg/m²/day (30 days average) within a non-residential area, and $D < 600$ mg/m²/day (30 days average) within a residential area.

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?

Describe the noise in terms of type and level:

Noise will result from construction activities on site during the construction phase. Noise will be managed in accordance with the conditions as stated in the EMPr.

13. WATER USE

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

Municipal	Other
<p>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:</p> <p>Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?</p>	<p>YES</p> <p>NO</p>

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

14. ENERGY EFFICIENCY

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

This project serves to facilitate the connection of the Struisbult PV2 Facility to the National Grid.

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

This project serves to facilitate the connection of the Struisbult PV2 Facility to the National Grid.

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

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

A

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

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



If YES, please complete the form entitled “Details of specialist and declaration of interest” for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

**Property description/
physical address:**

Province	Northern Cape
District Municipality	Pixley ka Seme District Municipality
Local Municipality	Siyathemba Local Municipality
Ward Number(s)	4
Property	SG Code
Farm Vogelstruisbult 104 Portion 1	C06000000000010400001
Farm Vogelstruisbult 104 Portion 5	C06000000000010400005
Farm Klipgats Pan 117 Portion 4	C06000000000011700004
Farm Klipgats Pan 117 Portion 7	C06000000000011700007

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:

Agricultural – Registered Eskom Servitudes over the properties.

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

Is a change of land-use or a consent use application required?

	NO
--	----

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1 (preferred) 132 KV Transmission Line

	1:50 – 1:20	
--	-------------	--

Alternative S1 (Preferred) LILO Line

Flat	
------	--

Alternative S1 (Preferred) Access Road

Flat	
------	--

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 2.10 At sea	2.4 Closed valley 2.5 Open valley 2.6 Plain	2.7 Undulating plain / low hills 2.8 Dune 2.9 Seafront
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3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

	Alternative S1 (preferred) 132 kV Transmission Line	Alternative S1 (Preferred) LILO Line	Alternative S1 (Preferred) Access Road
Shallow water table (less than 1.5m deep)			
Dolomite, sinkhole or doline areas			
Seasonally wet soils (often close to water bodies)			

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

The larger Struisbult Farm has low relief with shallow undulations in the landscape where watercourses form in the shallow depressions. The site is located between 1 100 m and 1 200 m altitude rising from southwest to northeast. No watercourses occur within the proposed footprint of the PV plant. A larger watercourse, an ephemeral tributary of the Bastersput se Leege River, is found to the east of the site however it is unlikely that the proposed PV plant will have any impact on this aquatic feature.

The larger watercourse corridor to the west of the PV site is mapped as an aquatic Critical Biodiversity Area (CBA). The CBAs are considered to be in a natural condition and are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. These areas should be maintained in a natural or near-natural state or where necessary rehabilitated. Only low-impact, biodiversity-sensitive land uses are considered appropriate. The proposed PV facility and associated infrastructure is unlikely to impact the aquatic biodiversity mapping. The LILO line ends at the outside edge of the watercourse corridor that is mapped as a CBA. The watercourse at this point is highly modified and degraded and largely non-existent with a road having been constructed to the south of the LILO and thus it is highly unlikely that the project would have any impact on the associated aquatic feature.

In terms of Freshwater Ecosystem Priority Area Wetlands and the National Wetland Map, there are several small depression wetlands in the surrounding area. There are also some wider river corridors mapped to the south-west of the PV facility, one of which is crossed by the proposed strengthening line between Cuprum and Kronos Substations. Given that: (1) the proposed OHPL will be constructed adjacent to an existing ESKOM servitude with no new access road required; and (2) the powerline can easily span the watercourse corridor; the likely impact of the powerline construction would be negligible. Any temporary roads through the watercourse during construction should only be used where absolutely necessary and the disturbed area rehabilitated afterwards.

6. LAND USE CHARACTER OF SURROUNDING AREA

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

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station ^H
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential	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

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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 this impact will / be impacted upon by the proposed activity? Specify and explain:



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:



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:



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

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

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

7. CULTURAL/HISTORICAL FEATURES

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



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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:

Refer to the Heritage Impact Assessment (HIA) and Palaeontological Desktop Assessment included in Appendix D.

The HIA has shown that the study area has no heritage resources situated within the proposed development boundaries. According to the PalaeoMap on the South African Heritage Resources Information System (SAHRIS) database the Palaeontological Sensitivity of the Gordonia Formation and Dwyka Group is moderate, while that of the granitoid and highly metamorphosed Precambrian basement rocks is Zero (Almond and Pether 2008, SAHRIS website). It was therefore considered that the proposed development will not lead to detrimental impacts on the palaeontological resources of the area.

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

NO

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

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:

Approximately 24.3% of the population is unemployed.

Economic profile of local municipality:

Approximately 7.8% of households have no income, while the majority of the households earn between R9 600 and R76 400 annually. The whole of the Siyathemba area is rich in semiprecious stones. The famed 'tiger's eye' is one of many gems mined in the region. An opportunity exists for adding value to the raw material and shipping out processed products of high quality.

Level of education:

The educational profile in Siyathemba is that of 14% of the population had no schooling, while 34% had primary school education. Just 4% of the population has a degree or diploma.

b) Socio-economic value of the activity

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

R35 million

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

R0

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Will the activity contribute to service infrastructure?	YES	
Is the activity a public amenity?		NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	18	
What is the expected value of the employment opportunities during the development and construction phase?	R 0	
What percentage of this will accrue to previously disadvantaged individuals?	N/A	
How many permanent new employment opportunities will be created during the operational phase of the activity?	N/A	
What is the expected current value of the employment opportunities during the first 10 years?	R 0	
What percentage of this will accrue to previously disadvantaged individuals?	N/A	

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.

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

Systematic Biodiversity Planning Category	If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Other Natural Area (ONA)	

- 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).

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Natural	0 %	
Near Natural (includes areas with low to moderate level of alien invasive plants)	100 %	<p>The proposed OHL alignment follows the existing Kronos-Cuprum OHL alignment and runs from the Kronos to Cuprum substations. The surrounding land use is mainly electrical infrastructure, renewable developments (solar photovoltaic and wind), old mining infrastructure and farmland.</p> <p>The Ecosystem Threat Status is an indicator of an ecosystem's wellbeing, based on the level of change in structure, function or composition. Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT) or Least Concern (LC), based on the proportion of the original extent of each ecosystem type that remains in good ecological condition. According to the spatial dataset the proposed project overlaps with a LC ecosystem.</p> <p>The species composition of the assessment area was consistent with typical Bushmanland Basin Shrubland and Bushman Arid Grassland vegetation types. Distinctive vegetation communities were observed within these vegetation types and can be classified into shrubland, grassland and drainage lines. The grassland vegetation type occurred in small patches within the shrubland vegetation community and is therefore not mapped separately. The plant species list recorded is by no means comprehensive, and repeated surveys during different phenological periods are not covered, which may likely yield up to 40% additional flora species for the project area. However, floristic analysis conducted to date is regarded as a sound representation of the local flora for the project area, with specific focus on SCCs.</p> <p>The following vegetation units were identified on-site:</p> <ul style="list-style-type: none"> • <i>Rhigozum trichotomum</i> Shrubland; • Asteraceous Shrubland; • Bushmanland Arid Grassland; <ul style="list-style-type: none"> ○ <i>Stipagrostis</i> Grassland; and ○ <i>Lycium cinereum</i> – <i>Galenia africana</i> Watercourse Shrub Community. <p>One (1) IAP species were recorded within the project area, namely <i>Prosopis glandulosa</i>. These species are listed under the Alien and Invasive Species List 2020, Government Gazette No. GN1003 as Category 1b. Category 1b species must be controlled by implementing an</p>

BASIC ASSESSMENT REPORT

		IAP Management Programme, in compliance of section 75 of the NEMBA, as stated above.
Degraded (includes areas heavily invaded by alien plants)	0 %	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	0 %	

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)	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)	Estuary	Coastline
Least Threatened	NO	NO	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)

The proposed OHL alignment follows the existing Kronos-Cuprum OHL alignment and runs from the Kronos to Cuprum substations. The surrounding land use is mainly electrical infrastructure, renewable developments (solar photovoltaic and wind), old mining infrastructure and farmland.

The Ecosystem Threat Status is an indicator of an ecosystem's wellbeing, based on the level of change in structure, function or composition. Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT) or Least Concern (LC), based on the proportion of the original extent of each ecosystem type that remains in good ecological condition. According to the spatial dataset the proposed project overlaps with a LC ecosystem.

The species composition of the assessment area was consistent with typical Bushmanland Basin Shrubland and Bushman Arid Grassland vegetation types. Distinctive vegetation communities were observed within these vegetation types and can be classified into shrubland, grassland and drainage lines. The grassland vegetation type occurred in small patches within the shrubland vegetation community and is therefore not mapped separately. The plant species list recorded is by no means comprehensive, and repeated surveys during different phenological periods are not covered, which may likely yield up to 40% additional flora species for the project area. However, floristic analysis conducted to date is regarded as a sound representation of the local flora for the project area, with specific focus on SCCs.

The following vegetation units were identified on-site:

BASIC ASSESSMENT REPORT

- *Rhigozum trichotomum* Shrubland;
- Asteraceous Shrubland;
- Bushmanland Arid Grassland;
 - *Stipagrostis* Grassland; and
 - *Lycium cinereum* – *Galenia africana* Watercourse Shrub Community.

One (1) IAP species were recorded within the project area, namely *Prosopis glandulosa*. These species are listed under the Alien and Invasive Species List 2020, Government Gazette No. GN1003 as Category 1b. Category 1b species must be controlled by implementing an IAP Management Programme, in compliance of section 75 of the NEMBA, as stated above.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Die Noordwester	
Date published	14 January 2022	
Publication name	Norther Cape Provincial Gazette	
Date published	24 January 2022	
Site notice position	Latitude	Longitude
	-30.022102	22.338157
	-29.973302	22.319813
	-29.957141	22.320419
	-29.920857	22.297084
	-29.937900	22.322456
	-29.958352	22.302147
Date placed	9/10 December 2021	

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.

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)
Please refer to the Public Participation Report included in Appendix E.		

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

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

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
Please refer to the Public Participation Report included in Appendix E.	

4. COMMENTS AND RESPONSE REPORT

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

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Please refer to the Public Participation Report included in Appendix E.					

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.

Please note that a detailed description of the impact rating methodology and a detailed account of the impacts and mitigation measures have been attached as Appendix F. The summary provided in the table below reflects the impacts identified for each of the phases of the proposed development as well as the final significance of the impacts post mitigation.

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
Alternatives S1 (preferred alternative)			
Construction	Noise	-4.50	<ul style="list-style-type: none"> • Noise-generating activities associated with construction activities should be kept to a minimum. • Compliance with the appropriate legislation, any local by-laws and regulations regarding the generation of noise must be adhered to.
	Air Quality (Dust generation)	-2.50	<ul style="list-style-type: none"> • Appropriate dust abatement measures implemented to minimise dust generation on site (e.g. wetting of active construction areas and unpaved roads and the vegetation of the semi-permanent stockpiles).
	Job Creation	6.75	<ul style="list-style-type: none"> • The use of local labour is encouraged, where it is possible.
	Visual Impact	-3.50	<ul style="list-style-type: none"> • Construction camps must be established in appropriate locations prior to the commencement of construction activities. • Camps, offices etc. to be maintained in an orderly and tidy condition. • No littering of the site. • The construction site is to be adequately demarcated for the duration of construction activities.
	Waste Management	-4.00	<ul style="list-style-type: none"> • The waste management system shall provide for adequate waste storage (in the form of bins with lids) and regular removal of non-recyclable waste for permanent disposal at an appropriately licensed waste disposal facility. • No dumping of construction material on-site may take place. • All waste generated on-site during construction must be adequately managed. Separation and recycling of different waste materials should be supported.

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
			<ul style="list-style-type: none"> • Under no circumstances may there be any burial of waste on site. • All refuse shall be disposed of in refuse bins. • These bins must be adequate in number and accessibility to effectively manage the waste generated on site. • Refuse bins shall be watertight, wind-proof and scavenger proof and shall be conspicuously and appropriately placed throughout the site. • Refuse must also be protected from rain, which may cause pollutants to leach out. Caution is to be exercised with regards to handling of hazardous waste, to ensure that it does not spill or leak from the waste collection containers. • If skips are utilised for waste storage, these shall be provided with tarpaulins/lids to prevent the ingress of water and waste being blown by the wind. • Skips utilised for inert waste streams such as concrete rubble or wood do not need to be covered with tarps. • Where a registered disposal facility is not available close to the site, the Contractor shall provide a method statement with regard to waste management. Under no circumstances may domestic waste be burned on site.
	Impact on heritage resources	-1.25	<ul style="list-style-type: none"> • Implement a chance find procedures in case where possible heritage finds are uncovered (refer to HIA).
	Loss of fossil heritage	-1.25	<ul style="list-style-type: none"> • In the event that fossil material exists within the proposed development area any negative or detrimental impact upon it could be mitigated by describing and collecting well-preserved fossils by a professional palaeontologist. These actions should take place after vegetation clearance has taken place but before the ground is levelled for construction. Excavation of fossil heritage will require a permit from SAHRA and the material must be housed in a permitted institution. If an excavation

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
			is impossible or inappropriate, the fossil or fossil locality could be protected and the site of any planned construction and infrastructure moved.
	Destruction, further loss and fragmentation of the of habitats, ecosystems and vegetation community;	-3.75	<ul style="list-style-type: none"> • All high sensitivity areas (i.e. CBA1 areas) should be avoided (if feasible), and development must be prioritised in medium sensitivity areas. • Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should under no circumstances be fragmented or disturbed further. Clearing of vegetation should be minimized and avoided where possible. All activities must be restricted to within the low/medium sensitivity areas. No further loss of high sensitivity areas should be permitted (i.e. CBA1). It is recommended that areas to be developed be specifically demarcated so that during the construction phase, only the demarcated areas be impacted upon. • Existing servitudes, access routes, especially roads must be made use of as far as possible. • All laydown, chemical toilets etc. should be restricted to medium or low sensitivity areas. Any materials may not be stored for extended periods of time and must be removed from the project area once the construction phase has been concluded. No permanent construction phase structures should be permitted. Construction buildings should preferably be prefabricated or constructed of re-usable/recyclable materials. No storage of vehicles or equipment will be allowed outside of the designated project areas. • A hydrocarbon spill management plan must be put in place to ensure that should there be any chemical spill that it does not run into the surrounding areas. The Contractor shall be in possession of an emergency spill kit that must always be complete and available on site. Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use. No servicing of equipment on site unless necessary. All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers. Appropriately
	Introduction of alien species, especially plants	-1.25	
	Destruction of protected plant species	-6.00	
	Displacement of faunal community due to habitat loss, direct mortalities and disturbance (road collisions, noise, dust, vibration and poaching)	-2.00	

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
			<p>contain any generator diesel storage tanks, machinery spills (e.g. accidental spills of hydrocarbons oils, diesel etc.) in such a way as to prevent them leaking and entering the environment. Construction activities and vehicles could cause spillages of lubricants, fuels and waste material potentially negatively affecting the functioning of the ecosystem. All vehicles and equipment must be maintained, and all re-fuelling and servicing of equipment is to take place in demarcated areas.</p> <ul style="list-style-type: none"> • It should be made an offence for any staff to take/ bring any plant species into/out of any portion of the project area. No plant species whether indigenous or exotic should be brought into/taken from the project area, to prevent the spread of exotic or invasive species or the illegal collection of plants. • A fire management plan needs to be compiled and implemented to restrict the impact fire might have on the surrounding areas. • Any individual of the protected plants that are present needs a relocation or destruction permit in order for any individual to be removed or destroyed due to the development. High visibility flags must be placed near any threatened/protected plants not being removed or destroyed in order to avoid any damage or destruction of the species. If left undisturbed the sensitivity and importance of these species needs to be part of the environmental awareness program. All protected and red-data plants should be relocated where reasonably practicable, and as many other geophytic and succulent species as possible, to similar habitats where they should be able to resprout and flourish again. • A pre-construction survey by a suitably qualified ecologist in the flowering season (July-September) should be conducted to ensure that a more comprehensive floral presence confirmation. For the threatened species that may not be destroyed, it is recommended that professional service providers that deal with plant search and rescue be used to remove such plants and use them either for later rehabilitation work or other conservation projects.

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
			<ul style="list-style-type: none"> • A qualified environmental control officer must be on site when construction begins. In situations where the threatened and protected plants must be removed, the proponent may only do so after the required permission/permits have been obtained in accordance with national and provincial legislation. In the abovementioned situation the development of a search, rescue and recovery program is suggested for the protection of these species. Should animals not move out of the area on their own relevant specialists must be contacted to advise on how the species can be relocated. • The areas to be developed must be specifically demarcated to prevent movement of staff or any individual into the surrounding environments. Signs must be put up to enforce this • The duration of the construction should be minimized to as short term as possible, to reduce the period of disturbance on fauna. • Noise must be kept to an absolute minimum during the evenings and at night to minimize all possible disturbances to amphibian species and nocturnal mammals. • No trapping, killing, or poisoning of any wildlife is to be allowed. Signs must be put up to enforce this. • Outside lighting should be designed and limited to minimize impacts on fauna. All outside lighting should be directed away from highly sensitive areas. Fluorescent and mercury vapor lighting should be avoided and sodium vapor (green/red) lights should be used wherever possible. • All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. Speed limits must be enforced to ensure that road killings and erosion is limited.

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
			<ul style="list-style-type: none"> • Schedule activities and operations during least sensitive periods where possible, to avoid migration, nesting and breeding seasons. • All areas to be developed must be walked through prior to any activity to ensure no nests or fauna species are found in the area. Should any Species of Conservation Concern not move out of the area or their nest be found in the area a suitably qualified specialist must be consulted to advise on the correct actions to be taken. • Any holes/deep excavations must be dug and planted in a progressive manner and shouldn't be left open overnight. Should the holes remain overnight they must be restricted temporarily to ensure no small fauna species fall in. • Ensure that cables and connections are insulated successfully to reduce electrocution risk. • Compilation of and implementation of an alien vegetation management plan. • The footprint area of the construction should be kept to a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas. Footprint of the roads must be kept to prescribed widths. • Waste management must be a priority and all waste must be collected and stored adequately. It is recommended that all waste be removed from site on a weekly basis to prevent rodents and pests entering the site. • A pest control plan must be put in place and implemented; it is imperative that poisons not be used due to the likely presence of SCCs. • Dust-reducing mitigation measures must be put in place and must be strictly adhered to. This includes wetting of exposed soft soil surfaces. No non-environmentally friendly suppressants may be used as this could result in pollution of water sources.

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
			<ul style="list-style-type: none"> • All personnel and contractors to undergo Environmental Awareness Training. A signed register of attendance must be kept for proof. Discussions are required on sensitive environmental receptors within the project area to inform contractors and site staff of the presence of Red / Orange List species, their identification, conservation status and importance, biology, habitat requirements and management requirements of the EA and EMPr. The avoidance and protection of the wetland areas must be included in the site induction. Contractors and employees must all undergo the induction and be made aware of “no-go” areas to be avoided. • Speed limits must be put in place to reduce erosion. Signs must be put up to enforce this. • Areas that are temporarily denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood events and strong winds. • A stormwater management plan must be compiled and implemented.
	Destruction of bird habitat	-9.84	<ul style="list-style-type: none"> • All construction activities should be strictly managed according to generally accepted environmental best practice standards, so as to avoid any unnecessary impact on the receiving environment. • All temporary disturbed areas should be rehabilitated according to the site’s rehabilitation plan, following construction.
	Disturbance of birds	-1.75	<ul style="list-style-type: none"> • All construction activities should be strictly managed according to generally accepted environmental best practice standards, so as to avoid any unnecessary impact on the receiving environment. • All temporary disturbed areas should be rehabilitated according to the site’s rehabilitation plan, following construction.

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
Operation	Visual Impact	-3.50	<ul style="list-style-type: none"> • Only indigenous vegetation is to be used for rehabilitation. • Alien vegetation shall be removed from the development.
	Continued fragmentation and degradation of habitats and ecosystems	-2.50	<ul style="list-style-type: none"> • Existing servitudes, access routes, especially roads must be made use of.
	Spread of alien and/or invasive species	-1.50	<ul style="list-style-type: none"> • It should be made an offence for any staff to take/ bring any plant species into/out of any portion of the project area. No plant species whether indigenous or exotic should be brought into/taken from the project area, to prevent the spread of exotic or invasive species or the illegal collection of plants.
	Ongoing displacement and direct mortalities of faunal community (including SCC) due to disturbance (road collisions, collisions with substation, noise, light, dust, vibration)	-3.00	<ul style="list-style-type: none"> • Outside lighting should be designed and limited to minimize impacts on fauna. All outside lighting should be directed away from highly sensitive areas. Fluorescent and mercury vapor lighting should be avoided and sodium vapor (green/red) lights should be used wherever possible. • Ensure that cables and connections are insulated successfully to reduce electrocution risk. • Any exposed parts must be covered (insulated) to reduce electrocution risk. • Compilation of and implementation of an alien vegetation management plan. • Where possible, existing access routes and walking paths must be made use of. • A stormwater management plan must be compiled and implemented.
	Collision of birds with overhead cables	-8.94	<ul style="list-style-type: none"> • The overhead cables (specifically the earth wires) on both power lines should be fitted with an approved anti bird collision line marking device to make cables more visible to birds in flight and reduce the likelihood of collisions. This should be done according to the Eskom Distribution and Transmission standards in terms of device spacing and other factors. Literature around the world points towards a 50-60% reduction in bird collision risk if the line is marked (Jenkins, Smallie & Diamond,

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
			<p>2010; Shaw et al, 2021). The line marking device should be a dynamic (moving – bird flapper type) device.</p> <ul style="list-style-type: none"> • The new power line should be patrolled during operation by Eskom annually to measure any impacts on birds (through detecting collision fatalities) and to monitor the durability of the line marking devices. • Where multiple devices on a span have failed (broken off or become stuck and non-dynamic due to wind) they should be replaced immediately. • Any recorded bird fatality data should be submitted to the Eskom–EWT Strategic Partnership where it will be curated and publicly accessible.
	Electrocution of birds on pylons	-3.00	<ul style="list-style-type: none"> • It is recommended as a precautionary measure that the standard Eskom Bird Perch be fitted to all pole tops to further provide safe perching substrate well above dangerous hardware. • It is also essential that if any of the pylon structures are changed an avifaunal specialist is given opportunity to assess the electrocution risk of the new structure and design mitigation.

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.

Alternative A (preferred alternative)

The findings of the specialist studies conclude that there are no environmental fatal flaws that should prevent the proposed project from proceeding, provided that the recommended mitigation and management measures are implemented.

Based on the nature and extent of the proposed and the predicted impacts as a result of the construction and operation of the development, the findings of the BA, and the understanding of the mostly low to moderate post-mitigation significance level of potential environmental impacts, it is the opinion of the EAP that the environmental impacts associated with the application for the proposed project can be mitigated to an acceptable level and the project should be authorized.

Alternative B

[Redacted]

Alternative C

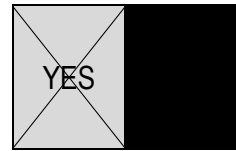
[Redacted]

No-go alternative (compulsory)

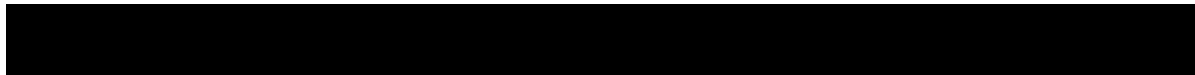
The No-go Alternative would involve maintaining the status quo of the current site. The potential environmental impacts associated with the construction of the OHL and associated infrastructure would not be effected. However, this alternative would affect the ability of the Struisbult PV2 facility to connect to the National Grid and as a result, this renewable energy project would not be able to proceed

SECTION E: RECOMMENDATION OF PRACTITIONER

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



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

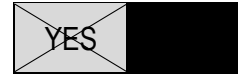


If “YES”, please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

- All high sensitivity areas (i.e. CBA1 areas) should be avoided (if feasible), and development must be prioritised in medium sensitivity areas.
- Existing servitudes, access routes, especially roads must be made use of as far as possible.
- Any individual of the protected plants that are present needs a relocation or destruction permit in order for any individual to be removed or destroyed due to the development. High visibility flags must be placed near any threatened/protected plants not being removed or destroyed in order to avoid any damage or destruction of the species. If left undisturbed the sensitivity and importance of these species needs to be part of the environmental awareness program. All protected and red-data plants should be relocated where reasonably practicable, and as many other geophytic and succulent species as possible, to similar habitats where they should be able to resprout and flourish again.
- A pre-construction survey by a suitably qualified ecologist in the flowering season (July-September) should be conducted to ensure that a more comprehensive floral presence confirmation. For the threatened species that may not be destroyed, it is recommended that professional service providers that deal with plant search and rescue be used to remove such plants and use them either for later rehabilitation work or other conservation projects.
- Schedule activities and operations during least sensitive periods where possible, to avoid migration, nesting and breeding seasons.
- Compilation of and implementation of an alien vegetation management plan.
- All construction activities should be strictly managed according to generally accepted environmental best practice standards, so as to avoid any unnecessary impact on the receiving environment.
- All temporary disturbed areas should be rehabilitated according to the site’s rehabilitation plan, following construction.
- The overhead cables (specifically the earth wires) on both power lines should be fitted with an approved anti bird collision line marking device to make cables more visible to birds in flight and reduce the likelihood of collisions. This should be done according to the Eskom Distribution and Transmission standards in terms of device spacing and other factors. Literature around the world points towards a 50-60% reduction in bird collision risk if the line is marked (Jenkins, Smallie & Diamond, 2010; Shaw et al, 2021). The line marking device should be a dynamic (moving – bird flapper type) device.

BASIC ASSESSMENT REPORT

Is an EMPr attached?



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.

I **Gideon Kriel** herewith undertake that:

- the information provided in the foregoing report is correct to the best of my knowledge, and that the comments and inputs from stakeholders and Interested and Affected Parties has been correctly recorded in the report where applicable; and
- the information provided in the foregoing report is correct, and that the level of agreement with Interested and Affected Parties and stakeholders has been correctly recorded and reported herein.

Signature of the EAP

Date: 2022/03/14

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

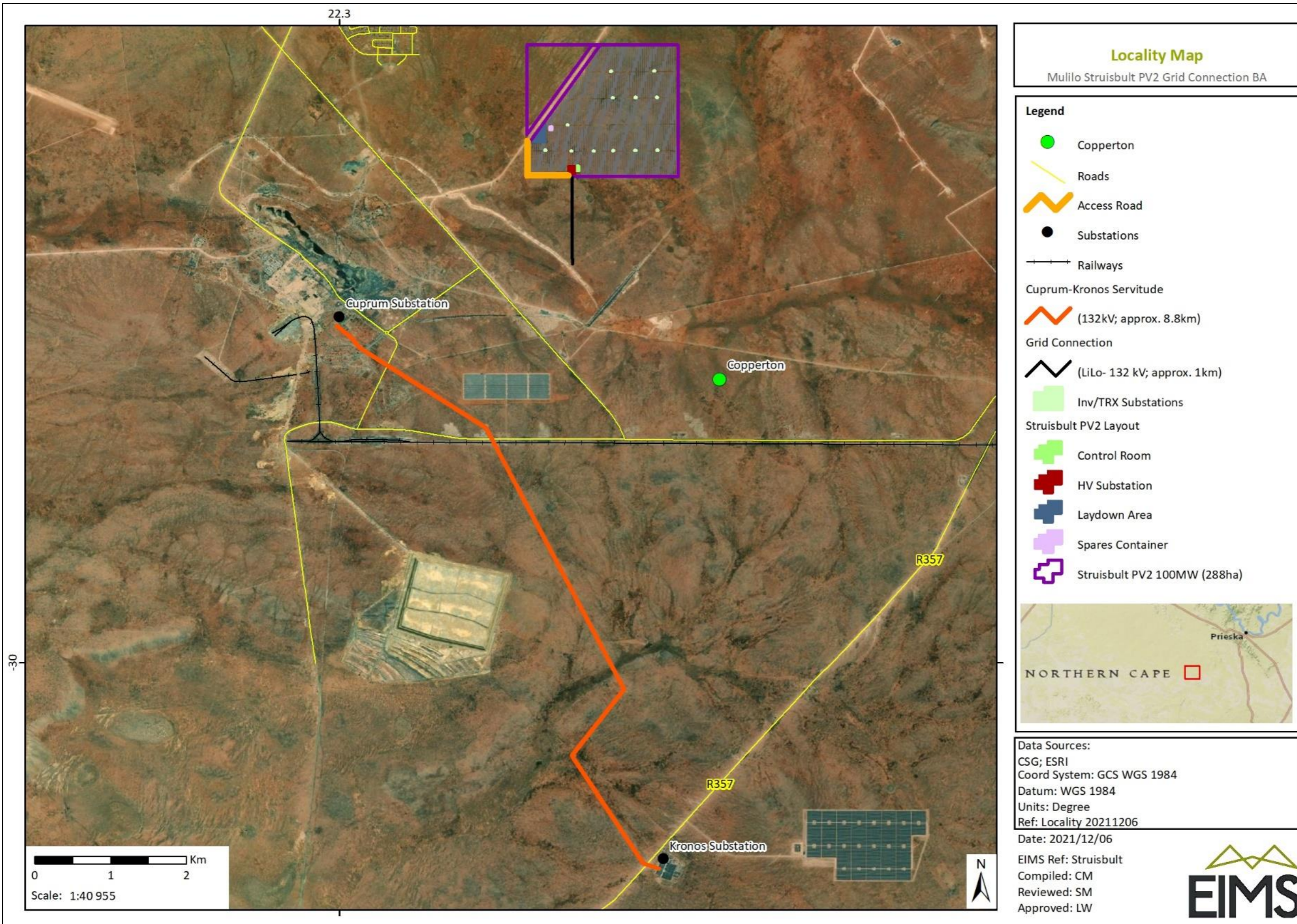
Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

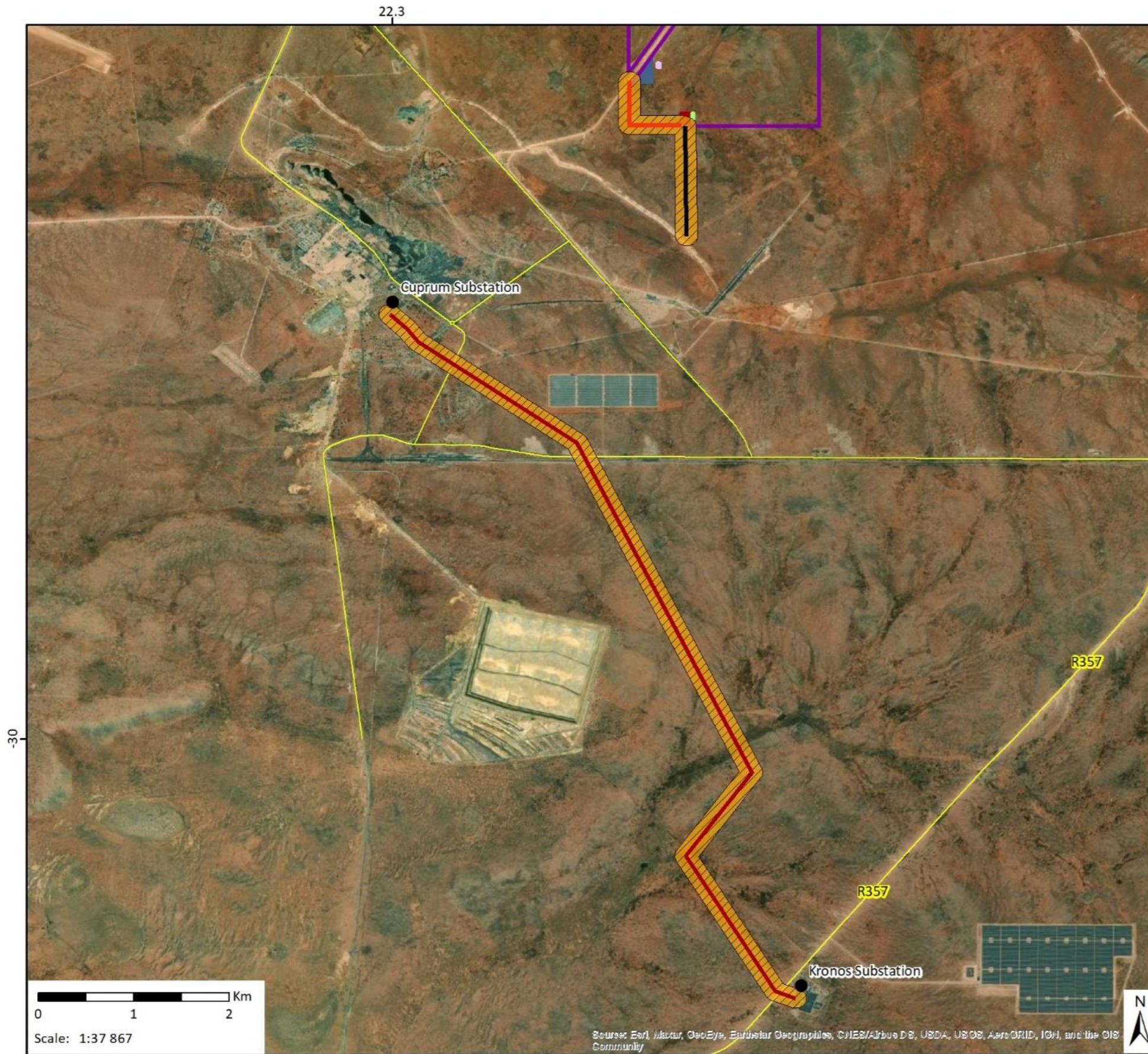
Appendix I: Specialist's declaration of interest

Appendix J: Additional Information

Appendix A: Maps



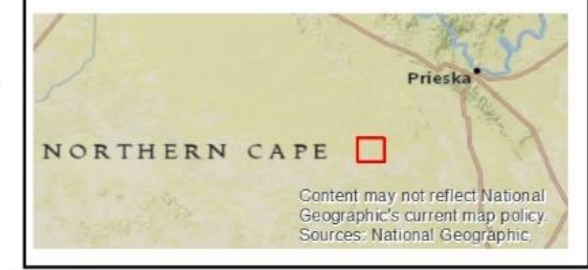
BASIC ASSESSMENT REPORT



Sensitivity Map

Mulilo Struisbult PV2 Grid Connection BA

- Legend**
- Substations
- Feature**
- Access Road
 - Kronos-Cuprum Line
 - LILO Line
 - ▨ Medium Ecological Sensitivity
 - ▨ Medium Avifaunal Sensitivity
- Struisbult PV2 Layout**
- Control Room
 - HV Substation
 - Laydown Area
 - Spares Container
 - Struisbult PV2 100MW (288ha)
 - Roads



Data Sources:
 CSG; ESRI
 Coord System: GCS WGS 1984
 Datum: WGS 1984
 Units: Degree
 Ref: Sensitivity 20220211
 Date: 2022/02/13

EIMS Ref: 1480
 Compiled: GPK
 Reviewed: GPK
 Approved: LW



BASIC ASSESSMENT REPORT

132 KV Transmission Line Coordinates

Point	Latitude	Longitude
1 (North)	29°57'35.858"S	22°17'59.062"E
2	29°57'41.682"S	22°18'05.549"E
3	29°57'45.342"S	22°18'08.738"E
4	29°57'52.047"S	22°18'19.289"E
5	29°57'56.754"S	22°18'26.695"E
6	29°58'01.461"S	22°18'34.102"E
7	29°58'6.167"S	22°18'41.509"E
8	29°58'10.874"S	22°18'48.916"E
9	29°58'15.580"S	22°18'56.323"E
10	29°58'19.513"S	22°19'02.514"E
11	29°58'27.955"S	22°19'06.982"E
12	29°58'35.206"S	22°19'10.821"E
13	29°58'42.456"S	22°19'14.659"E
14	29°58'49.707"S	22°19'18.498"E
15	29°58'56.958"S	22°19'22.337"E
16	29°59'04.209"S	22°19'26.176"E
17	29°59'11.459"S	22°19'30.015"E
18	29°59'18.710"S	22°19'33.854"E
19	29°59'25.961"S	22°19'37.693"E
20	29°59'33.211"S	22°19'41.533"E
21	29°59'40.462"S	22°19'45.373"E
22	29°59'47.712"S	22°19'49.213"E
23	29°59'54.963"S	22°19'53.053"E
24	30°00'02.213"S	22°19'56.893"E
25	30°00'11.315"S	22°20'01.714"E
26	30°00'16.216"S	22°19'57.846"E
27	30°00'22.797"S	22°19'52.653"E
28	30°00'29.378"S	22°19'47.459"E
29	30°00'35.958"S	22°19'42.265"E
30	30°00'39.648"S	22°19'39.353"E
31	30°00'49.606"S	22°19'45.944"E
32	30°00'56.524"S	22°19'50.523"E
33	30°01'03.442"S	22°19'55.102"E
34	30°01'10.360"S	22°19'59.681"E
35	30°01'17.278"S	22°20'04.261"E
36	30°01'25.525"S	22°20'09.720"E
37 (South)	30°01'27.971"S	22°20'16.579"E

Appendix B: Photographs

BASIC ASSESSMENT REPORT



Panoramic 1



Panoramic 2

BASIC ASSESSMENT REPORT



Panoramic 3



Panoramic 4



Panoramic 5



Panoramic 6

BASIC ASSESSMENT REPORT



Panoramic 7



Panoramic 8



Panoramic 9



Panoramic 10

BASIC ASSESSMENT REPORT



Panoramic 11



Panoramic 12



Panoramic 13



Panoramic 14

BASIC ASSESSMENT REPORT



Panoramic 15



Panoramic 16



Panoramic 17



Panoramic 18

BASIC ASSESSMENT REPORT



Panoramic 19



Panoramic 20



Panoramic 21



Panoramic 22

BASIC ASSESSMENT REPORT



Panoramic 23



Panoramic 24



Panoramic 25



Panoramic 26

BASIC ASSESSMENT REPORT



Panoramic 27



Panoramic 28



Panoramic 29



Panoramic 30

BASIC ASSESSMENT REPORT



Panoramic 31



Panoramic 32

Appendix C: Facility illustration(s)

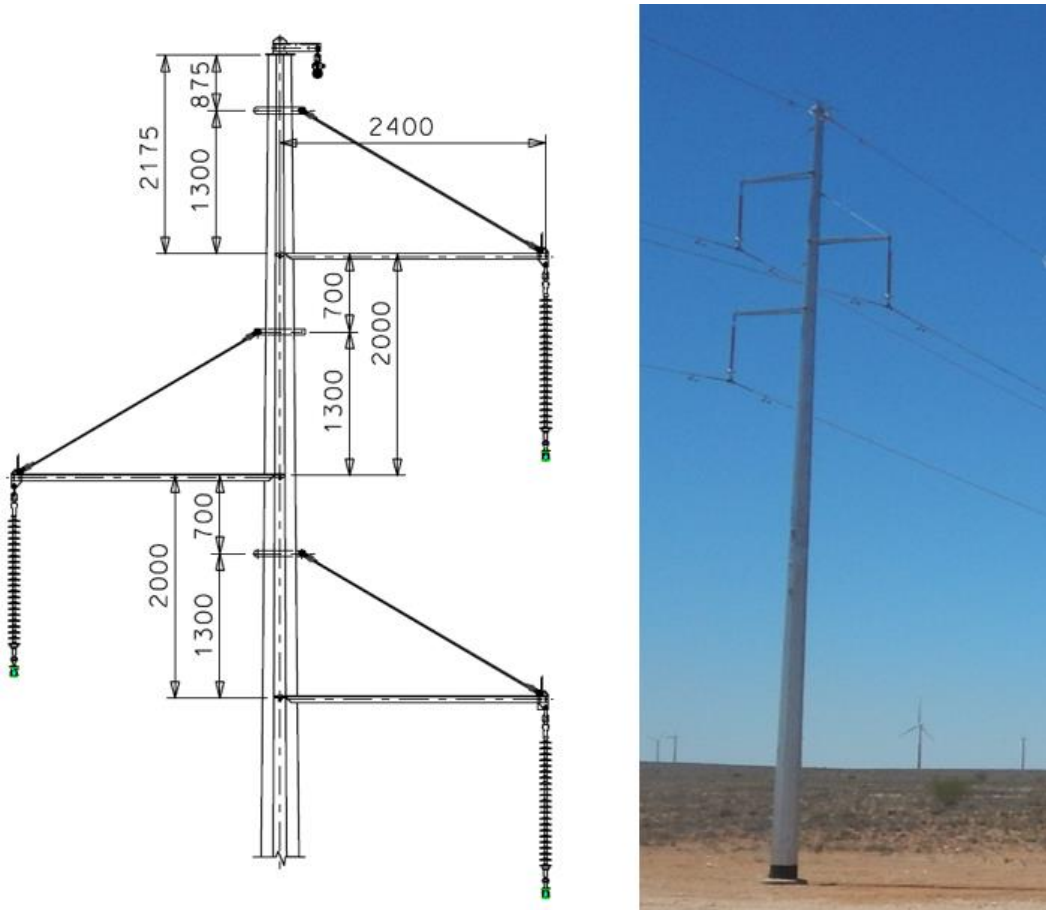


Figure 2: HV tower structures – 24 m Masts, 37 kN

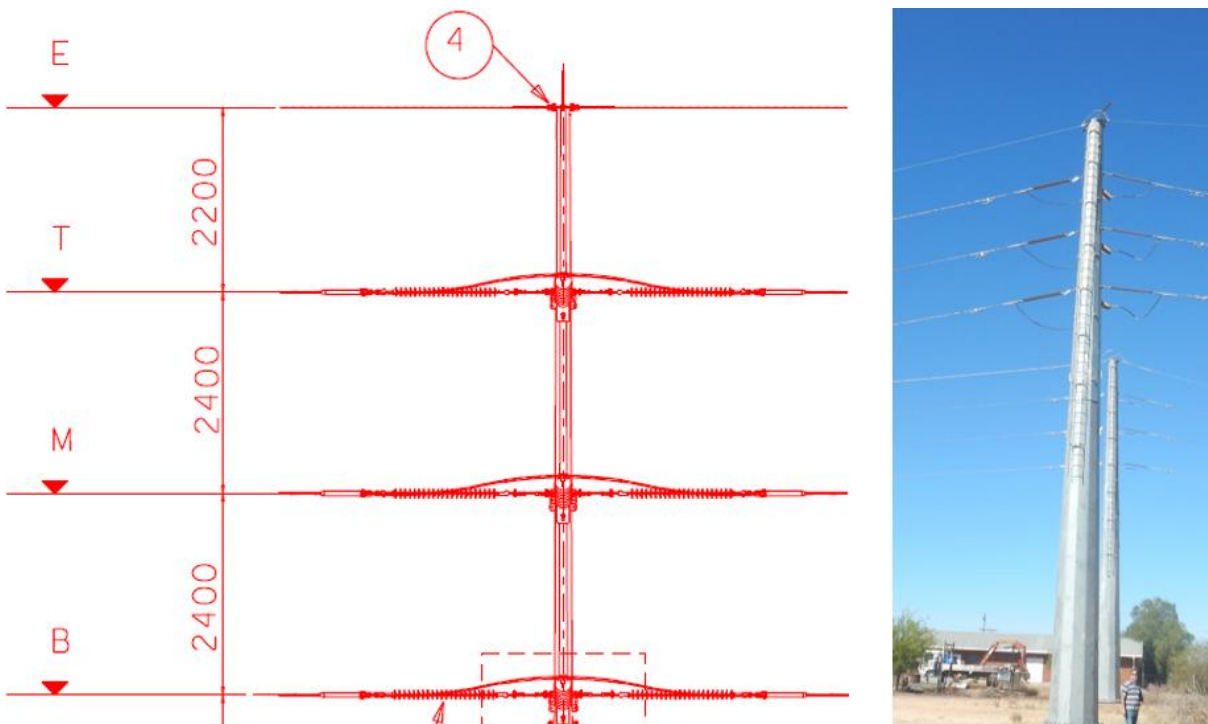


Figure 3: HV tower structures – 16m, 6000 kNm & 16m, 3000 kNm



Legend:
1 & 2 CUP KRO ————
3 CUO KRO ————

Keyplan



Figure 4: HV Lines: Cuprum bay and terminal structure

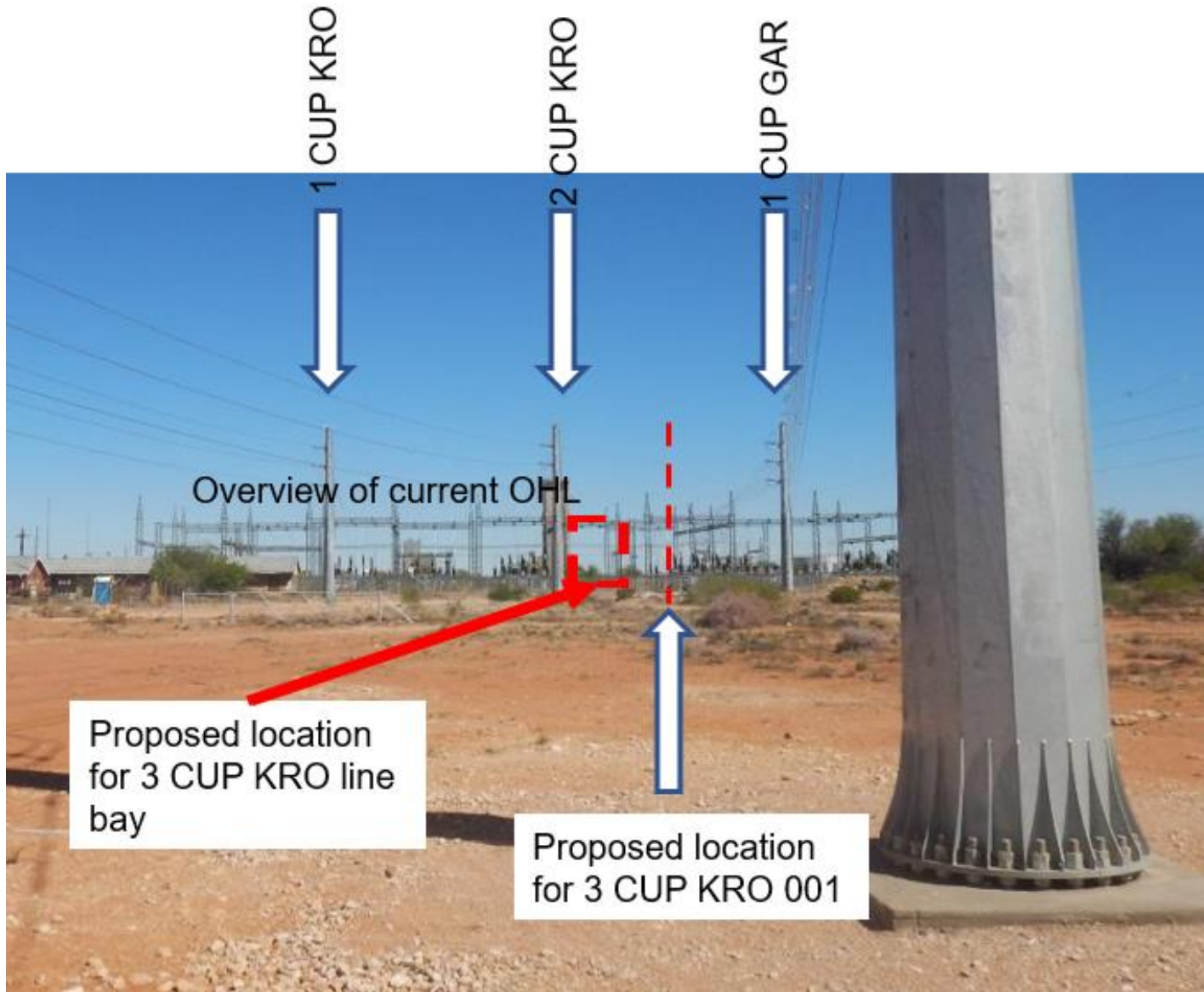


Figure 5: HV Lines: Cuprum bay and terminal structure

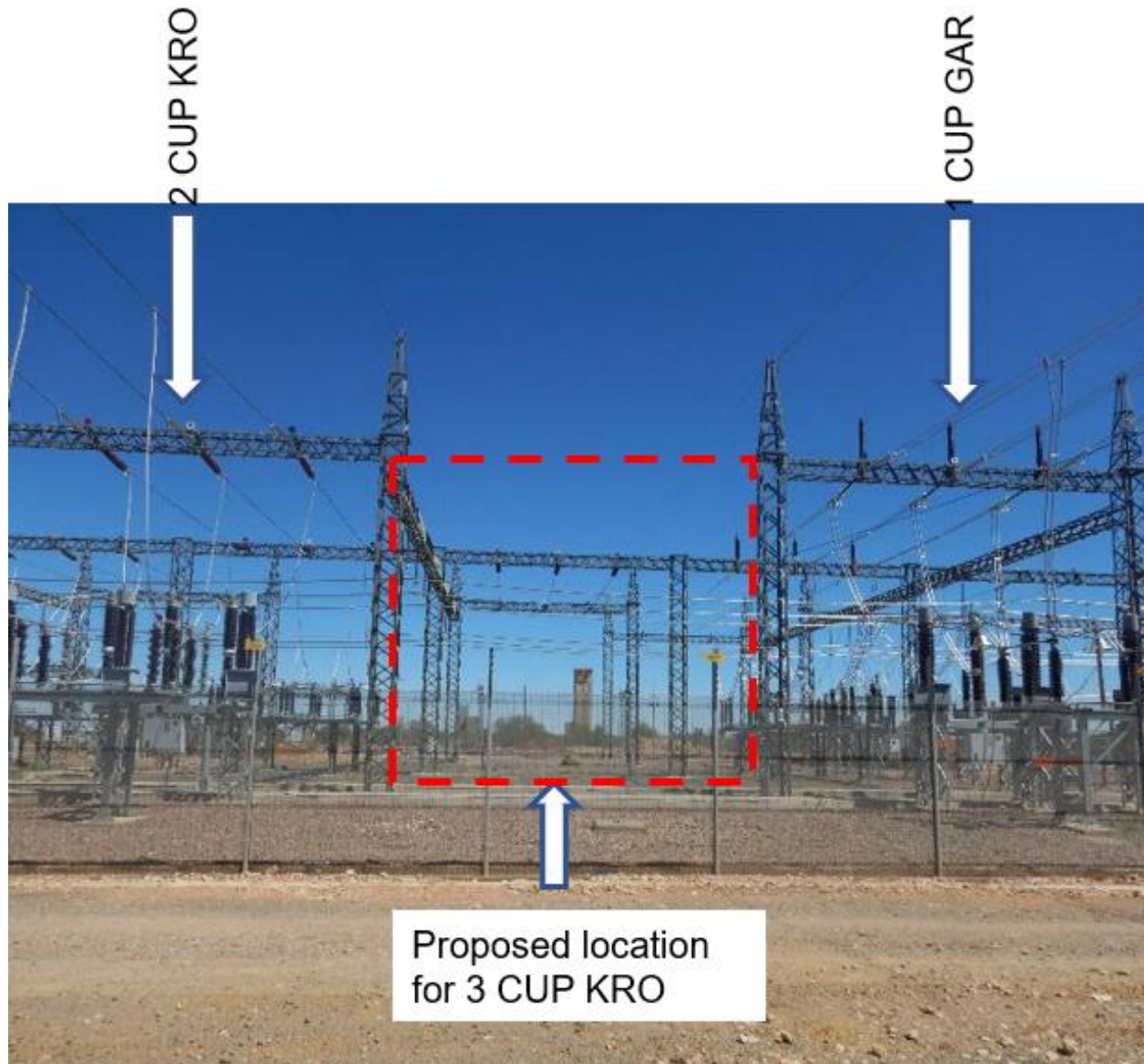
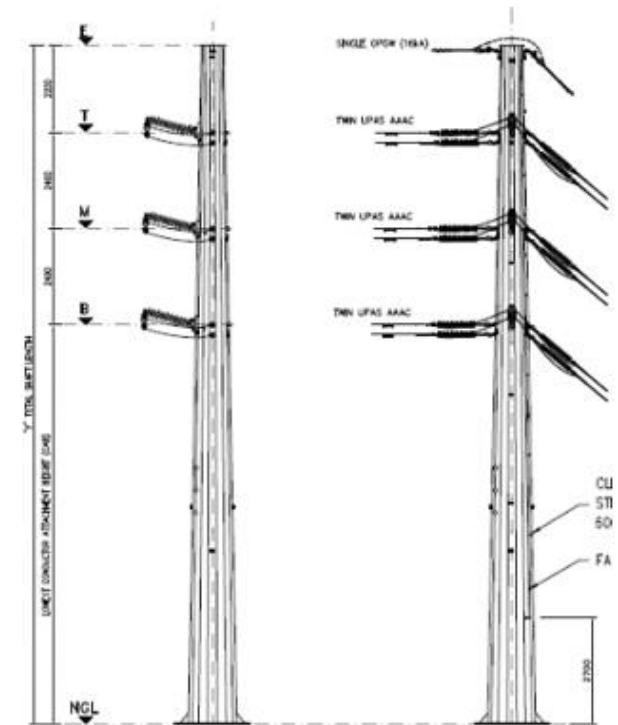


Figure 6: HV Lines: Cuprum bay and terminal structure

Terminal structure, Same as
for 1 CUP GAR 001



Figure 7: HV Lines: Cuprum bay and terminal structure



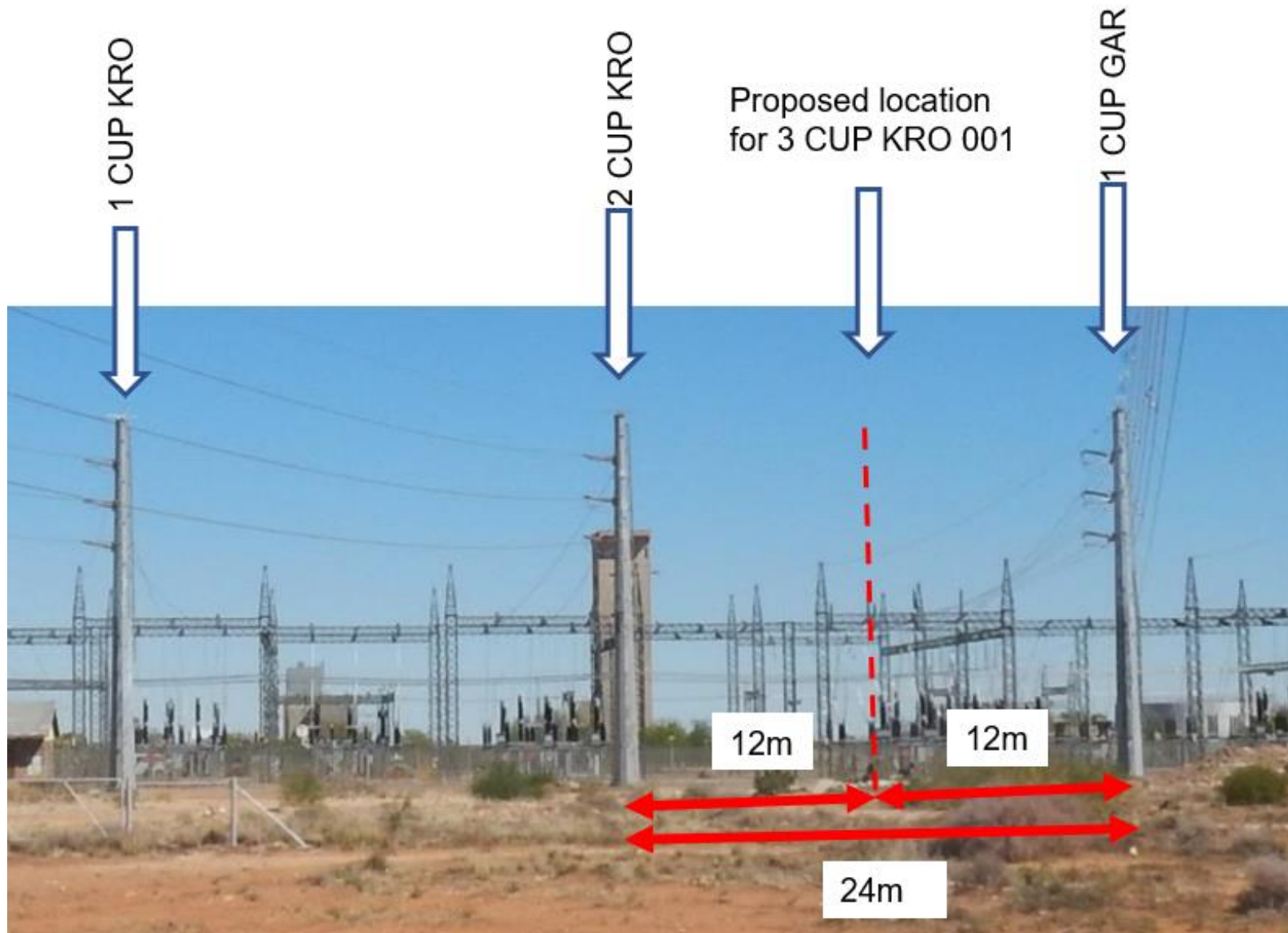


Figure 8: HV Lines: Cuprum bay and terminal structure

Legislated clearances
(SANS 10280)

2 CUP KRO

3 CUP KRO

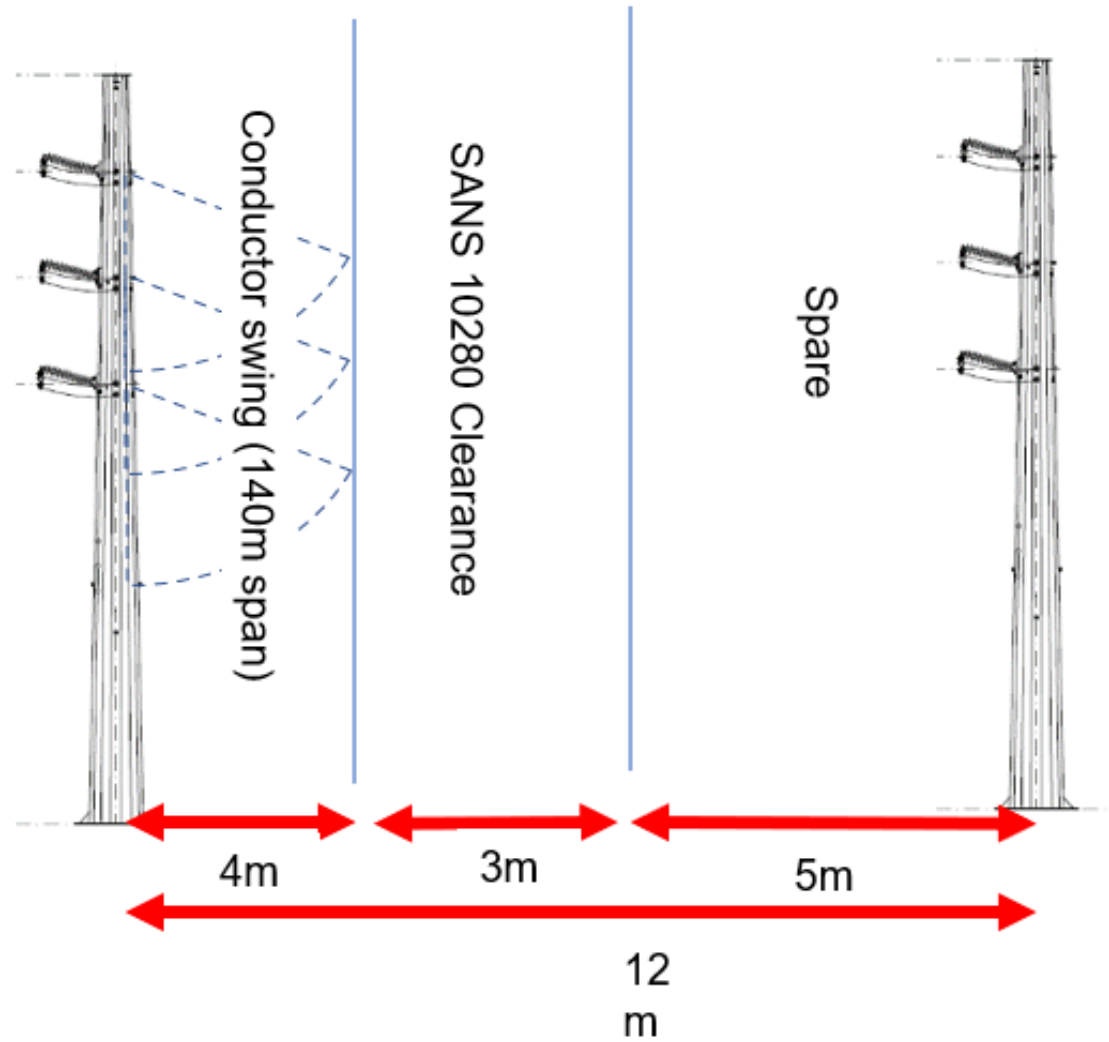


Figure 9: HV Lines: Cuprum bay and terminal structure



Legend:
1 & 2 CUP KRO ————
3 CUO KRO ————

Keyplan



Figure 10: HV Lines: Routing out of the immediate Cuprum area

(Southerly view from Cuprum)

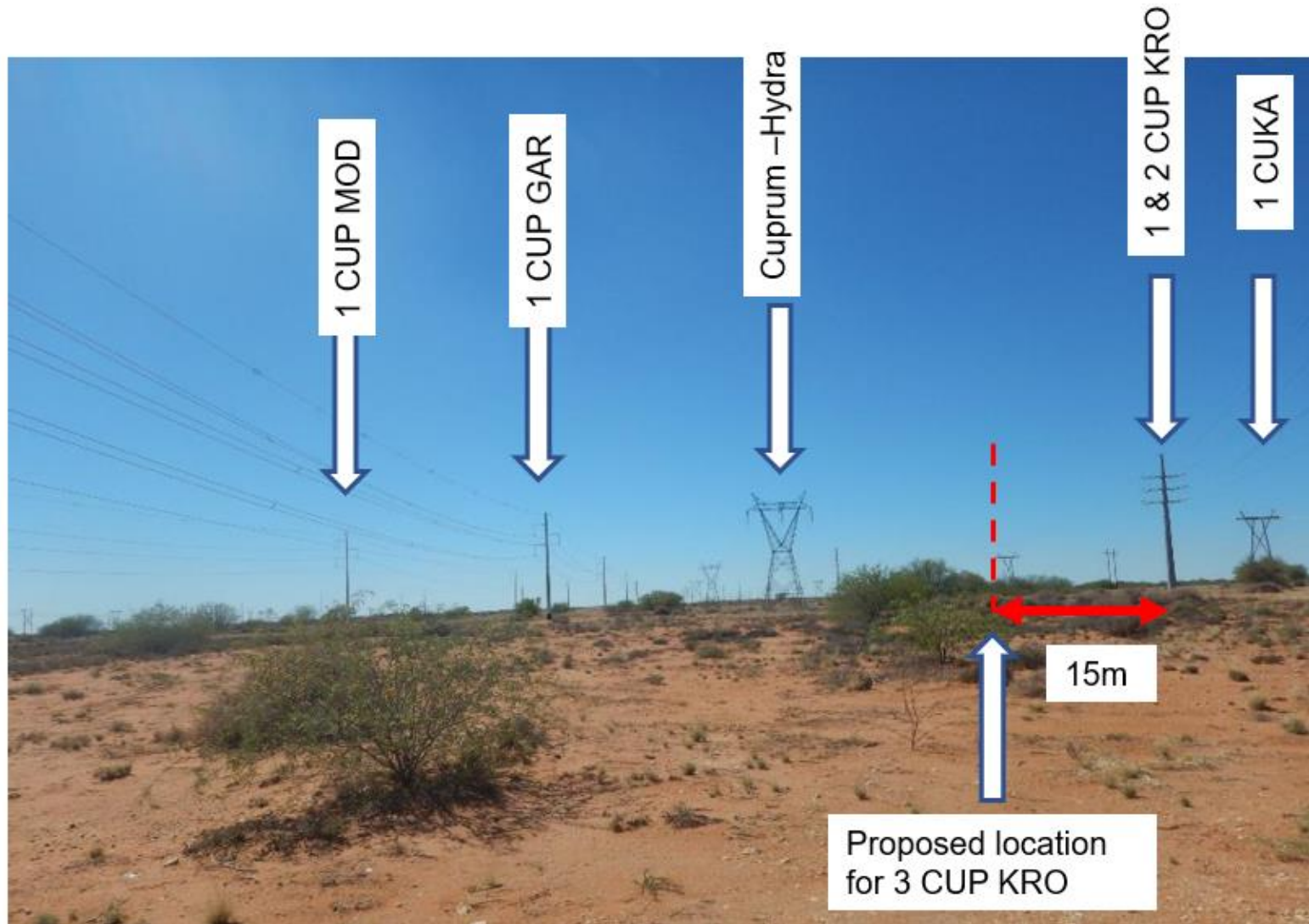


Figure 11: HV Lines: Routing out of the immediate Cuprum area

Position where Cuprum-Hydra line turns away from 1 & 2 CUP KRO



Legend:
1 & 2 CUP KRO
3 CUO KRO



Keyplan



Figure 12: HV Lines: Routing along the line

Position where Cuprum-Hydra line turns away from 1 & 2 CUP KRO

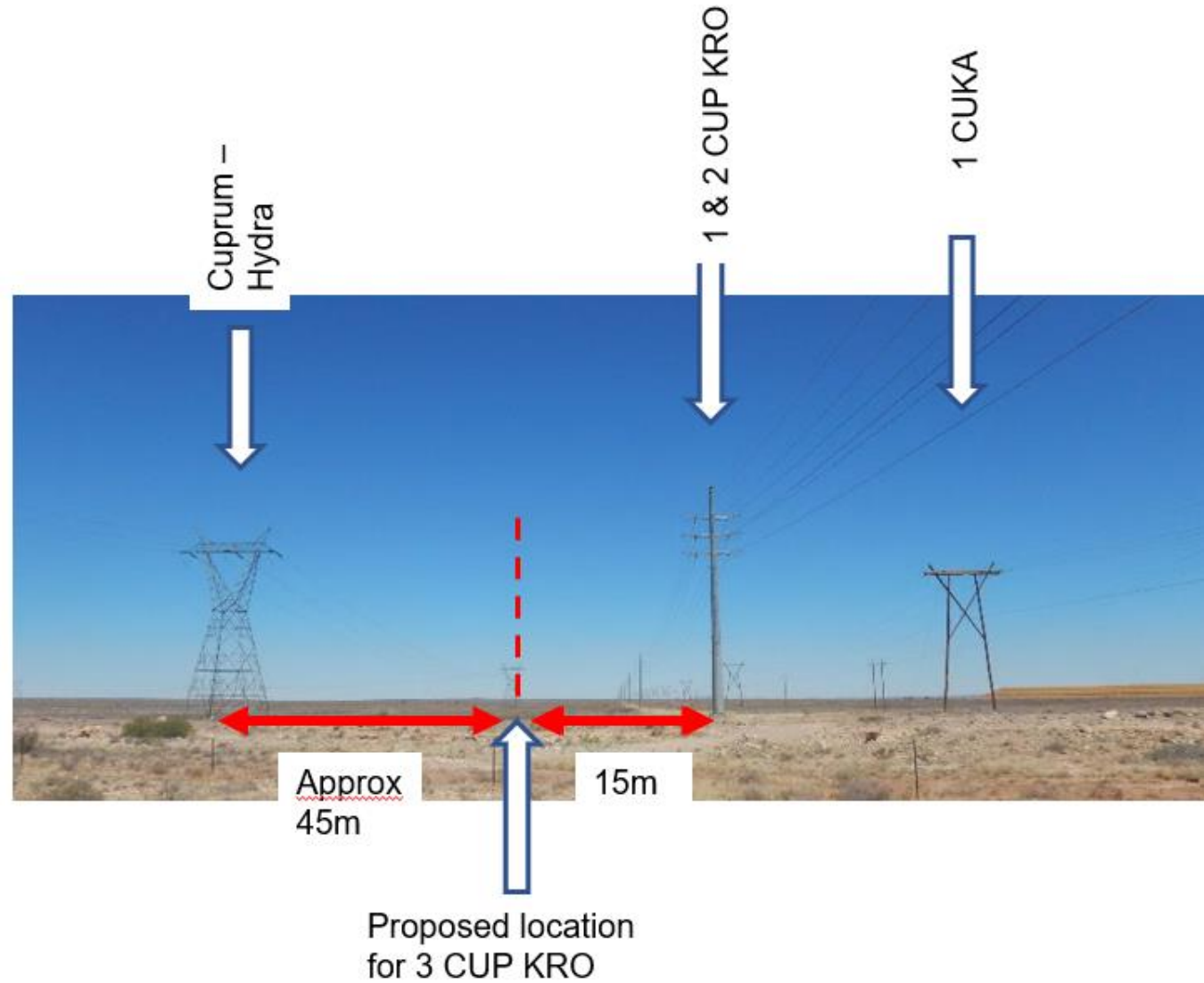


Figure 13: HV Lines: Routing along the line



- Legend:
- 1 & 2 CUP KRO —
 - 3 CUO KRO —
 - IPP KRO —

Key plan



Figure 14: HV Lines: Entrance to Kronos Substation

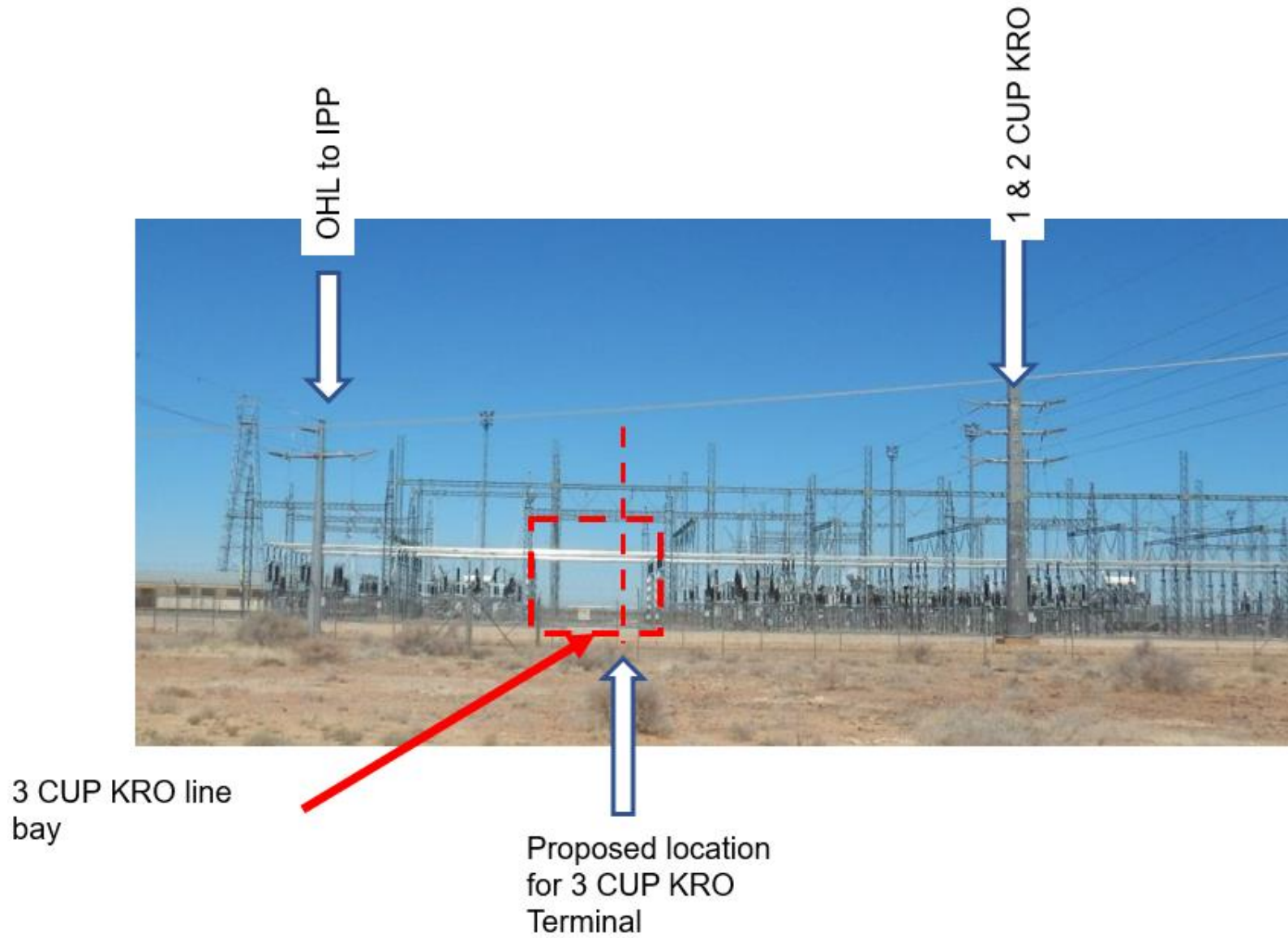


Figure 15: HV Lines: Entrance to Kronos Substation

BASIC ASSESSMENT REPORT

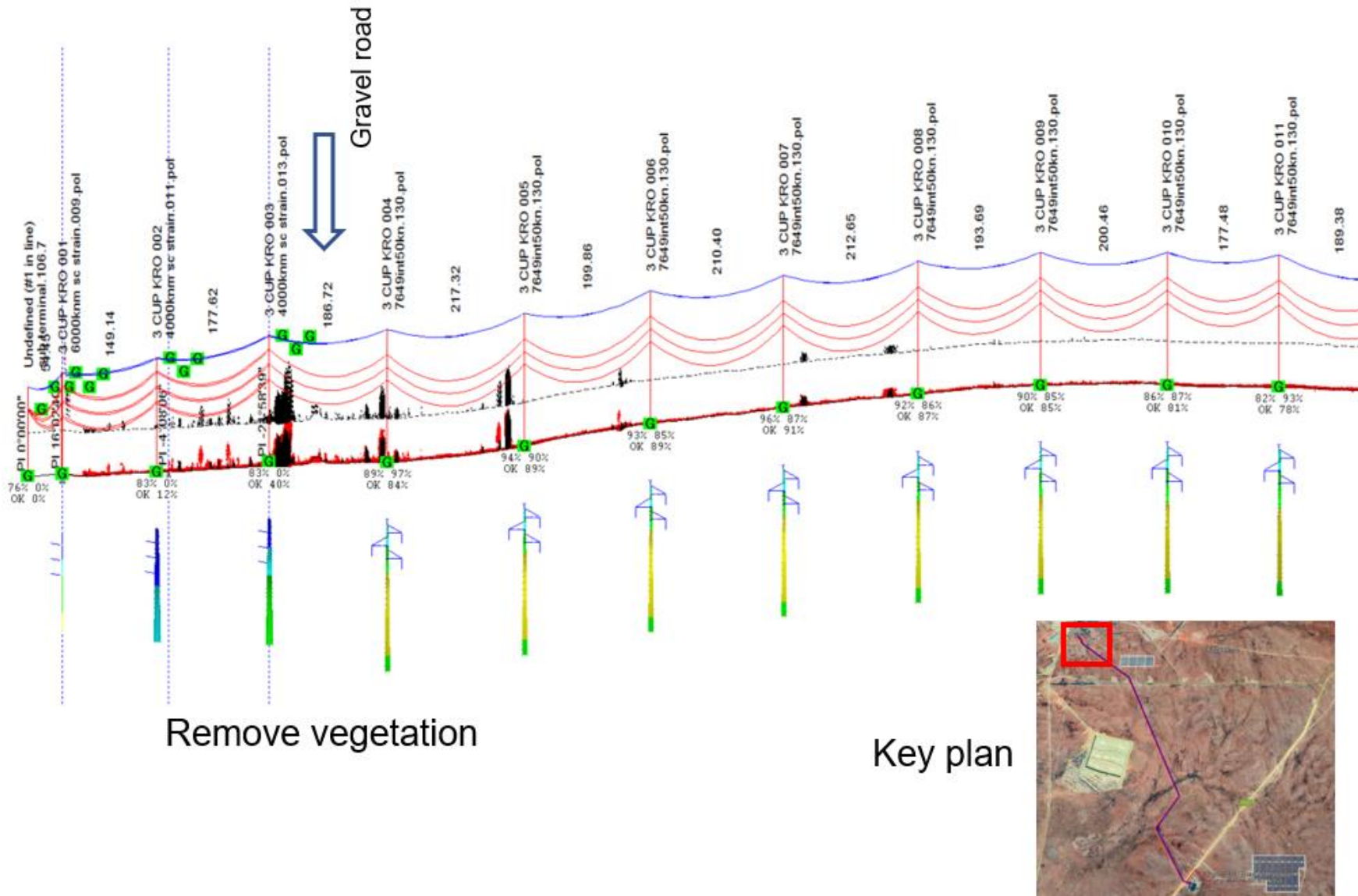


Figure 16: HV Lines: Line Profile

BASIC ASSESSMENT REPORT

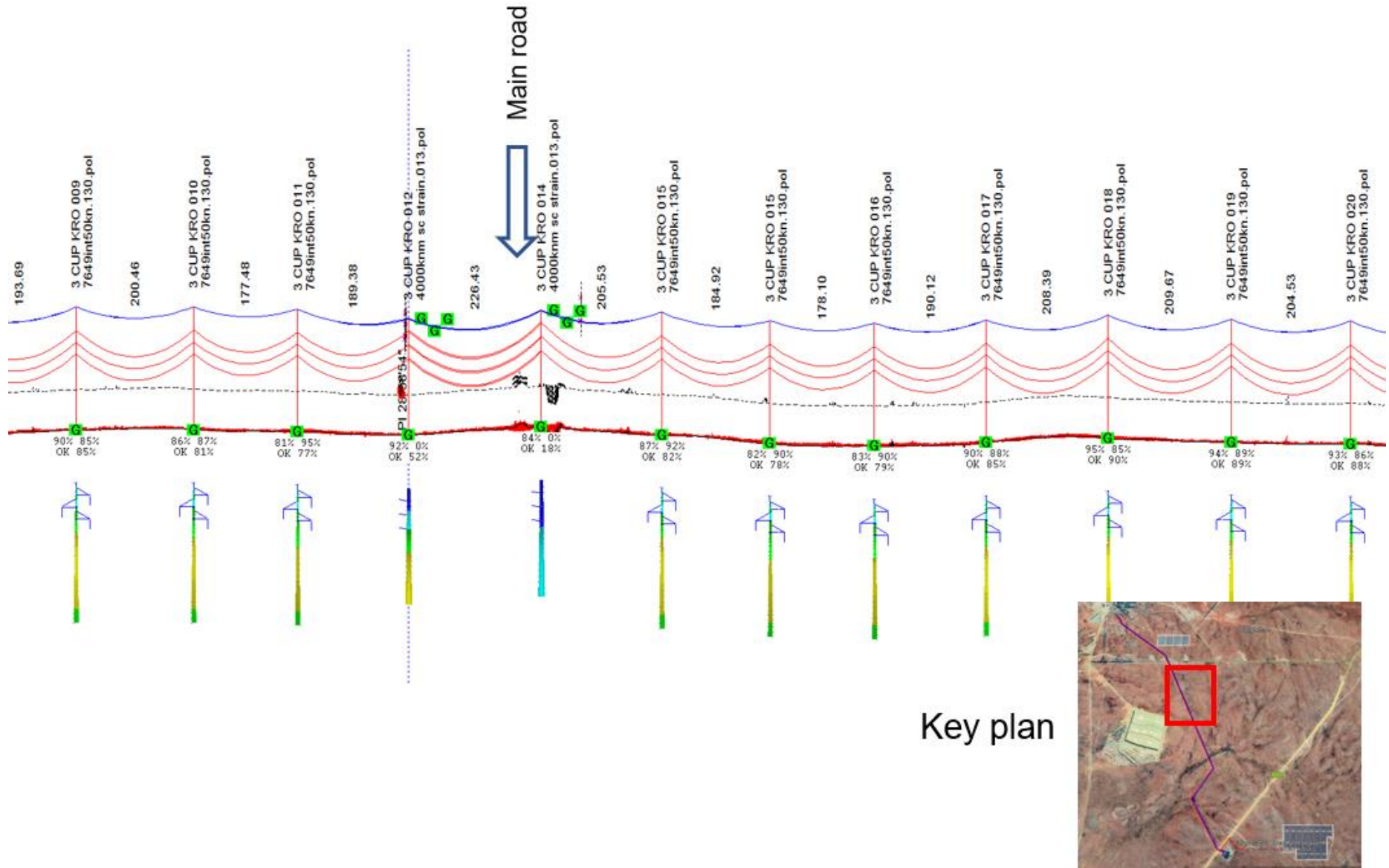


Figure 17: HV Lines: Line Profile

BASIC ASSESSMENT REPORT

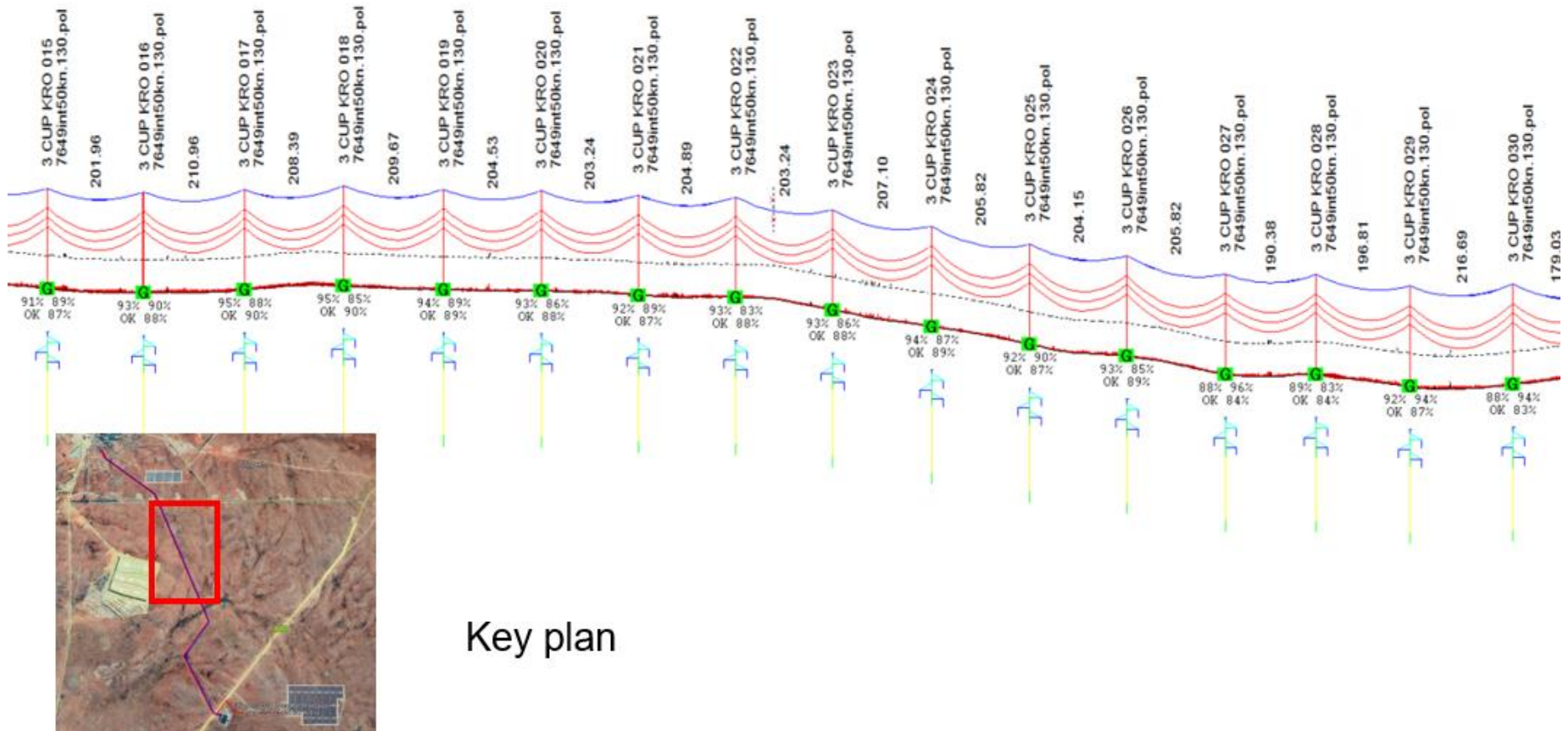


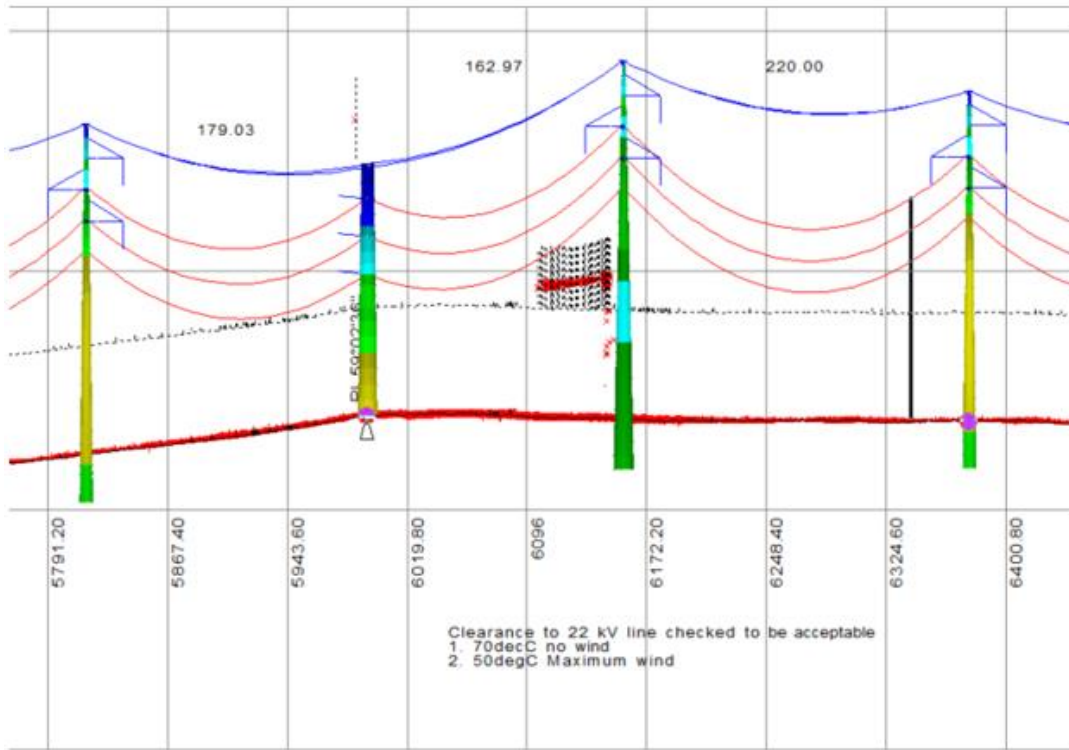
Figure 18: HV Lines: Line Profile

BASIC ASSESSMENT REPORT



Figure 19: HV Lines: Line Profile

BASIC ASSESSMENT REPORT

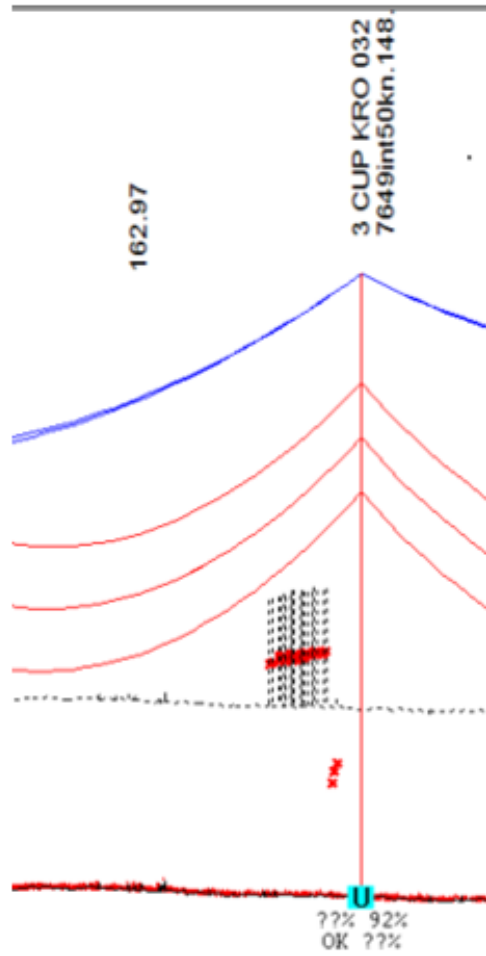


Full servitude width at 70degC



Figure 20: HV Lines: Line Profile (MV crossings)

Still air 70 dec C, 3m width



High wind, 50 dec C

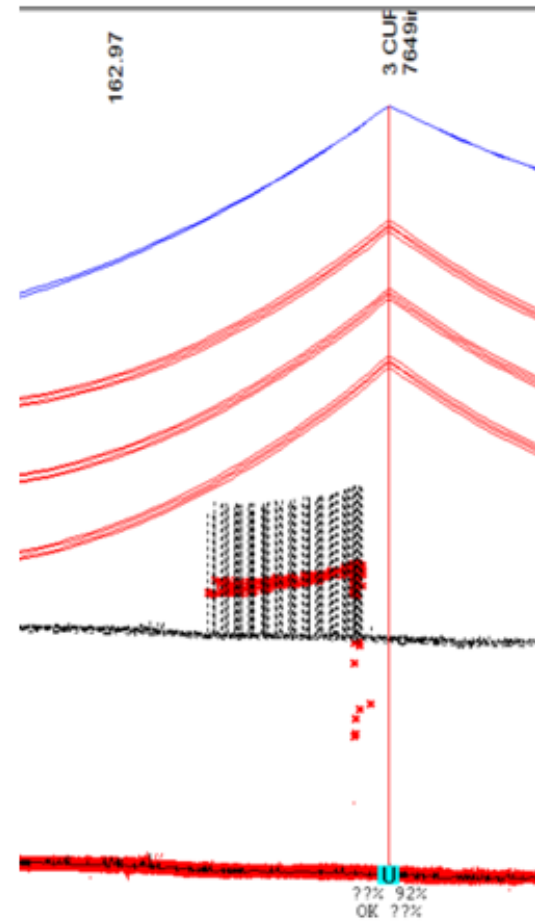


Figure 21: HV Lines: Line Profile (MV crossings)

BASIC ASSESSMENT REPORT

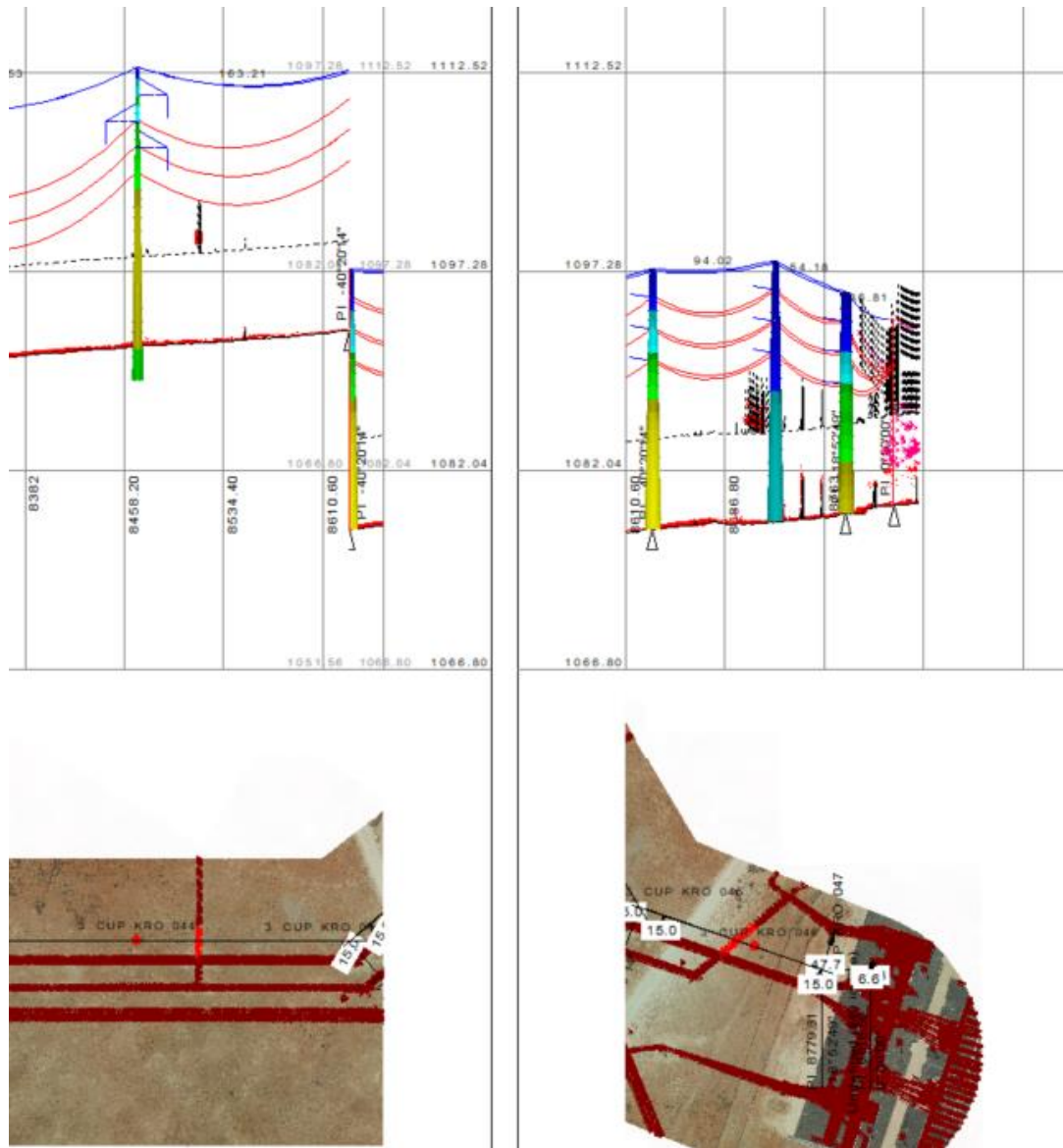


Figure 22: HV Lines: Line Profile (MV crossings)

Appendix D: Specialist Reports

Appendix E: Public Participation

Appendix F: Impact Assessment

1 IMPACT ASSESSMENT METHODOLOGY

The impact significance rating methodology, as provided by EIMS, is guided by the requirements of the NEMA EIA Regulations 2014 (as amended). The broad approach to the significance rating methodology is to determine the environmental risk (ER) by considering the consequence (C) of each impact (comprising Nature, Extent, Duration, Magnitude, and Reversibility) and relate this to the probability / likelihood (P) of the impact occurring. This determines the environmental risk. In addition, other factors, including cumulative impacts and potential for irreplaceable loss of resources, are used to determine a prioritisation factor (PF) which is applied to the ER to determine the overall significance (S). The impact assessment will be applied to all identified alternatives. Where possible, mitigation measures will be recommended for impacts identified.

1.1 DETERMINATION OF ENVIRONMENTAL RISK

The significance (S) of an impact is determined by applying a prioritisation factor (PF) to the environmental risk (ER). The environmental risk is dependent on the consequence (C) of the particular impact and the probability (P) of the impact occurring. Consequence is determined through the consideration of the Nature (N), Extent (E), Duration (D), Magnitude (M), and reversibility (R) applicable to the specific impact.

For the purpose of this methodology the consequence of the impact is represented by:

$$C = \frac{(E + D + M + R) * N}{4}$$

Each individual aspect in the determination of the consequence is represented by a rating scale as defined in Table 3 below.

Table 3: Criteria for Determining Impact Consequence.

Aspect	Score	Definition
Nature	- 1	Likely to result in a negative / detrimental impact
	+1	Likely to result in a positive / beneficial impact
Extent	1	Activity (i.e. limited to the area applicable to the specific activity)
	2	Site (i.e. within the development property boundary),
	3	Local (i.e. the area within 5 km of the site),
	4	Regional (i.e. extends between 5 and 50 km from the site)
	5	Provincial / National (i.e. extends beyond 50 km from the site)
Duration	1	Immediate (<1 year)
	2	Short term (1-5 years),
	3	Medium term (6-15 years),
	4	Long term (the impact will cease after the operational life span of the project),
	5	Permanent (no mitigation measure or natural process will reduce the impact after construction).
Magnitude/	1	Minor (where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected),

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Aspect	Score	Definition
Intensity	2	Low (where the impact affects the environment in such a way that natural, cultural and social functions and processes are slightly affected),
	3	Moderate (where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way),
	4	High (where natural, cultural or social functions or processes are altered to the extent that it will temporarily cease), or
	5	Very high / Don't Know (where natural, cultural or social functions or processes are altered to the extent that it will permanently cease).
Reversibility	1	Impact is reversible without any time and cost.
	2	Impact is reversible without incurring significant time and cost.
	3	Impact is reversible only by incurring significant time and cost.
	4	Impact is reversible only by incurring prohibitively high time and cost.
	5	Irreversible Impact

Once the C has been determined the ER is determined in accordance with the standard risk assessment relationship by multiplying the C and the P. Probability is rated / scored as per Table 4.

Table 4: Probability Scoring.

Probability	1	Improbable (the possibility of the impact materialising is very low as a result of design, historic experience, or implementation of adequate corrective actions; <25%),
	2	Low probability (there is a possibility that the impact will occur; >25% and <50%),
	3	Medium probability (the impact may occur; >50% and <75%),
	4	High probability (it is most likely that the impact will occur- > 75% probability), or
	5	Definite (the impact will occur),

The result is a qualitative representation of relative ER associated with the impact. ER is therefore calculated as follows:

$$ER = C \times P$$

Table 5: Determination of Environmental Risk.

Consequence	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
Probability						

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The outcome of the environmental risk assessment will result in a range of scores, ranging from 1 through to 25. These ER scores are then grouped into respective classes as described in Table 6.

Table 6: Significance Classes.

Risk Score	Description
< 10	Low (i.e. where this impact is unlikely to be a significant environmental risk).
≥ 10; < 20	Medium (i.e. where the impact could have a significant environmental risk),
≥ 20	High (i.e. where the impact will have a significant environmental risk).

The impact ER will be determined for each impact without relevant management and mitigation measures (pre-mitigation), as well as post implementation of relevant management and mitigation measures (post-mitigation). This allows for a prediction in the degree to which the impact can be managed/mitigated.

1.2 IMPACT PRIORITISATION

Further to the assessment criteria presented in the section above, it is necessary to assess each potentially significant impact in terms of:

1. Cumulative impacts; and
2. The degree to which the impact may cause irreplaceable loss of resources.

To ensure that these factors are considered, an impact prioritisation factor (PF) will be applied to each impact ER (post-mitigation). This prioritisation factor does not aim to detract from the risk ratings but rather to focus the attention of the decision-making authority on the higher priority/significance issues and impacts. The PF will be applied to the ER score based on the assumption that relevant suggested management/mitigation impacts are implemented.

Table 7: Criteria for Determining Prioritisation.

Cumulative Impact (CI)	Medium (2)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.
	High (3)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is highly probable/ definite that the impact will result in spatial and temporal cumulative change.
Irreplaceable Loss of Resources (LR)	Low (1)	Where the impact is unlikely to result in irreplaceable loss of resources.
	Medium (2)	Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.
	High (3)	Where the impact may result in the irreplaceable loss of resources of high value (services and/or functions).

The value for the final impact priority is represented as a single consolidated priority, determined as the sum of each individual criteria represented in Table 7. The impact priority is therefore determined as follows:

$$\text{Priority} = \text{CI} + \text{LR}$$

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The result is a priority score which ranges from 2 to 6 and a consequent PF ranging from 1 to 1.5 (Refer to Table 8).

Table 8: Determination of Prioritisation Factor.

Priority	Ranking	Prioritisation Factor
2	Low	1
3	Medium	1.125
4	Medium	1.25
5	Medium	1.375
6	High	1.5

In order to determine the final impact significance, the PF is multiplied by the ER of the post mitigation scoring. The ultimate aim of the PF is an attempt to increase the post mitigation environmental risk rating by a full ranking class, if all the priority attributes are high (i.e. if an impact comes out with a medium environmental risk after the conventional impact rating, but there is significant cumulative impact potential and significant potential for irreplaceable loss of resources, then the net result would be to upscale the impact to a high significance).

Table 9: Environmental Significance Rating

Value	Description
< -9	Low negative (i.e. where this impact would not have a direct influence on the decision to develop in the area).
≥ -9 < -17	Medium negative (i.e. where the impact could influence the decision to develop in the area).
≥ -17	High negative (i.e. where the impact must have an influence on the decision process to develop in the area).
0	No impact
< 9	Low positive (i.e. where this impact would not have a direct influence on the decision to develop in the area).
≥ 9 < 17	Medium positive (i.e. where the impact could influence the decision to develop in the area).
≥ 17	High positive (i.e. where the impact must have an influence on the decision process to develop in the area).

The significance ratings and additional considerations applied to each impact will be used to provide a quantitative comparative assessment of the alternatives being considered. In addition, professional expertise and opinion of the specialists and the environmental consultants will be applied to provide a qualitative

comparison of the alternatives under consideration. This process will identify the best alternative for the proposed project.

2 IMPACTS IDENTIFIED

This Section presents the impacts that have been assessed during the BA Process. These impacts were identified by the EAP, the appointed specialists, as well as the preliminary input from the public. The impacts identified are listed in Table 10 below. It should be noted that this report will be made available to I&AP's for review and comment and their comments and concerns will be addressed in the final BAR submitted to the competent authority for adjudication.

The impacts were assessed in terms of nature, significance, consequence, extent, duration and probability in line with the methodology described in Section 1 above. The impact assessment matrix (including pre- and post-mitigation assessment) is included below. Without proper mitigation measures and continual environmental management, most of the identified impacts may potentially become cumulative, affecting areas outside of their originally identified zone of impact. The potential cumulative impacts have been identified, evaluated, and mitigation measures suggested.

When considering cumulative impacts, it is important to bear in mind the scale at which different impacts occur. There is potential for a cumulative effect at a broad scale, such as regional deterioration of air quality, as well as finer scale effects occurring in the area surrounding the activity. The main impacts which have a cumulative effect on a regional scale are related to the transportation vectors that they act upon. For example, air movement patterns result in localised air quality impacts having a cumulative effect on air quality in the region. Similarly, water acts as a vector for distribution of impacts such as contamination across a much wider area than the localised extent of the impacts source. At a finer scale, there are also impacts that have the potential to result in a cumulative effect, although due to the smaller scale at which these operate, the significance of the cumulative impact is lower in the broader context.

Table 10: Potential Impacts Identified and Assessed during the EIA Phase

#	Impact	Phase
1	Destruction of bird habitat	Construction
2	Disturbance of birds	Construction
3	Collision of birds with overhead cables	Operation
4	Electrocution of birds on pylons	Operation
5	Noise	Construction
6	Air Quality (Dust generation)	Construction
7	Job Creation (positive impact)	Construction
8	Visual Impact	Construction
9	Visual Impact	Operation
10	Waste Management	Construction
11	Destruction, further loss and fragmentation of habitats, ecosystems and vegetation community;	Construction
12	Introduction of alien species, especially plants	Construction
13	Destruction of protected plant species	Construction

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#	Impact	Phase
14	Displacement of faunal community due to habitat loss, direct mortalities and disturbance (road collisions, noise, dust, vibration and poaching)	Construction
15	Continued fragmentation and degradation of habitats and ecosystems	Operation
16	Spread of alien and/or invasive species	Operation
17	Ongoing displacement and direct mortalities of faunal community (including SCC) due to disturbance (road collisions, collisions with substation, noise, light, dust, vibration)	Operation
18	Impact on heritage resources	Construction
19	Loss of fossil heritage	Construction

3 DESCRIPTION AND ASSESSMENT OF IMPACTS

3.1 CONSTRUCTION PHASE

3.1.1 TERRESTRIAL BIODIVERSITY IMPACTS

Due to the nature of the project, the actual footprint of the pylon infrastructure has a small, localised impact. It is the creation of access and service roads that is a more important aspect to consider and will be considered in relation to the powerline. The method of connection and spanning of the powerlines between poles have not been received and thus no impact assessment regarding that can be conducted.

The following potential main impacts on biodiversity were considered for the construction phase of the proposed development. This phase refers to the period during construction when the proposed features are constructed; and is considered to have the largest direct impact on biodiversity. The following potential impacts to terrestrial biodiversity were considered:

- Destruction, further loss and fragmentation of habitats, ecosystems and vegetation community;
- Introduction of alien species, especially plants;
- Destruction of protected plant species; and
- Displacement of faunal community due to habitat loss, direct mortalities and disturbance (road collisions, noise, dust, vibration and poaching).

Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
Destruction, further loss and fragmentation of habitats, ecosystems and vegetation community;	Construction	-15.00	-3.00	-3.75
Introduction of alien species, especially plants;	Construction	-14.00	-1.25	-1.25
Destruction of protected plant species; and	Construction	-15.00	-6.00	-6.00
Displacement of faunal community due to habitat loss, direct mortalities and disturbance (road collisions,	Construction	-13.00	-2.00	-2.00

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Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
noise, dust, vibration and poaching).				
Mitigation Measures				
<ul style="list-style-type: none"> • All high sensitivity areas (i.e. CBA1 areas) should be avoided (if feasible), and development must be prioritised in medium sensitivity areas. • Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should under no circumstances be fragmented or disturbed further. Clearing of vegetation should be minimized and avoided where possible. All activities must be restricted to within the low/medium sensitivity areas. No further loss of high sensitivity areas should be permitted (i.e. CBA1). It is recommended that areas to be developed be specifically demarcated so that during the construction phase, only the demarcated areas be impacted upon. • Existing servitudes, access routes, especially roads must be made use of as far as possible. • All laydown, chemical toilets etc. should be restricted to medium or low sensitivity areas. Any materials may not be stored for extended periods of time and must be removed from the project area once the construction phase has been concluded. No permanent construction phase structures should be permitted. Construction buildings should preferably be prefabricated or constructed of re-usable/recyclable materials. No storage of vehicles or equipment will be allowed outside of the designated project areas. • A hydrocarbon spill management plan must be put in place to ensure that should there be any chemical spill that it does not run into the surrounding areas. The Contractor shall be in possession of an emergency spill kit that must always be complete and available on site. Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use. No servicing of equipment on site unless necessary. All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers. Appropriately contain any generator diesel storage tanks, machinery spills (e.g. accidental spills of hydrocarbons oils, diesel etc.) in such a way as to prevent them leaking and entering the environment. Construction activities and vehicles could cause spillages of lubricants, fuels and waste material potentially negatively affecting the functioning of the ecosystem. All vehicles and equipment must be maintained, and all re-fuelling and servicing of equipment is to take place in demarcated areas. • It should be made an offence for any staff to take/ bring any plant species into/out of any portion of the project area. No plant species whether indigenous or exotic should be brought into/taken from the project area, to prevent the spread of exotic or invasive species or the illegal collection of plants. • A fire management plan needs to be compiled and implemented to restrict the impact fire might have on the surrounding areas. • Any individual of the protected plants that are present needs a relocation or destruction permit in order for any individual to be removed or destroyed due to the development. High visibility flags must be placed near any threatened/protected plants not being removed or destroyed in order to avoid any damage or destruction of the species. If left undisturbed the sensitivity and importance of these species needs to be part of the environmental awareness program. All protected and red-data plants should be relocated where reasonably practicable, and as many other geophytic and succulent species as possible, to similar habitats where they should be able to resprout and flourish again. • A pre-construction survey by a suitably qualified ecologist in the flowering season (July-September) should be conducted to ensure that a more comprehensive floral presence confirmation. For the threatened species that may not be destroyed, it is recommended that professional service providers that deal with plant search and rescue be used to remove such plants and use them either for later rehabilitation work or other conservation projects. 				

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Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
		<ul style="list-style-type: none"> • A qualified environmental control officer must be on site when construction begins. In situations where the threatened and protected plants must be removed, the proponent may only do so after the required permission/permits have been obtained in accordance with national and provincial legislation. In the abovementioned situation the development of a search, rescue and recovery program is suggested for the protection of these species. Should animals not move out of the area on their own relevant specialists must be contacted to advise on how the species can be relocated. • The areas to be developed must be specifically demarcated to prevent movement of staff or any individual into the surrounding environments. Signs must be put up to enforce this • The duration of the construction should be minimized to as short term as possible, to reduce the period of disturbance on fauna. • Noise must be kept to an absolute minimum during the evenings and at night to minimize all possible disturbances to amphibian species and nocturnal mammals. • No trapping, killing, or poisoning of any wildlife is to be allowed. Signs must be put up to enforce this. • Outside lighting should be designed and limited to minimize impacts on fauna. All outside lighting should be directed away from highly sensitive areas. Fluorescent and mercury vapor lighting should be avoided and sodium vapor (green/red) lights should be used wherever possible. • All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. Speed limits must be enforced to ensure that road killings and erosion is limited. • Schedule activities and operations during least sensitive periods where possible, to avoid migration, nesting and breeding seasons. • All areas to be developed must be walked through prior to any activity to ensure no nests or fauna species are found in the area. Should any Species of Conservation Concern not move out of the area or their nest be found in the area a suitably qualified specialist must be consulted to advise on the correct actions to be taken. • Any holes/deep excavations must be dug and planted in a progressive manner and shouldn't be left open overnight. Should the holes remain overnight they must be restricted temporarily to ensure no small fauna species fall in. • Ensure that cables and connections are insulated successfully to reduce electrocution risk. • Compilation of and implementation of an alien vegetation management plan. • The footprint area of the construction should be kept to a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas. Footprint of the roads must be kept to prescribed widths. • Waste management must be a priority and all waste must be collected and stored adequately. It is recommended that all waste be removed from site on a weekly basis to prevent rodents and pests entering the site. • A pest control plan must be put in place and implemented; it is imperative that poisons not be used due to the likely presence of SCCs. • Dust-reducing mitigation measures must be put in place and must be strictly adhered to. This includes wetting of exposed soft soil surfaces. No non-environmentally friendly suppressants may be used as this could result in pollution of water sources. • All personnel and contractors to undergo Environmental Awareness Training. A signed register of attendance must be kept for proof. Discussions are required on sensitive environmental receptors within the project area to inform contractors and site staff of the presence of Red / Orange List 		

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Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
<p>species, their identification, conservation status and importance, biology, habitat requirements and management requirements of the EA and EMPr. The avoidance and protection of the wetland areas must be included in the site induction. Contractors and employees must all undergo the induction and be made aware of “no-go” areas to be avoided.</p> <ul style="list-style-type: none"> • Speed limits must be put in place to reduce erosion. Signs must be put up to enforce this. • Areas that are temporarily denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood events and strong winds. • A stormwater management plan must be compiled and implemented. 				

3.1.2 DESTRUCTION OF BIRD HABITAT DURING CONSTRUCTION OF POWER LINES & ACCESS ROAD

The impact of habitat destruction will be of Medium negative significance (score of -9.84). The amount of habitat to be transformed for the power lines and access road is relatively small in this landscape and the habitat is not particularly unique or limited in availability. However, destruction of habitat cannot be reversed and there is a cumulative impact. Several mitigation measures have been recommended that will slightly reduce the impact significance, but these will not entirely reduce the significance since a certain amount of habitat destruction is inevitable.

Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
Destruction of bird habitat during construction of power lines & access road	Construction	-8.75	-8.75	-9.84
Mitigation Measures				
<ul style="list-style-type: none"> • All construction activities should be strictly managed according to generally accepted environmental best practice standards, so as to avoid any unnecessary impact on the receiving environment. • All temporary disturbed areas should be rehabilitated according to the site’s rehabilitation plan, following construction. 				

3.1.3 DISTURBANCE OF BIRDS DURING CONSTRUCTION OF THE POWER LINE & SUBSTATION

The significance of this impact was assessed to be Low negative significance (score of -1.75). Disturbance of birds typically reaches significant levels when the receptor is a breeding site for a sensitive species, or some other important feature, such as a roost. Several such features have been identified off-site but in reasonable proximity. However, these features are already accustomed to disturbance levels far higher than that which will be produced by the proposed project (due to the recent construction of two wind farms).

Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
Disturbance of birds during construction of the power line & substation	Construction	-3.50	-1.75	-1.75
Mitigation Measures				

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Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
<ul style="list-style-type: none"> All construction activities should be strictly managed according to generally accepted environmental best practice standards, so as to avoid any unnecessary impact on the receiving environment. All temporary disturbed areas should be rehabilitated according to the site's rehabilitation plan, following construction. 				

3.1.4 IMPACT ON HERITAGE RESOURCES

No heritage resources were identified. Despite an intensive walkthrough of the footprint area, no evidence for any archaeological or heritage sites could be identified. As a result, the significance impact from the proposed development on heritage features is considered to be Very Low.

Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
Impact on Heritage Resources	Construction	-4.00	-1.25	-1.25
Mitigation Measures				
<ul style="list-style-type: none"> Implement a chance find procedures in case where possible heritage finds are uncovered (refer to HIA). 				

3.1.5 LOSS OF FOSSIL HERITAGE

The excavations and site clearance of the proposed development will involve substantial excavations into the superficial sediment cover as well as locally into the underlying bedrock. These excavations will modify the existing topography and may destroy or permanently seal-in fossils at or below the ground surface that will no longer be available for scientific research. According to the Geology of the project site the area has Moderate Palaeontological Significance. Loss of Fossil Heritage only occurs during the Construction Phase.

In the event that fossil material exists within the proposed development area any negative or detrimental impact upon it could be mitigated by describing and collecting well-preserved fossils by a professional palaeontologist. These actions should take place after vegetation clearance has taken place but before the ground is levelled for construction. Excavation of fossil heritage will require a permit from SAHRA and the material must be housed in a permitted institution. In the event that an excavation is impossible or inappropriate, the fossil or fossil locality could be protected and the site of any planned construction and infrastructure moved.

Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
Loss of Fossil Heritage	Construction	-4.00	-1.25	-1.25
Mitigation Measures				
<ul style="list-style-type: none"> In the event that fossil material exists within the proposed development area any negative or detrimental impact upon it could be mitigated by describing and collecting well-preserved fossils by a professional palaeontologist. These actions should take place after vegetation clearance has taken place but before the ground is levelled for construction. Excavation of fossil heritage will require a permit from SAHRA and the material must be housed in a permitted institution. If an excavation is impossible or inappropriate, the fossil or fossil locality could be protected and the site of any planned construction and infrastructure moved. 				

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3.1.6 NOISE

Noise will be generated during construction. However, the proposed development will take place in a scarcely populated environment with few receptors likely to be affected by the low amount of noise generated by this development. As such, the significance of this impact is rated to be Low.

Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
Noise	Construction	-8.25	-4.50	-4.50
Mitigation Measures				
<ul style="list-style-type: none"> • Noise-generating activities associated with construction activities should be kept to a minimum. • Compliance with the appropriate legislation, any local by-laws and regulations regarding the generation of noise must be adhered to. 				

3.1.7 AIR QUALITY (DUST GENERATION)

Dust will be generated during construction as a result of travel on gravel roads and clearing of vegetation for the establishment of the road and pylons. However, the proposed development will take place in a scarcely populated environment with few receptors likely to be affected by the low amount of dust generated by this development. As such, the significance of this impact is rated to be Low.

Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
Dust	Construction	-6.00	-2.50	-2.50
Mitigation Measures				
<ul style="list-style-type: none"> • Appropriate dust abatement measures implemented to minimise dust generation on site (e.g. wetting of active construction areas and unpaved roads and the vegetation of the semi-permanent stockpiles). 				

3.1.8 JOB CREATION

A small number of jobs will be created during the construction phase as the project is limited in extent and duration and will require specialised construction expertise. As such, the significance of this impact is rated to be Low positive.

Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
Job Creation	Construction	6.00	6.75	6.75
Mitigation Measures				
<ul style="list-style-type: none"> • The use of local labour is encouraged, where it is possible. 				

3.1.9 VISUAL IMPACT

The creation of an additional OHL, LILO line and new access road will result in additional landscape disturbance and removal of vegetation. However, these structures are proposed to be directly adjacent or between existing similar infrastructure and as a result the visual intrusion is likely to be limited. As such, the significance of this impact is deemed to be Low.

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Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
Visual Impact	Construction	-8.00	-3.50	-3.50
Mitigation Measures				
<ul style="list-style-type: none"> • Construction camps must be established in appropriate locations prior to the commencement of construction activities. • Camps, offices etc. to be maintained in an orderly and tidy condition. • No littering of the site. • The construction site is to be adequately demarcated for the duration of construction activities. 				

3.1.10 WASTE MANAGEMENT

Waste will be generated during the construction phase (hazardous and general waste). The amount of waste is deemed to be relatively limited and as such the material can be temporarily stored on site and disposed of as and when required. As such, the significance of the impact is deemed to be Low.

Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
Waste Management	Construction	-6.75	-4.00	-4.00
Mitigation Measures				
<ul style="list-style-type: none"> • The waste management system shall provide for adequate waste storage (in the form of bins with lids) and regular removal of non-recyclable waste for permanent disposal at an appropriately licensed waste disposal facility. • No dumping of construction material on-site may take place. • All waste generated on-site during construction must be adequately managed. Separation and recycling of different waste materials should be supported. • Under no circumstances may there be any burial of waste on site. • All refuse shall be disposed of in refuse bins. • These bins must be adequate in number and accessibility to effectively manage the waste generated on site. • Refuse bins shall be watertight, wind-proof and scavenger proof and shall be conspicuously and appropriately placed throughout the site. • Refuse must also be protected from rain, which may cause pollutants to leach out. Caution is to be exercised with regards to handling of hazardous waste, to ensure that it does not spill or leak from the waste collection containers. • If skips are utilised for waste storage, these shall be provided with tarpaulins/lids to prevent the ingress of water and waste being blown by the wind. • Skips utilised for inert waste streams such as concrete rubble or wood do not need to be covered with tarps. • Where a registered disposal facility is not available close to the site, the Contractor shall provide a method statement with regard to waste management. Under no circumstances may domestic waste be burned on site. 				

3.2 OPERATIONAL PHASE

3.2.1 TERRESTRIAL BIODIVERSITY IMPACTS

The operational phase is anticipated to potentially further spread IAPs, as well as result in the deterioration of the habitats due to the increase of dust and edge effect impacts. Dust reduces the ability of plants to photosynthesize and thus leads to degradation/retrogression of the veld. Moving vehicles don't only cause sensory disturbances to fauna, affecting their life cycles and movement, but may lead to direct mortalities due to collisions. The following potential impacts were considered:

- Continued fragmentation and degradation of habitats and ecosystems;
- Spread of alien and/or invasive species; and
- Ongoing displacement and direct mortalities of faunal community (including SCC) due to disturbance (road collisions, collisions with substation, noise, light, dust, vibration).

Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
Continued fragmentation and degradation of habitats and ecosystems	Operation	-15.00	-2.50	-2.50
Spread of alien and/or invasive species	Operation	-15.00	-1.50	-1.50
Ongoing displacement and direct mortalities of faunal community (including SCC) due to disturbance (road collisions, collisions with substation, noise, light, dust, vibration)	Operation	-14.00	-3.00	-3.00

Mitigation Measures

- Existing servitudes, access routes, especially roads must be made use of.
- It should be made an offence for any staff to take/ bring any plant species into/out of any portion of the project area. No plant species whether indigenous or exotic should be brought into/taken from the project area, to prevent the spread of exotic or invasive species or the illegal collection of plants.
- Outside lighting should be designed and limited to minimize impacts on fauna. All outside lighting should be directed away from highly sensitive areas. Fluorescent and mercury vapor lighting should be avoided and sodium vapor (green/red) lights should be used wherever possible.
- Ensure that cables and connections are insulated successfully to reduce electrocution risk.
- Any exposed parts must be covered (insulated) to reduce electrocution risk.
- Compilation of and implementation of an alien vegetation management plan.
- Where possible, existing access routes and walking paths must be made use of.
- A stormwater management plan must be compiled and implemented.

3.2.2 COLLISION OF BIRDS WITH OVERHEAD CABLES DURING OPERATIONS OF THE POWER LINE

The significance of this impact was deemed to be Medium negative significance (score of -8.9), although it is very close to being Medium (which is scores of 9 and above), and we would be more comfortable with a score

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of Medium. Several regionally Red Listed bird species which are known to be susceptible to collision with overhead power lines occur in the study area, including Ludwig’s Bustard, Kori Bustard, Abdim’s Stork, and Karoo Korhaan. The significance of this risk is slightly diminished by the placement of the Kronos Cuprum proposed power line within a corridor of existing power lines.

The cumulative impacts of overhead power lines on birds in this area through electrocution and collision is of slight concern, since all renewable projects require overhead grid connection power lines, and there is an almost complete absence of any natural perches in the landscape for raptors, so it is inevitable that they will perch frequently on pylons. However, it is possible to design pylons in a safe manner.

Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
Collision of birds with overhead cables during operations of the power line	Operation	-14.00	-6.50	-8.94
Mitigation Measures				
<ul style="list-style-type: none"> • The overhead cables (specifically the earth wires) on both power lines should be fitted with an approved anti bird collision line marking device to make cables more visible to birds in flight and reduce the likelihood of collisions. This should be done according to the Eskom Distribution and Transmission standards in terms of device spacing and other factors. Literature around the world points towards a 50-60% reduction in bird collision risk if the line is marked (Jenkins, Smallie & Diamond, 2010; Shaw et al, 2021). The line marking device should be a dynamic (moving – bird flapper type) device. • The new power line should be patrolled during operation by Eskom annually to measure any impacts on birds (through detecting collision fatalities) and to monitor the durability of the line marking devices. • Where multiple devices on a span have failed (broken off or become stuck and non-dynamic due to wind) they should be replaced immediately. • Any recorded bird fatality data should be submitted to the Eskom–EWT Strategic Partnership where it will be curated and publicly accessible. 				

3.2.3 ELECTROCUTION OF BIRDS ON PYLONS DURING OPERATIONS OF THE POWER LINE

The significance of bird electrocution on the proposed power lines will be of Low negative significance (score of -3) since the proposed pylon structures have phase-phase and phase-earth clearances greater than 1 800 mm (minimum will be 2 400 mm). This means that large eagles and even vultures (this site is marginally within range for White-backed Vultures *Gyps africanus*) can perch safely without bridging these critical clearances. It is recommended as a further precautionary measure that the standard Eskom Bird Perch be fitted to all pole tops to further provide safe perching substrate well above dangerous hardware. It is also essential that if any of the pylon structures are changed, an avifaunal specialist is given opportunity to assess the electrocution risk of the new structure and design mitigation.

The cumulative impacts of overhead power lines on birds in this area through electrocution and collision is of slight concern, since all renewable projects require overhead grid connection power lines, and there is an almost complete absence of any natural perches in the landscape for raptors, so it is inevitable that they will perch frequently on pylons. However, it is possible to design pylons in a safe manner.

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Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
Electrocution of birds on pylons during operations of the power line	Operation	-3.00	-3.00	-3.00
Mitigation Measures				
<ul style="list-style-type: none"> It is recommended as a precautionary measure that the standard Eskom Bird Perch be fitted to all pole tops to further provide safe perching substrate well above dangerous hardware. It is also essential that if any of the pylon structures are changed an avifaunal specialist is given opportunity to assess the electrocution risk of the new structure and design mitigation. 				

3.2.4 VISUAL IMPACT

The creation of an additional OHL, LILO line and new access road will result in additional landscape disturbance and removal of vegetation. However, these structures are proposed to be directly adjacent or between existing similar infrastructure and as a result the visual intrusion is likely to be limited. As such, the significance of this impact is deemed to be Low.

Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final Significance
Visual Impact	Operation	-8.00	-3.50	-3.50
Mitigation Measures				
<ul style="list-style-type: none"> Only indigenous vegetation is to be used for rehabilitation. Alien vegetation shall be removed from the development. 				

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IMPACT DESCRIPTION			Pre-Mitigation							Post Mitigation							Priority Factor Criteria				
Impact	Alternative	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Pre-mitigation ER	Nature2	Extent3	Duration4	Magnitude5	Reversibility6	Probability7	Post-mitigation ER	Confidence	Cumulative Impact	Irreplaceable loss	Priority Factor	Final score
Impact on heritage resources	Alternative 1	Construction	-1	1	1	1	5	2	-4	-1	1	1	1	2	1	-1.25	High	1	1	1.00	-1.25
Loss of fossil heritage	Alternative 1	Construction	-1	1	1	1	5	2	-4	-1	1	1	1	2	1	-1.25	High	1	1	1.00	-1.25
Destruction, further loss and fragmentation of the of habitats, ecosystems and vegetation community	Alternative 1	Construction	-1	3	5	4	3	4	-15	-1	1	2	2	1	2	-3	High	1	3	1.25	-3.75
Introduction of alien species, especially plants	Alternative 1	Construction	-1	4	4	3	3	4	-14	-1	1	2	1	1	1	-1.25	High	1	1	1.00	-1.25
Destruction of protected plant species	Alternative 1	Construction	-1	3	5	4	3	4	-15	-1	2	2	1	1	4	-6	High	1	1	1.00	-6.00
Displacement of faunal community due to habitat loss, direct mortalities and disturbance (road collisions, noise, dust, vibration and poaching)	Alternative 1	Construction	-1	3	3	4	3	4	-13	-1	1	1	1	1	2	-2	High	1	1	1.00	-2.00
Continued fragmentation and degradation of habitats and ecosystems	Alternative 1	Operation	-1	3	5	4	3	4	-15	-1	2	1	1	1	2	-2.5	High	1	1	1.00	-2.50
Spread of alien and/or invasive species	Alternative 1	Operation	-1	5	4	3	3	4	-15	-1	2	2	1	1	1	-1.5	High	1	1	1.00	-1.50
Ongoing displacement and direct mortalities of faunal community (including SCC) due to disturbance (road collisions, collisions with substation, noise, light, dust, vibration)	Alternative 1	Operation	-1	3	4	4	3	4	-14	-1	2	2	1	1	2	-3	High	1	1	1.00	-3.00
Destruction of bird habitat	Alternative 1	Construction	-1	1	2	1	3	5	-8.75	-1	1	2	1	3	5	-8.75	High	1	2	1.13	-9.84
Disturbance of birds	Alternative 1	Construction	-1	3	2	1	1	2	-3.5	-1	3	2	1	1	1	-1.75	High	1	1	1.00	-1.75
Collision of birds with overhead cables	Alternative 1	Operation	-1	2	4	3	5	4	-14	-1	2	4	2	5	2	-6.5	High	2	3	1.38	-8.94
Electrocution of birds on pylons	Alternative 1	Operation	-1	2	4	1	5	1	-3	-1	2	4	1	5	1	-3	High	1	1	1.00	-3.00

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IMPACT DESCRIPTION			Pre-Mitigation							Post Mitigation							Priority Factor Criteria				
Impact	Alternative	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Pre-mitigation ER	Nature2	Extent3	Duration4	Magnitude5	Reversibility6	Probability7	Post-mitigation ER	Confidence	Cumulative Impact	Irreplaceable loss	Priority Factor	Final score
Noise	Alternative 1	Construction	-1	3	2	3	3	3	-8.25	-1	3	2	2	2	2	-4.5	High	1	1	1.00	-4.50
Air Quality (Dust generation)	Alternative 1	Construction	-1	2	2	2	2	3	-6	-1	1	2	1	1	2	-2.5	High	1	1	1.00	-2.50
Job Creation	Alternative 1	Construction	1	2	2	2	2	3	6	1	2	2	3	2	3	6.75	Medium	1	1	1.00	6.75
Visual Impact	Alternative 1	Construction	-1	2	2	2	2	4	-8	-1	2	2	1	2	2	-3.5	High	1	1	1.00	-3.50
Visual Impact	Alternative 1	Operation	-1	2	2	2	2	4	-8	-1	2	2	1	2	2	-3.5	High	1	1	1.00	-3.50
Waste Management	Alternative 1	Construction	-1	2	2	3	2	3	-6.75	-1	2	2	2	2	2	-4	High	1	1	1.00	-4.00

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

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EIMS has been appointed by Mulilo as the independent EAP to prepare and submit the EA application and BAR, as well as undertaking the required Public Participation Process (PPP). The contact details of the EIMS consultant and EAP who compiled this Report are as follows:

- Name: Gideon Petrus (G.P.) Kriel
- Tel No: +27 43 783 9826
- Fax No: +27 86 571 9047
- E-mail address: struisbult@eims.co.za

In terms of Regulation 12 of the EIA Regulations, 2014, as amended, an independent EAP, must be appointed by the applicant to manage the application. EIMS is compliant with the definition of an EAP as defined in Regulations 1 and 13 of the EIA Regulations, as well as Section 1 of the NEMA. This includes, inter alia, the requirement that EIMS is:

- Objective and independent;
- Has expertise in conducting EIA's;
- Comply with the NEMA, the environmental regulations and all other applicable legislation;
- Considers all relevant factors relating to the application; and
- Provides full disclosure to the applicant and the relevant environmental authority.

EIMS is a private and independent environmental management-consulting firm that was founded in 1993. EIMS has in excess of 29 years' experience in conducting EIA's. Please refer to the EIMS website (www.eims.co.za) for further details of expertise and experience.

GP holds an M.Env.Sci (Water Sciences) Cum Laude from the North-West University (Potchefstroom Campus). He has been employed as an Environmental Consultant since 2007. He has delivered presentations locally and internationally concerning the use of bio-indicators for the determination of water quality, and has experience in a wide variety of environmental management projects including: Environmental Impact Assessments, Basic Assessments, Geographic Information Systems (GIS), Environmental Compliance Monitoring, Environmental Awareness Training, Aquatic Ecological Assessments, Drinking and Waste Water Treatment Process Audits, Wetland Delineation and Assessments, ISO 14001 Aspect Registers, Water Use Licence Applications, Waste Management Licence Applications and Integrated Waste and Water Management Plans.

The Curriculum Vitae of the EAP that is responsible for the compilation of this Report is included below.

CURRICULUM VITAE

Name:	Gideon Petrus Kriel
Nationality:	South African
Date of Birth:	1 September 1983
Profession:	Environmental Scientist
Professional Qualification/ Training:	M.Env.Sci Water Sciences; North West University (Potchefstroom Campus), 2008 Implementation of Environmental Management Systems (ISO 14001); Centre for Environmental Management, North-West University (Potchefstroom Campus), 2007. Bringing Data Into GIS (ArcGIS); GIMS (now ESRI SA), 2008. Tools for Wetland Assessment; Rhodes University, 2013
Professional Membership/ Registrations:	Registered Professional Natural Scientist (SACNSP- #400202/09) – Environmental Sciences Water Institute of Southern Africa (WISA) Member (21161)
Current Employer:	Environmental Impact Management Services (Pty) Ltd.

KEY EXPERIENCE

GP holds an M.Env.Sci (Water Sciences) Cum Laude from the North-West University (Potchefstroom Campus). He has been employed as an Environmental Consultant since 2007 and is the East London office manager. He has delivered presentations locally and internationally concerning the use of bio-indicators for the determination of water quality, and has experience in a wide variety of environmental management projects including: Environmental Impact Assessments, Basic Assessments, Geographic Information Systems (GIS), Environmental Compliance Monitoring, Environmental Awareness Training, Aquatic Ecological Assessments, Drinking and Waste Water Treatment Process Audits, Wetland Delineation and Assessments, ISO 14001 Aspect Registers, Water Use Licence Applications, Waste Management Licence Applications, Integrated Waste and Water Management Plans (IWWMP) and Green House Gas Assessments.

CAREER SUMMARY

Period: July 2007- Current	Organisation: EIMS	Position: Senior Environmental Assessment Practitioner
Key Projects/Assignments	<p><u>Office Manager:</u> Responsible for the technical management of the East London Office including the following aspects:</p> <ul style="list-style-type: none"> • Technical review and direction; • Quality control and assurance; • Client management; and • Marketing and business development. 	

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Project Experience:

- Environmental Impact Assessment for the proposed Zonk'izizwe Mixed Use Development in Midrand, Gauteng.
- Basic Assessments for the road upgrades for the Johannesburg Roads Agency (JRA).
- Environmental Impact Assessment for the proposed Thabeng Eco Reserve and Golf Estate, near Ohrigstad, Limpopo.
- Basic Assessment for the proposed TATA Steel KZN Clean Energy Project, Richards Bay, KwaZulu-Natal.
- Basic Assessment for the proposed IFM Clean Energy Project, Mooi Nooi, North-West Province.
- Compilation of ISO 14001 Aspect/Impact registers for Clover (Pty) Ltd.
- Basic Assessment for the proposed N17 Phase 2 project: Addition of Auxiliary Lanes Between the Rondebult Road Interchange and the Proposed Trichardts Road Interchange.
- Basic Assessment for the Proposed Early Warning System for the South African Nuclear Energy Corporation of South Africa (NECSA).
- Environmental Impact Assessment for the Proposed Water and Effluent Collection and Treatment Infrastructure Upgrade for the Nuclear Energy Corporation of South Africa (NECSA).
- Basic Assessment for the proposed Residential Development on Portions 16 & 17 of the Farm Wilgespruit 190 IQ, Wilgeheuwel, Roodepoort.
- Independent Environmental Control Officer for the Eye of Africa Golf Estate, Gauteng.
- Independent Environmental Control Officer for the Department of International Relations Head Office Construction, Pretoria.
- Water Use License Application for the Upgrade of the Low Level Bridge on Hyperion Drive, North Riding, Johannesburg.
- Diatom Water Quality Assessments for the Upgrade of the Low Level Bridge on Hyperion Drive, North Riding, Johannesburg.
- Basic Assessment for the Proposed Rand Water 1400mm diameter L17 Bulk Water Pipeline, Brakpan, Gauteng.
- Wetland Delineation for Anglo Platinum Potgietersrus Platinum Limited near Mokopane, Limpopo.
- Independent Environmental Control Officer for the Knock-down and Rebuild of the Shell Range River Service Station, Gillview, Johannesburg.
- Independent Designated Environmental Officer for the Refurbishment of the South African National Roads Agency Limited (SANRAL) Dalpark Operations Centre, Brakpan.

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	<ul style="list-style-type: none">• Waste Licence Application for the Proposed Water and Effluent Collection and Treatment Infrastructure Upgrade for the Nuclear Energy Corporation of South Africa (NECSA).• Prospecting Rights Applications on behalf of the African Exploration Mining and Finance Corporation (Pty) Ltd for a variety of projects in Limpopo, Free State and North-West Provinces.• Environmental Impact Assessment and Waste Management Licence Application for the Lusikisiki Sewer and Sewer Treatment Plant, Lusikisiki, Eastern Cape.• Diatom Monitoring for the Lusikisiki Sewer and Sewer Treatment Plant, Lusikisiki, Eastern Cape.• Appointed as a Blue Water Services Inspector for the 2012 Blue Water Services Audits by the Department of Water Affairs.• Basic Assessment for the formalisation of Masibambane, Masibulele, Ilinge, Dacawa Gwentshe, Velwano, Mathemba Vuso in Mdantsane for the Buffalo City Metropolitan Municipality.• Environmental Impact Assessment for the Proposed Sunny South Housing Development for the Buffalo City Metropolitan Municipality.• Basic Assessment and Water Use Licence for the Mqonjwana Access Road for the Mbizana Local Municipality.• Independent Environmental Control Officer for the East London Industrial Development Zone (ELIDZ): Infrastructure Services for the Zone 1B West Residential Development.• Heritage Impact Assessment and Public Participation for the Proposed Reconstruction of Fleet Street, East London for the Buffalo City Metropolitan Municipality.• Environmental Monitoring (Water Quality) for Phase 2 CD of the Olifants River Water Resources Development Project for Basil Read.• Basic Assessment and Water Use Licence Application for the Proposed Sidwadani River Access Road near Mthatha, Eastern Cape on behalf of the South African National Roads Agency (SOC) Limited.• Basic Assessment and Water Use Licence Application for the Proposed Mngazi River Access Road near Port St Johns, Eastern Cape on behalf of the South African National Roads Agency (SOC) Limited.• Independent Environmental Control Officer for the East London Industrial Development Zone (ELIDZ): Proposed MMOEM Facilities.• Amalinda Fairlands Feasibility Study for the Buffalo City Metropolitan Municipality (CS Consulting).• Independent Environmental Control Officer for the Lusikisiki Sewer and Sewer Treatment Plant, Lusikisiki, Eastern Cape.
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BASIC ASSESSMENT REPORT

	<ul style="list-style-type: none">• Independent Environmental Control Officer for the Noblesfontein Wind Energy Facility near Victoria West, Northern Cape Province.• Independent Environmental Control Officer for the Reconstruction of Fleet Street, East London, Buffalo City Metropolitan Municipality, Eastern Cape Province.• Transnet Freight Rail NEMA Section 24G Rectification Application – Coega Station to Tankatara Level Crossing, Coega, Eastern Cape.• Independent Environmental Control Officer for the Sunny South Housing Development for the Buffalo City Metropolitan Municipality.• Vincent-Berea Local Spatial Development Framework, CS Consulting (Buffalo City Metropolitan Municipality), East London, Eastern Cape.• Participatory Based Planning Support to Informal Settlements Upgrading Projects In Buffalo City Metropolitan Municipality, CS Consulting, Eastern Cape.• Molopo Free State Wetland Delineations, Virginia, Free State.• Puma Energy Fuel Depot Wetland Delineation, Nelspuit, Mpumalanga.• Mdantsane Roads Cluster 2 Environmental Control Officer, Buffalo City Metropolitan Municipality.• Giuricich Chemical Removal at Vodacom Site, East London.• Internal Environmental Management System Audits (ISO 14001) for the East London Distribution Centre and Ladismith Plant for Parmalat South Africa.• Environmental Control Officer for the Eskom Albany-Mimosa 66KV Distribution Line near Alicedale, Eastern Cape.• Environmental Impact Assessment for the Proposed Algoa Basin Oil & Gas Production Project for Aberdeen Offshore Engineering.• Basic Assessment for the Proposed Ablution Facilities Along the Coast for Nyandeni Local Municipality.• Environmental Control Officer for the Eskom Wittekleibosch-Dieprivier 132kV Power Line and Switching Station, Tsitsikamma, Eastern Cape.• Specialist Walkdown and Site Specific EMPR for the Eskom Ankerlig-Omega Power line, Western Cape.• Wetland Assessment for the Lichtenburg Hospital Basic Assessment Process for PH Bagale (on behalf of the Department of Health).• Update of the Integrated Waste and Water Management Plan Eskom Lethabo Power Station, Free State.• Basic Assessment for the Upgrade of the Loop 16 (Gariiep) Road for ACWA Power, Groblershoop, Northern Cape.
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BASIC ASSESSMENT REPORT

	<ul style="list-style-type: none">• Prospecting Rights Application and Basic Assessment for Black Mountain Mining, Aggeneys, Northern Cape.• Basic Assessment for the Eskom Riverbank IPP Projects, Eastern Cape.• Environmental Control Officer for the SANRAL N2 Section 15 from Buffalo River (km 2,94) to Breidbach Intersection (km 9,8) and the R63 from Alexandra Road (km 0) to Bhisho, Eastern Cape.• Environmental Control Officer for the Greenfields section of the SANRAL N2 Wild Coast Toll Highway (Southern Section), Eastern Cape.• Basic Assessment for the Upgrading to a Surface Standard Portion of Road DR08606 +1-12KM, Eastern Cape Department of Roads and Public Works, Eastern Cape.• Transnet TM2 Aquatic Monitoring Programme.• Prospecting Right Applications and Basic Assessment Processes for Black Mountain Mining near Aggeneys, Northern Cape.• Eskom Amathole Stormwater Environmental Control Officer, Eastern Cape.• Update of the ACWA Bokpoort Concentrated Solar Plant Integrated Waste and Water Management Plan, Northern Cape.• Update of the Rirhanzdu Rehabilitation Strategy and Implementation Plan, Mpumalanga.• Basic Assessment and Water Use Licence Application for the Proposed Megamor Park Extension, Meisieshalt, East London for Umbra Trading 11.• Creation of the Ekurhuleni Metropolitan Municipality Parks GIS Layer.• Enviro-legal review for Bax Kaplan Russel for a Waste Processing Facility in Wilsonia, East London.• Enviro-Legal Review: Demonstration of On-Site Faecal Sludge Treatment In East London, Impilo Yabantu Services (Pty) Ltd.• Umgeni Raw Water Management Audit for SizweNtsalubaGobodo, Pietermaritzburg.• Umgeni Waste Water Management Audit for SizweNtsalubaGobodo, Pietermaritzburg.• Competent Persons Report (Environmental) for the Ntshovelo Mining Resources (Pty) Ltd Welgemeend Colliery.• Umgeni Potable Water Management Audit for SizweNtsalubaGobodo, Pietermaritzburg.• Cambridge Pedestrian Bridge Enviro-legal Interpretation for CBM Consulting Engineers.• Komati Power Station Legal Audit for Eskom.
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BASIC ASSESSMENT REPORT

	<ul style="list-style-type: none">• Beaconhurst Drive Enviro-legal Interpretation for CBM Consulting Engineers.• Port of Ngqura Tank Farm Infrastructure Specialists Services for Transnet Group Capital.• Prospecting Rights Application and Basic Assessment for Black Mountain Mining, Northern Cape.• Independent Environmental Control Officer for the East London Industrial Development Zone (ELIDZ): GW1 Facilities in Zone 1A.• Basic Assessment and Water Use Licence Application for the Proposed Summerpride Erf 107 Residential Development, East London.• Harmony Target 1 & 2 Performance Assessment Audits 2019, Welkom• Harmony President Steyn North (Steyn 3_ 7 & 9) Performance Assessment Audits, Welkom.• City of Ekurhuleni Tsakane Sewer Pump Station Basic Assessment, Ekurhuleni.• Eskom Duvha Power Station Legal Compliance Audit.• Buffalo City Metropolitan Municipality Eastern Beach Sewer Upgrade Environmental Officer, East London.• Transnet Group Capital Coega Kop Quarry Water Use Licence Application.• SCAW Dimbaza Foundry Groundwater Monitoring, Dimbaza.• Independent Environmental Control Officer for the East London Industrial Development Zone (ELIDZ): Sundale Dairy Expansion Zone 1A.• GSW Vlakvarkfontein Integrated Waste and Water Management Plan Update.• East London Industrial Development Zone (ELIDZ) Zone 1B Solar Facility Basic Assessment.• Harmony Target 1 & 2 Performance Assessment Audits 2020, Welkom.• UMK Green House Gas Report 2019, Northern Cape.• Tosaco Energy Block 1 Offshore Exploration Right Environmental Impact Assessment.• UMK Green House Gas Report 2020, Northern Cape.• GIS work for a large amount of projects from 2007 - Present including the following: the identification and mapping of sensitivities and interested and affected parties, the delineation of site boundaries, the identification of alternative development sites, geo-referencing of old maps and technical drawings, production of informative maps for Basic Assessments, Environmental Impact Assessments and Environmental Compliance Monitoring.
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LANGUAGE CAPABILITY

Language	Speak	Read	Write
English	Excellent	Excellent	Excellent
Afrikaans	Excellent	Excellent	Excellent

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information

1 ALTERNATIVE ASSESSMENT

The identification of alternatives is a key aspect of the success of the BA process. All reasonable and feasible alternatives must be identified and screened to determine the most suitable alternatives to consider and assess. There are however some significant constraints that have to be taken into account when identifying alternatives for a project of this scope. Such constraints include technical, social, financial and environmental issues. Alternatives can typically be identified according to:

- Location/layout/design alternatives;
- Technological alternatives; and
- Activity alternatives (including the No-go option).

For any alternative to be considered feasible such an alternative must meet the need and purpose of the development proposal without presenting significantly high associated impacts. The alternatives are described, and the advantages and disadvantages are presented. It is further indicated which alternatives are considered feasible from a technical as well as environmental perspective.

Alternatives can also be distinguished into discrete or incremental alternatives. Discrete alternatives are overall development options, which are typically identified during the pre-feasibility, feasibility and or scoping phases of the EIA process (DEAT; 2004). Incremental alternatives typically arise during the BA process and are usually suggested as a means of addressing identified impacts. These alternatives are closely linked to the identification of mitigation measures and are not specifically identified as distinct alternatives. This section provides information on the development footprint alternatives, the properties considered, as well as the type of activity, activity layout, technological and operational aspects of the activity.

BASIC ASSESSMENT REPORT

Table 11: Summary of alternative options considered

Alternative Category	Alternative Description	Advantages	Disadvantages / Impacts / Risks	Additional Comments	Preferred Alternative
Location/layout/design	<p>Alternative Location 1</p> <p>Proposed OHL Route and Associated Infrastructure</p> <p>This alignment has been proposed based on the request from Eskom that an additional 132 kV OHL be constructed in support of the Struisbult PV2 facility.</p>	<ul style="list-style-type: none"> Follows the alignment of the existing Kronos-Cuprum OHLs. This route was considered the best environmental option during the original Kronos-Cuprum Basic Assessment Process. This route was assessed and found to be suitable from an Ecological, Aquatic, Avifaunal, Heritage and Palaeontological perspective. 	<ul style="list-style-type: none"> Potential environmental impacts associated with the construction of the OHL. 	<p>This alternative is suitably located to support the construction of the OHL required to support the Struisbult PV2 facility as per the request of Eskom.</p>	Yes
	<p>Alternative Location 2</p> <p>No alternative locations have been identified.</p>	N/A	N/A	<p>During the original BA process undertaken for the Kronos-Cuprum OHLs the alternative route was proposed (blue line in Figure 23 below). It was concluded that the current OHL alignment was the preferred alternative. As such, the OHL alignment for this BA Process has been proposed to run directly adjacent to the previously approved OHL route.</p>	N/A
Technology	<p>Technology Alternative 1</p> <p>Proposed OHL Infrastructure</p> <p>The technology and infrastructure proposed has been considered in terms of</p>	<ul style="list-style-type: none"> The OHL tower design (i.e. monopole structures) ensure that a minimal footprint will be disturbed and will thus result in a smaller impact on vegetation and habitat. 	<ul style="list-style-type: none"> Potential environmental impacts associated with the construction of the monopole structures. 		Yes

BASIC ASSESSMENT REPORT

Alternative Category	Alternative Description	Advantages	Disadvantages / Impacts / Risks	Additional Comments	Preferred Alternative
	cost and capacity requirements of the line.				
	Technology Alternative 2 Use of alternative infrastructure	N/A	<ul style="list-style-type: none"> The use of alternative tower designs or structures will result in a larger footprint and a consequent larger removal of vegetation and disturbance of habitat. 	The technology and infrastructure proposed has been considered in terms of cost and capacity requirements of the line.	No
No-go Alternative	The No-go Alternative would involve maintaining the status quo of the current site.	<ul style="list-style-type: none"> Potential environmental impacts associated with the construction of the OHL and associated infrastructure would not be effected. 	<ul style="list-style-type: none"> The ability of the Struisbult PV2 facility to connect to the National Grid would be impacted and this renewable energy project would not be able to proceed 		No

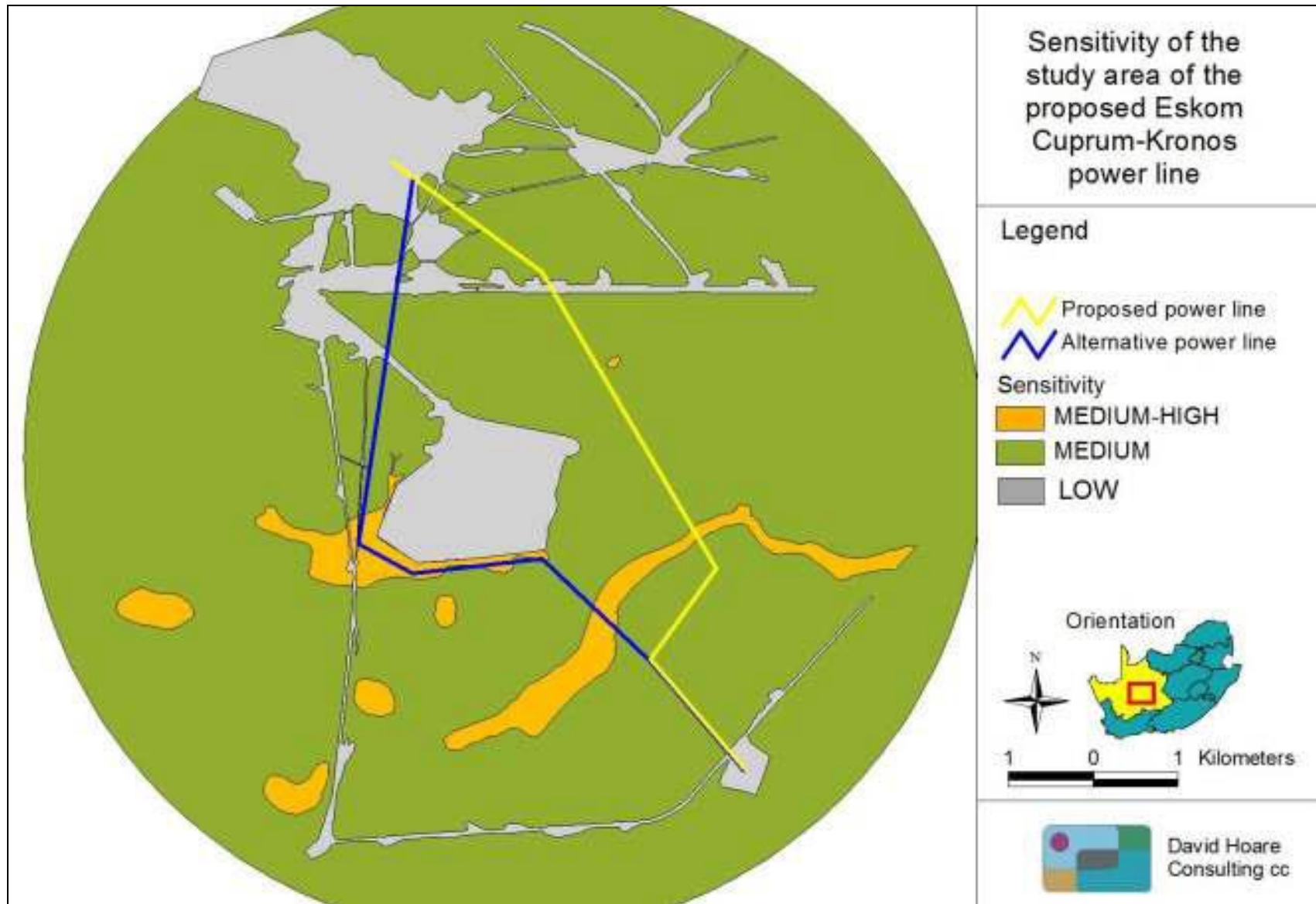


Figure 23: Route alternative and sensitivities identified during the 2012 BA Process

1 ASSUMPTIONS AND LIMITATIONS

The following assumptions and limitations relating to this assessment should be noted:

1.1 GENERAL

- In determining the significance of impacts, with mitigation, it is assumed that mitigation measures proposed in the report are correctly and effectively implemented and managed throughout the life of the project.

1.2 ECOLOGY

- The assessment area was based on the area provided by the client and any alterations to the route and/or missing GIS information pertaining to the assessment area would have affected the area surveyed.
- The area was only surveyed during a single site visit and therefore, this assessment does not consider temporal trends.
- It must be noted that during the survey, only a fraction of the expected geophytes were visible due to their variable emergence patterns.
- Whilst every effort is made to cover as much of the site as possible, representative sampling is completed and by its nature, it is possible that some plant and animal species that are present on site were not recorded during the field investigations.
- The GPS used in the assessment has an accuracy of 5 m and consequently any spatial features may be offset by 5 m.

1.3 AVIFAUNA

- This report is the result of a short-term study, no long-term studies were conducted on site. This study therefore depends heavily upon secondary or existing data sources. This study assumes a reasonable degree of accuracy of these data.
- Predictions in this study are based on experience of these and similar species in different parts of southern Africa, through the authors' experience working in the field of wildlife – energy interaction since 2000. However, bird behaviour can't be reduced to formulas that will hold true under all circumstances.

1.4 HERITAGE

- Not detracting in any way from the comprehensiveness of the fieldwork undertaken, it is important to realise that the lack of heritage resources located during the fieldwork do not necessarily represent all the possible heritage resources present within the area. Various factors account for this, including the subterranean nature of some archaeological sites, as well as the dense vegetation cover and disturbance found in some areas. As such, should any heritage features and/or objects not included in the present inventory be located or observed, a heritage specialist must immediately be contacted. Such observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that the heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. This applies to graves and cemeteries as well. If any graves or burial places are located during the development, the procedures and requirements pertaining to graves and burials will apply as set out below.
- The study area boundaries and development footprints depicted in this report were provided by the client. As a result, these were the areas assessed during the fieldwork. Should any additional development footprints located outside of these study area boundaries be required, such additional areas will have to be assessed in the field by an experienced archaeologist/heritage specialist long before construction starts.

1.5 PALAEOLOGY

- When conducting a Palaeontological Impact Assessment several factors can affect the accuracy of the assessment. The focal point of geological maps is the geology of the area, and the sheet explanations were not meant to focus on palaeontological heritage. Many inaccessible regions of South Africa have not been reviewed by palaeontologists and data is generally based on aerial photographs. Locality and geological information of museums and universities databases have not been kept up to date or data collected in the past have not always been accurately documented.
- Comparable Assemblage Zones in other areas are used to provide information on the existence of fossils in an area which has not yet been documented. When similar Assemblage Zones and geological formations are referenced for Desktop studies it is generally assumed that exposed fossil heritage is present within the footprint. A field-assessment is thus necessary to improve the accuracy of the desktop assessment.