Karreebosch Substation Environmental Management Programme

The Final Layout and Environmental Management Programme for the Karreebosch 132kv Overhead Powerline and Substation (14/12/16/3/3/1/2608/AM3/1) within the Karoo Hoogland Local Municipality and the Laingsburg Local Municipality in the Northern Cape Province and Western Cape Province

Final Layout Plan, Substation and Powerline EMPR for decision

Karreebosch Wind Farm (RF) (Pty) Ltd

SLR Project No.: 720.026030.00001

DFFE Ref: **14/12/16/3/3/1/2608/MP1**

5 July 2023

SLR

Table 1: Details of compliance with EA Conditions

EA Condition	Details	Final Submission location
1-11	No action required as part of the EMPR finalisation.	
12	A final site layout plan for the power line (with micro-siting of the powerline route and pylon structures) and all mitigation measures as dictated by the final site layout plan, must be submitted to the Department for approval prior to construction. A copy of the final site layout map must be made available for comments to registered Interested and Affected Parties and the holder of this environmental authorisation must consider such comments. Once amended, the final development layout map must be submitted to the Department for written approval, prior to commencement of the activity. All available biodiversity information must be used in the finalisation of the layout map.	The Applicant has taken cognisance of the specialist findings during the Basic Assessment process to determine the final detailed layout including pylon positions. This layout and pylon positions were provided to the specialists for micro-siting purposes. Mitigation measures by the specialists have been revised based on the final layout rather than a corridor of assessment and is therefore deemed to be more accurate. The Final layout has been available for comment from 19 May 2023 to 20 June 2023. Comments have been included in a Comments and Responses Report. Existing and proposed infrastructure has been depicted on the map. Based on micro-siting, sensitive areas where avoided as part of the final pylon placement and powerline alignment as per specialist recommendations. Sensitive areas depicted on the final layout map plan are those which have been provided as an outcome of the walk downs and are the only relevant environmental site sensitivities affected by the power line and associated infrastructure.

EA Condition	Details	Final Submission location
	Existing infrastructure must be used as far as possible.	
	The layout map must indicate the following:	
12.1	The final delineation of the centreline of the power line;	The final delineation of the centreline of the powerline has been labelled "132kV Powerline" on the final layout map.

EA Condition	Details	Final Submission location
12.2	The specific position of the pylon structures and foundation footprints	The specific positions of the pylon structures have been labelled as "Final OHL Tower Positions for Approval" and foundation footprints have been labelled "Foundation Footprint (15m x 15m)" on the layout map. Specific co-ordinates of the pylon structures have been included in Part B, Page 65-67 of the Powerline EMPR.
12.3	All existing infrastructure on the site, especially roads;	Existing roads are included on the final layout map. Existing and new roads have been updated in the final layout map legend for clarity and labelled as “Existing 4x4 Access Roads” and “New 4x4 Access Roads” respectively.
12.4	Any sensitive environmental features that will be affected by the power line; and	Sensitive areas were previously identified through detailed specialist assessments undertaken during the Basic Assessment Process. These sensitive areas were avoided as part of the final pylon placement and powerline alignment as per specialist recommendations. Sensitive areas depicted on the final layout map are those which have been provided as an outcome of the walk downs and are the only relevant environmental site sensitivities affected by the power line and associated infrastructure.
12.5	All "no-go” and buffer areas	As the final micro-sited powerline route and pylon structures largely avoid environmental sensitivities, only Heritage and Avifaunal no-go areas have been identified and included on the layout map, based on the outcome of the specialist walkdowns. No areas of sensitivity have been identified by the Terrestrial specialist during the micro-siting of the powerline route. Sensitive aquatic areas have been included on the final site layout map based on the results of the walkdown.

EA Condition	Details	Final Submission location
13	The generic Environmental Management Programme (EMPr) for the substation and generic EMPr for powerline, submitted as part of the BAR is not approved and must be amended to include measures, as dictated by the final site lay-out map required as per condition 12 above and the provisions of this environmental authorisation. The generic EMPrs must be made available for comments to registered Interested and Affected Parties and the holder of this environmental authorisation must consider such comments. Once amended, the final generic EMPrs must be submitted to the Department for written approval prior to commencement of the activity.	The generic EMPr's have been updated based on walkdown reports. This is reflected in Part C of the EMPrs. Specialist mitigation measures included are dictated by the final site layout. Please refer to the subsequent sections to view how the EMPr adheres to the provisions of the EA. The EMPr's, inclusive of updated mitigation measures based on the walk down reports have been made available for public comment with the layout map from 19 May 2023 to 20 June 2023.
14-31	No action required as part of the EMPR finalisation.	
32	No activities will be allowed to encroach into a water resource without a water use authorisation being in place from the	A General Authorisation (GA) certificate for section 21 c & i activities, has been issued to the Karreebosch 132kV OHL and associated infrastructure on the 24th of January 2023 from the Department of Water and Sanitation (DWS). The application reference is: WU26253 (Appendix J of the Final BA submission).

EA Condition	Details	Final Submission location
	Department of Water and Sanitation.	
33	Anti-collision devices such as bird flappers must be installed where powerlines cross avifaunal corridors. The input of an avifaunal specialist must be obtained for the fitting of the anti-collision devices onto specific sections of the line once the exact positions of the towers have been surveyed and pegged.	Page 82 of the powerline EMPr takes cognisance of this requirement and includes the following as per the avifaunal specialist recommendations: "*Bird Flight Diverters must be fitted to the entire powerline according to the applicable Eskom Engineering Instruction (Eskom Unique Identifier 240 – 93563150: The utilisation of Bird Flight Diverters on Eskom Overhead Lines). These devices must be installed as soon as the conductors are strung.*"
34	A qualified ecologist must be commissioned to perform a final walk through of the alignment to identify all sensitive features including wetlands, drainage lines and all other watercourses, and protected plant or tree species that may be affected by the construction of the power line. This must inform the determination of the final delineation of the centreline within the assessed corridor as well as optimal pylon positions, as well as the final development layoul plan that is to be submitted	CVs and qualifications of specialists are found as an Appendix to their respective studies. The final walk through of the alignment was conducted by suitably qualified professionals for the following studies: • Terrestrial Ecology • Heritage • Aquatic • Avifauna. .

EA Condition	Details	Final Submission location
	to the Department for approval as per conditions 12 and 13 above.	
35	No exotic plants may be used for rehabilitation purposes. Only indigenous plants of the area may be utilised.	Page 63 of the powerline EMPr takes cognisance of this requirement and includes the following: *"c) Species chosen must be indigenous to the area with the seeds used coming from the area;"* A Revegetation and Rehabilitation Plan which is included as Appendix D to the EMPR adheres to this requirement.
36	Should any archaeological sites, artefacts, paleontological fossils or graves be exposed during construction work, work in the immediate vicinity of the find must be stopped, SAHRA must be informed, and the services of an accredited heritage professional obtained for an assessment of the heritage resources must be made.	This has been included in Page 2 and 3 of the Chance Find Procedure (Appendix E of the EMPr).
37	Construction must include design measures that allow surface and subsurface movement of water along drainage lines so as not to impede natural surface and	Stormwater management has been addressed in Section 5.7 (Page 29-30) of the EMPr and included in the storm water and erosion management plan which compiled as part of the specialist studies undertaken for the previous 2022 Basic Assessment process. The Contractor will update this plan, if needed, as part of the Method Statements required (Appendix 1 of the generic EMPRs). Copies of this plan

EA Condition	Details	Final Submission location
	subsurface flows. Drainage measures must promote the dissipation of storm water run-off.	
38	An integrated waste management approach must be implemented that is based on waste minimisation and must incorporate reduction, recycling, re-use and disposal where appropriate. Any solid waste must be disposed of at a landfill licensed in terms of Section 20 (b) of the National Environment Management Waste Act, 2008 (Act No.59 of 2008).	Waste management has been addressed in Section 5.8 (Page 30-31) of the Generic EMPr. No further site specific waste related recommendations have been included.
39	The holder of Environmental Authorisation must prevent the occurrence of nuisance conditions or health hazards.	Nuisance conditions such as noise and dust has been included Section 5.22 and 5.20 of the EMPr respectively. No further recommendations relating to noise or dust have been included. Compliance to health standards has been referenced in Section 5.14: *"f) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards."* As these conditions and mitigation measures have been addressed in the Generic EMPR, no further recommendations were made.

EA Condition	Details	Final Submission location
40	No effluent must be discharged into any storm water drain or furrow, whether by commission or by omission.	Sanitation has been addressed in Section 5.14 of the EMPr and included in the storm water and erosion management plan which was submitted as part of the basic assessment process .The Contractor will update this plan, if needed, as part of the Method Statements required (Appendix 1 of the generic EMPRs). Copies of this plan are available upon request. Sanitation in relation to watercourses has specifically been addressed on Page 40 of the EMPr: *"Where mobile chemical toilets are required, the following must be ensured: a) Toilets are located no closer than 100m to any watercourse or water body;"*
41-42	No action required as part of the EMPR finalisation.	

Table 2: Details of compliance with EA Conditions

GENERIC ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE DEVELOPMENT AND EXPANSION OF SUBSTATION INFRASTRUCTURE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY




environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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INTRODUCTION

1. Background

The National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) requires that an environmental management programme (EMPr) be submitted where an environmental impact assessment (EIA) has been identified as the environmental instrument to be utilised as the basis for a decision on an application for environmental authorisation (EA). The content of an EMPr must either contain the information set out in Appendix 4 of the Environmental Impact Assessment Regulations, 2014, as amended (EIA Regulations) or must be a generic EMPr relevant to an application as identified and gazetted by the Minister in a government notice. Once the Minister has identified, through a government notice that a generic EMPr is relevant to an application for EA, that generic EMPr must be applied by all parties involved in the EA process, including but not limited to the applicant and the competent authority (CA).

2. Purpose

This document constitutes a generic EMPr relevant to applications for the development or expansion of substation infrastructure for the transmission and distribution of electricity, and all listed and specified activities necessary for the realisation of such infrastructure.

3. Objective

The objective of this generic EMPr is to prescribe and pre-approve generally accepted impact management outcomes and impact management actions, which can commonly and repeatedly be used for the avoidance, management and mitigation of impacts and risks associated with the development or expansion of substation infrastructure for the transmission and distribution of electricity. The use of a generic EMPr is intended to reduce the need to prepare and review individual EMPrs for applications of a similar nature.

4. Scope

The scope of this generic EMPr applies to the development or expansion of substation infrastructure for the transmission and distribution of electricity requiring EA in terms of NEMA. This generic EMPr applies to activities requiring EA, mainly activity 11 and 47 of the Environmental Impact Assessment Regulations Listing Notice 1 of 2014, as amended, and activity 9 of the Environmental Impact Assessment Regulations Listing Notice 2 of 2014, as amended, and all associated listed or specified activities necessary for the realization of such infrastructure.

5. Structure of this document

This document is structured in three parts with an Appendix as indicated in the table below:

Part	Section	Heading	Content
A		Provides general guidance and information and is **not legally binding**	Definitions, acronyms, roles & responsibilities and documentation and reporting.

Part	Section	Heading	Content
B	1	Pre-approved generic EMPr template	Contains generally accepted impact management outcomes and impact management actions required for the avoidance, management and mitigation of impacts and risks associated with the development or expansion of substation infrastructure for the transmission and distribution of electricity, which are presented in the form of a template that has been pre-approved. The template in this section is to be completed by the contractor, with each completed page signed and dated by the holder of the EA prior to commencement of the activity. Where an impact management outcome is not relevant, the words "not applicable" can be inserted in the template under the "responsible persons" column. Once completed and signed, the template represents the EMPr for the activity approved by the CA and is legally binding. The template **is not required** to be submitted to the CA as once the generic EMPr is gazetted for implementation, it has been approved by the CA. To allow interested and affected parties access to the pre-approved EMPr template for consideration through the decision-making process, the EAP on behalf of the applicant /proponent must make the hard copy of this EMPr available at a public location and where the applicant has a website, the EMPr should also be made available on such publicly accessible website.
	2	Site specific information	Contains preliminary infrastructure layout and a declaration that the applicant/holder of the EA will comply with the pre-approved generic EMPr template contained in Part B: Section 1, and understands that the impact management outcomes and impact management actions are **legally binding**. The preliminary infrastructure layout must be finalized to inform the final EMPr that is to be submitted with the

Part	Section	Heading	Content
			basic assessment report (BAR) or environmental impact assessment report (EIAR), ensuring that all impact management outcomes and impact management actions have been either pre-approved or approved in terms of Part C. This section **must be** submitted to the CA together with the final BAR or EIAR. The information submitted to the CA will be considered to be incomplete should a signed copy of Part B: section 2 not be submitted. Once approved, this Section forms part of the EMPr for the development and is legally binding.
C		Site specific sensitivities/ attributes	If any specific environmental sensitivities/ attributes are present on the site which require site specific impact management outcomes and impact management actions, not included in the pre-approved generic EMPr, to manage impacts, these specific impact management outcomes and impact management actions must be included in this section. These specific environmental attributes must be referenced spatially and impact management outcomes and impact management actions must be provided. These specific impact management outcomes and impact management actions must be presented in the format of the pre-approved EMPr template (Part B: section 1) This section will not be required should the site contain no specific environmental sensitivities or attributes. However, if Part C is applicable to the site, it **is required** to be submitted together with the BAR or EIAR, for consideration of, and decision on, the application for EA. The information in this section must be prepared by an EAP and must contain his/her name and expertise including a curriculum vitae. Once approved, Part C forms part of the EMPr for the site and is legally binding. This section applies only **to additional** impact management outcomes and impact management actions that are necessary for the avoidance, management and mitigation of impacts and risks associated with the specific

Part	Section	Heading	Content
			development or expansion and which are not already included in Part B: section 1.
Appendix 1			Contains the method statements to be prepared prior to commencement of the activity. The method statements are **not required** to be submitted to the competent authority.

6. Completion of part B: section 1: the pre-approved generic EMPr template

The template is to be completed prior to commencement of the activity, by providing the following information for each environmental impact management action:

- For implementation
  - a 'responsible person',
  - a method for implementation,
  - a timeframe for implementation
- For monitoring
  - a responsible person
  - frequency
  - evidence of compliance.

The completed template must be signed and dated by the holder of the EA prior to commencement of the activity. The method statements prepared and agreed to by the holder of the EA must be appended to the template as Appendix 1. Each method statement must be signed and dated on each page by the holder of the EA. This template once signed and dated is legally binding. The holder of the EA will remain responsible for its implementation.

7. Amendments of the impact management outcomes and impact management actions

Once the activity has commenced, a holder of an EA may make amendments to the impact management outcomes and impact management actions in the following manner:

- Amendment of the impact management outcomes: in line with the process contemplated in Regulation 37 of the EIA Regulations; and
- Amendment of the impact management actions: in line with the process contemplated in Regulation 36 of the EIA Regulations.

8. Documents to be submitted as part of part B: section 2 site specific information and declaration

Part B: Section 2 has three distinct sub-sections. The first and third sub-sections are in a template format. Sub-section two requires a map to be produced.

Sub-section 1 contains the project name, the applicant's name and contact details, the site information, which includes coordinates of the property or farm in which the proposed substation infrastructure is proposed as well as the 21-digit Surveyor General code of each cadastral land parcel and, where available, the farm name.

Sub-section 2 is to be prepared by an EAP and must contain his/her name and expertise including a curriculum vitae. This sub-section must include a map of the site sensitivity overlaid with the preliminary infrastructure layout using the national web based environmental screening tool, when available for compulsory use at: https://screening.environment.gov.za/screeningtool. The sensitivity map shall identify the nature of each sensitive feature e.g. threatened plant species, archaeological site, etc. Sensitivity maps shall identify features both within the planned working area and any known sensitive features and within 50 m from the development footprint.

Sub-section 3 is the declaration that the applicant (s)/proponent (s) or holder of the EA in the case of a change of ownership must complete which confirms that the applicant/EA holder will comply with the pre-approved 'generic EMPr' template in Section 1 and understands that the impact management outcomes and impact management actions are legally binding.

(a) Amendments to Part B: Section 2 – site specific information and declaration

Should the EA be transferred, Part B: Section 2 must be completed by the new applicant/proponent and submitted with the application for an amendment of the EA in terms of regulations 29 or 31 of the EIA Regulations, whichever applies. The information submitted as part of such an application for an amendment to an EA will be considered to be incomplete should a signed copy of Part B: Section 2 not be submitted. Once approved, Part B: Section 2 forms part of the EMPr for the development and the EMPr becomes legally binding to the new EA holder.

PART A – GENERAL INFORMATION

1. DEFINITIONS

In this EMPr any word or expression to which a meaning has been assigned in the NEMA or EIA Regulations has that meaning, and unless the context requires otherwise –

"clearing" means the clearing and removal of vegetation, whether partially or in whole, including trees and shrubs, as specified;

"construction camp" is the area designated for key construction infrastructure and services, including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management;

"contractor" - The Contractor has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract, are in line with the Environmental Management Programme and that Method Statements are implemented as described.

"**hazardous substance**" is a substance governed by the Hazardous Substances Act, 1973 (Act No. 15 of 1973) as well as the Hazardous Chemical and Substances Regulations, 1995;

"method statement" means a written submission by the Contractor to the Project Manager in response to this EMPr or a request by the Project Manager and ECO. The method statement must set out the equipment, materials, labour and method(s) the Contractor proposes using to carry out an activity identified by the Project Manager when requesting the Method Statement. This must be done in such detail that the Project Manager and ECO is able to assess whether the Contractor's proposal is in accordance with this specification and/or will produce results in accordance with this specification;

The method statement must cover as a minimum applicable details with regard to:

(i) Construction procedures;
(ii) Plant, materials and equipment to be used;
(iii) Transporting the equipment to and from site;
(iv) How the plant/ material/ equipment will be moved while on site;
(v) How and where the plant/ material/ equipment will be stored;
(vi) The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
(vii) Timing and location of activities;
(viii) Compliance/ non-compliance; and
(ix) Any other information deemed necessary by the Project Manager.

"slope" means the inclination of a surface expressed as one unit of rise or fall for so many horizontal units;

"solid waste" means all solid waste, including construction debris, hazardous waste, excess cement/ concrete, wrapping materials, timber, cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers);

"spoil" means excavated material which is unsuitable for use as material in the construction works or is material which is surplus to the requirements of the construction works;

"topsoil" means a varying depth (up to 300 mm) of the soil profile irrespective of the fertility, appearance, structure, agricultural potential, fertility and composition of the soil;

"works" means the works to be executed in terms of the Contract

2. ACRONYMS and ABBREVIATIONS

CA	Competent Authority
cEO	Contractors Environmental Officer
dEO	Developer Environmental Officer
DPM	Developer Project Manager
DSS	Developer Site Supervisor
EAR	Environmental Audit Report
ECA	Environmental Conservation Act No. 73 of 1989
ECO	Environmental Control Officer
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
ERAP	Emergency Response Action Plan
EMPr	Environmental Management Programme Report
EAP	Environmental Assessment Practitioner
FPA	Fire Protection Agency
HCS	Hazardous chemical Substance
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act ,2004 (Act No. 10 of 2004)
NEMWA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
MSDS	Material Safety Data Sheet
RI&AP's	Registered Interested and affected parties

3. ROLES AND RESPONSIBILITIES FOR ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) IMPLEMENTATION

The effective implementation of this generic EMPr is dependent on established and clear roles, responsibilities and reporting lines within an institutional framework. This section of the EMPr gives guidance to the various environmental roles and reporting lines, however, project specific requirements will ultimately determine the need for the appointment of specific person(s) to undertake specific roles and or responsibilities. As such, it must be noted that in the event that no specific person, for example, an environmental control officer (ECO) is appointed, the holder of the EA remains responsible for ensuring that the duties indicated in this document for action by the ECO are undertaken.

Table 1: *Guide to roles and responsibilities for implementation of an EMPr*

Responsible Person(s)	**Role and Responsibilities**
Developer's Project Manager (DPM)	Role The Project Developer is accountable for ensuring compliance with the EMPr and any conditions of approval from the competent authority (CA). Where required, an environmental control officer (ECO) must be contracted by the Project Developer to objectively monitor the implementation of the EMPr according to relevant environmental legislation, and the conditions of the environmental authorisation (EA). The Project Developer is further responsible for providing and giving mandate to enable the ECO to perform responsibilities, and he must ensure that the ECO is integrated as part of the project team while remaining independent. Responsibilities - Be fully conversant with the conditions of the EA; - Ensure that all stipulations within the EMPr are communicated and adhered to by the Developer and its Contractor(s); - Issuing of site instructions to the Contractor for corrective actions required; - Monitor the implementation of the EMPr throughout the project by means of site inspections and meetings. Overall management of the project and EMPr implementation; and - Ensure that periodic environmental performance audits are undertaken on the project implementation.
Developer Site Supervisor (DSS)	Role The DSS reports directly to the DPM, oversees site works, liaises with the contractor(s) and the ECO. The DSS is responsible for the day to day implementation of the EMPr and for ensuring the compliance of all contractors with the conditions and requirements stipulated in the EMPr.

Responsible Person(s)	Role and Responsibilities
	Responsibilities - Ensure that all contractors identify a contractor's Environmental Officer (cEO); - Must be fully conversant with the conditions of the EA. Oversees site works, liaison with Contractor, DPM and ECO; - Must ensure that all landowners have the relevant contact details of the site staff, ECO and cEO; - Issuing of site instructions to the Contractor for corrective actions required; - Will issue all non-compliances to contractors; and - Ratify the Monthly Environmental Report.
Environmental Control Officer (ECO)	Role The ECO should have appropriate training and experience in the implementation of environmental management specifications. The primary role of the ECO is to act as an independent quality controller and monitoring agent regarding all environmental concerns and associated environmental impacts. In this respect, the ECO is to conduct periodic site inspections, attend regular site meetings, pre-empt problems and suggest mitigation and be available to advise on incidental issues that arise. The ECO is also required to conduct compliance audits, verifying the monitoring reports submitted by the cEO. The ECO provides feedback to the DSS and Project Manager regarding all environmental matters. The Contractor, cEO and dEO are answerable to the Environmental Control Officer for non-compliance with the Performance Specifications as set out in the EA and EMPr. The ECO provides feedback to the DSS and Project Manager, who in turn reports back to the Contractor and potential and Registered Interested &Affected Parties' (RI&AP's), as required. Issues of non-compliance raised by the ECO must be taken up by the Project Manager, and resolved with the Contractor as per the conditions of his contract. Decisions regarding environmental procedures, specifications and requirements which have a cost implication (i.e. those that are deemed to be a variation, not allowed for in the Performance Specification) must be endorsed by the Project Manager. The ECO must also, as specified by the EA, report to the relevant CA as and when required. Responsibilities The responsibilities of the ECO will include the following:

Responsible Person(s)	Role and Responsibilities
	- Be aware of the findings and conclusions of all EA related to the development; - Be familiar with the recommendations and mitigation measures of this EMPr; - Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them; - Undertake regular and comprehensive site inspections / audits of the construction site according to the generic EMPr and applicable licenses in order to monitor compliance as required; - Educate the construction team about the management measures contained in the EMPr and environmental licenses; - Compilation and administration of an environmental monitoring plan to ensure that the environmental management measures are implemented and are effective; - Monitoring the performance of the Contractors and ensuring compliance with the EMPr and associated Method Statements; - In consultation with the Developer Site Supervisor order the removal of person(s) and/or equipment which are in contravention of the specifications of the EMPr and/or environmental licenses; - Liaison between the DPM, Contractors, authorities and other lead stakeholders on all environmental concerns; - Compile a regular environmental audit report highlighting any non-compliance issues as well as satisfactory or exceptional compliance with the EMPr; - Validating the regular site inspection reports, which are to be prepared by the contractor Environmental Officer (cEO); - Checking the cEO's record of environmental incidents (spills, impacts, legal transgressions etc.) as well as corrective and preventive actions taken; - Checking the cEO's public complaints register in which all complaints are recorded, as well as action taken; - Assisting in the resolution of conflicts; - Facilitate training for all personnel on the site – this may range from carrying out the training, to reviewing the training programmes of the Contractor; - In case of non-compliances, the ECO must first communicate this to the Senior Site Supervisor, who has the power to ensure this matter is addressed. Should no action or insufficient action be taken, the ECO may report this matter to the authorities as non-compliance;

Responsible Person(s)	Role and Responsibilities
	- Maintenance, update and review of the EMPr; - Communication of all modifications to the EMPr to the relevant stakeholders.
developer Environmental Officer (dEO)	Role The dEOs will report to the Project Manager and are responsible for implementation of the EMPr, environmental monitoring and reporting, providing environmental input to the Project Manager and Contractor's Manager, liaising with contractors and the landowners as well as a range of environmental coordination responsibilities. Responsibilities - Be fully conversant with the EMPr; - Be familiar with the recommendations and mitigation measures of this EMPr, and implement these measures; - Ensure that all stipulations within the EMPr are communicated and adhered to by the Employees, Contractor(s) ; - Confine the development site to the demarcated area; - Conduct environmental internal audits with regards to EMPr and authorisation compliance (on cEO); - Assist the contractors in addressing environmental challenges on site; - Assist in incident management: - Reporting environmental incidents to developer and ensuring that corrective action is taken, and lessons learnt shared; - Assist the contractor in investigating environmental incidents and compile investigation reports; - Follow-up on pre-warnings, defects, non-conformance reports; - Measure and communicate environmental performance to the Contractor; - Conduct environmental awareness training on site together with ECO and cEO; - Ensure that the necessary legal permits and / or licenses are in place and up to date; - Acting as Developer's Environmental Representative on site and work together with the ECO and contractor;
Contractor	Role The Contractor appoints the cEO and has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract are in line with the EMPr and that Method Statements are

Responsible Person(s)	Role and Responsibilities
	implemented as described. External contractors must ensure compliance with this EMPr while performing the onsite activities as per their contract with the Project Developer. The contractors are required, where specified, to provide Method Statements setting out in detail how the impact management actions contained in the EMPr will be implemented during the development or expansion of substation infrastructure for the transmission and distribution of electricity activities. <u>Responsibilities</u> - project delivery and quality control for the development services as per appointment; - employ a suitably qualified person to monitor and report to the Project Developer's appointed person on the daily activities on-site during the construction period; - ensure that safe, environmentally acceptable working methods and practices are implemented and that equipment is properly operated and maintained, to facilitate proper access and enable any operation to be carried out safely; - attend on site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones; - ensure that contractors' staff repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in EMPr, to the satisfaction of the ECO.
contractor Environmental Officer (cEO)	<u>Role</u> Each Contractor affected by the EMPr should appoint a cEO, who is responsible for the on-site implementation of the EMPr (or relevant sections of the EMPr). The Contractor's representative can be the site agent; site engineer; a dedicated environmental officer; or an independent consultant. The Contractor must ensure that the Contractor's Representative is suitably qualified to perform the necessary tasks and is appointed at a level such that she/he can interact effectively with other site Contractors, labourers, the Environmental Control Officer and the public. As a minimum the cEO shall meet the following criteria: <u>Responsibilities</u> - Be on site throughout the duration of the project and be dedicated to the project; - Ensure all their staff are aware of the environmental requirements, conditions and constraints with respect to all of their activities on site; - Implementing the environmental conditions, guidelines and requirements as stipulated within the EA, EMPr and Method Statements; - Attend the Environmental Site Meeting;

Responsible Person(s)	Role and Responsibilities
	- Undertaking corrective actions where non-compliances are registered within the stipulated timeframes; - Report back formally on the completion of corrective actions; - Assist the ECO in maintaining all the site documentation; - Prepare the site inspection reports and corrective action reports for submission to the ECO; - Assist the ECO with the preparing of the monthly report; and - Where more than one Contractor is undertaking work on site, each company appointed as a Contractor will appoint a cEO representing that company.

4. ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE

To ensure accountable and demonstrated implementation of the EMPr, a number of reporting systems, documentation controls and compliance mechanisms must be in place for all substation infrastructure projects as a minimum requirement.

4.1 Document control/Filing system

The holder of the EA is solely responsible for the upkeep and management of the EMPr file. As a minimum, all documentation detailed below will be stored in the EMPr file. A hard copy of all documentation shall be filed, while an electronic copy may be kept where relevant. A duplicate file will be maintained in the office of the DSS (where applicable). This duplicate file must remain current and up-to-date. The filing system must be updated and relevant documents added as required. The EMPr file must be made available at all times on request by the CA or other relevant authorities. The EMPr file will form part of any environmental audits undertaken as prescribed in the EIA Regulations.

4.2 Documentation to be available

At the outset of the project the following preliminary list of documents shall be placed in the filing system and be accessible at all times:

- Full copy of the signed EA from the CA in terms of NEMA, granting approval for the development or expansion;
- Copy of the generic and site specific EMPr as well as any amendments thereof;
- Copy of declaration of implementing generic EMPr and subsequent approval of site specific EMPr and amendments thereof;
- All method statements;
- Completed environmental checklists;
- Minutes and attendance register of environmental site meetings;
- An up-to-date environmental incident log;
- A copy of all instructions or directives issued;
- A copy of all corrective actions signed off. The corrective actions must be filed in such a way that a clear reference is made to the non-compliance record;
- Complaints register.

4.3 Weekly Environmental Checklist

The ECOs are required to complete a Weekly Environmental Checklist, the format of which is to be agreed prior to commencement of the activity. The ECOs are required to sign and date the checklist, retain a copy in the EMPr file and submit a copy of the completed checklist to the DSS on a weekly basis.

The checklists will form the basis for the Monthly Environmental Reports. Copies of all completed checklists will be attached as Annexures to the Environmental Audit Report as required in terms of the EIA Regulations.

4.4 Environmental site meetings

Minutes of the environmental site meetings shall be kept. The minutes must include an attendance register and will be attached to the Monthly Report that is distributed to attendees. Each set of minutes must clearly record "Matters for Attention" that will be reviewed at the next meeting.

4.5 Required Method Statements

The method statement will be done in such detail that the ECOs are enabled to assess whether the contractor's proposal is in accordance with the EMPr.

The method statement must cover applicable details with regard to:

- development procedures;
- materials and equipment to be used;
- getting the equipment to and from site;
- how the equipment/ material will be moved while on site;
- how and where material will be stored;
- the containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- timing and location of activities;
- compliance/ non-compliance with the EMPr; and
- any other information deemed necessary by the ECOs.

Unless indicated otherwise by the Project Manager, the Contractor shall provide the following method statements to the Project Manager no less than 14 days prior to the commencement date of the activity:

- Site establishment – Camps, Lay-down or storage areas, satellite camps, infrastructure;
- Batch plants;
- Workshop or plant servicing;
- Handling, transport and storage of Hazardous Chemical Substance's;
- Vegetation management – Protected, clearing, aliens, felling;
- Access management – Roads, gates, crossings etc.;
- Fire plan;
- Waste management – transport, storage, segregation, classification, disposal (all waste streams);
- Social interaction – complaints management, compensation claims, access to properties etc.;
- Water – use (source, abstraction and disposal), access and all related information, crossings and mitigation;
- Emergency preparedness – Spills, training, other environmental emergencies;
- Dust and noise management methodologies;
- Fauna interaction and risk management – only if the risk was identified – wildlife interaction especially on game farms; and
- Heritage and palaeontology management.

The ECOs shall monitor and ensure that the contractors perform in accordance with these method statements. Completed and agreed method statements between the holder of the EA and the contractor shall be captured in Appendix 1.

4.6 Environmental Incident Log (Diary)

The ECOs are required to maintain an up-to-date and current Environmental Incident Log (environmental diary). The Environmental Incident Log is a means to record all environmental incidents and/or all non-compliance notice would not be issued. An environmental incident is defined as:

- Any deviation from the listed impact management actions (listed in this EMPr) that may be addressed immediately by the ECOs. (For example a contractor's staff member littering or a drip tray that has not been emptied);
- Any environmental impact resulting from an action or activity by a contractor in contravention of the environmental stipulations and guidelines listed in the EMPr which as a single event would have a minor impact but which if cumulative and continuous would have a significant effect (for example no toilet paper available in the ablutions for an afternoon); and
- General environmental information such as road kills or injured wildlife.

The ECOs are to record all environmental incidents in the Environmental Incident Log. All incidents regardless of severity must be reported to the Developer. The Log is to be kept in the EMPr file and at a minimum the following will be recorded for each environmental incident:

- The date and time of the incident;
- Description of the incident;
- The name of the Contractor responsible;
- The incident must be listed as significant or minor;
- If the incident is listed as significant, a non-compliance notice must be issued, and recorded in the log;
- Remedial or corrective action taken to mitigate the incident; and
- Record of repeat minor offences by the same contractor or staff member.

The Environmental Incident Log will be captured in the EAR.

4.7 Non-compliance

A non-compliance notice will be issued to the responsible contractor by the ECOs via the DSS or Project Manager. The non-compliance notice will be issued in writing; a copy filed in the EMPr file and will at a minimum include the following:

- Time and date of the non-compliance;
- Name of the contractor responsible;
- Nature and description of the non-compliance;
- Recommended / required corrective action; and
- Date by which the corrective action to be completed.
- The contractors shall act immediately when a notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Complaints received regarding activities on the development site pertaining to the environment shall be

recorded in a dedicated register and the response noted with the date and action taken. The ECO should be made aware of any complaints. Any non-compliance with the agreed procedures of the EMPr is a transgression of the various statutes and laws that define the manner by which the environment is managed. Failure to redress the cause shall be reported to the relevant CA for them to deal with the transgression, as it deems fit. The contractor is deemed not to have complied with the EMPr if, inter alia, There is a deviation from the environmental conditions, impact management outcomes and impact management actions activities, as approved in generic and site specific EMPr as relevant as set out in the EMPr, which deviation has, or may cause, an environmental impact.

4.8 Corrective action records

For each non-compliance notice issued, a documented corrective action must be recorded. On receiving a non-compliance notice from the DSS, the contractor's cEO will ensure that the corrective actions required take place within the stipulated timeframe. On completion of the corrective action the cEO is to issue a Corrective Action Report in writing to the ECOs. If satisfied that the corrective action has been completed, the ECOs are to sign-off on the Corrective Action Report, and attach the report to the non-compliance notice in the EMPr file. A corrective action is considered complete once the report has signed off by the ECOs.

4.9 Photographic record

A digital photographic record will be kept. The photographic record will be used to show before, during and post rehabilitation evidence of the project as well used in cases of damages claims if they arise. Each image must be dated and a brief description note attached.

The Contractor shall:

1. Allow the ECOs access to take photographs of all areas, activities and actions.

The ECOs shall keep an electronic database of photographic records which will include:

1. Pictures of all areas designated as work areas, camp areas, development sites and storage areas taken before these areas are set up;
2. All bunding and fencing;
3. Road conditions and road verges;
4. Condition of all farm fences;
5. Topsoil storage areas;
6. All areas to be cordoned off during construction;
7. Waste management sites;
8. Ablution facilities (inside and out);
9. Any non-conformances deemed to be "significant";
10. All completed corrective actions for non-compliances;
11. All required signage;
12. Photographic recordings of incidents;
13. All areas before, during and post rehabilitation; and
14. Include relevant photographs in the Final Environmental Audit Report.

4.10 Complaints register

The ECOs shall keep a current and up-to-date complaints register. The complaints register is to be a record of all complaints received from communities, stakeholders and individuals. The Complaints Record shall:

1. Record the name and contact details of the complainant;
2. Record the time and date of the complaint;
3. Contain a detailed description of the complaint;
4. Where relevant and appropriate, contain photographic evidence of the complaint or damage (ECOs to take relevant photographs); and
5. Contain a copy of the ECOs written response to each complaint received and keep a record of any further correspondence with the complainant. The ECO's written response will include a description of any corrective action to be taken and must be signed by the Contractor, ECO and affected party. Where a damage claim is issued by the complainant, the ECOs shall respond as described in (**section 4.11**) below.

4.11 Claims for damages

In the event that a Claim for Damages is submitted by a community, landowner or individual, the ECOs shall:

1. Record the full detail of the complaint as described in (**section 4.10**) above;
2. The DPM will evaluate the claim and associated damage and submit the evaluation to the Senior Site Representative for approval;
3. Following consideration by the DPM, the claim is to be resolved and settled immediately, or the reason for not accepting the claim communicated in writing to the claimant. Should the claimant not accept this, the ECO shall, in writing report the incident to the Developer's negotiator and legal department; and
4. A formal record of the response by the ECOs to the claimant as well as the rectification of the method of making payments not amount will be recorded in the EMPr file.

4.12 Interactions with affected parties

Open, transparent and good relations with affected landowners, communities and regional staff are an essential aspect to the successful management and mitigation of environmental impacts.

The ECOs shall:

1. Ensure that all queries, complaints and claims are dealt within an agreed timeframe;
2. Ensure that any or all agreements are documented, signed by all parties and a record of the agreement kept in the EMPr file;
3. Ensure that a complaints telephone numbers are made available to all landowners and affected parties; and
4. Ensure that contact with affected parties is courteous at all times;

4.13 Environmental audits

Internal environmental audits of the activity and implementation of the EMPr must be undertaken. The findings and outcomes included in the EMPr file and submitted to the CA at intervals as indicated in the EA.

The ECOs must prepare a monthly EAR. The report will be tabled as the key point on the agenda of the Environmental Site Meeting. The Report is submitted for acceptance at the meeting and the final report will be circulated to the Project Manager and filed in the EMPr file. At a frequency determined by the EA, the ECOs shall submit the monthly reports to the CA. At a minimum the monthly report is to cover the following:

- Weekly Environmental Checklists;
- Deviations and non-compliances with the checklists;
- Non-compliances issued;
- Completed and reported corrective actions;
- Environmental Monitoring;
- General environmental findings and actions; and
- Minutes of the Bi-monthly Environmental Site Meetings.

4.14 Final environmental audits

On final completion of the rehabilitation and/or requirements of the EA a final EAR is to be prepared and submitted to the CA. The EAR must comply with Appendix 7 of the EIA Regulations.

PART B: SECTION 1: Pre-approved generic EMPr template

5. IMPACT MANAGEMENT OUTCOMES AND IMPACT MANAGEMENT ACTIONS

This section provides a pre-approved generic EMPr template with aspects that are common to the development of substation infrastructure for the transmission and distribution of electricity. There is a list of aspects identified for the development or expansion of substation infrastructure for the transmission and distribution of electricity, and for each aspect a set of prescribed impact management outcomes and associated impact management actions have been identified. Holders of EAs are responsible to ensure the implementation of these outcomes and actions for all projects as a minimum requirement, in order to mitigate the impact of such aspects identified for the development or expansion of substation infrastructure for the transmission and distribution of electricity.

The template provided below is to be completed by providing the information under each heading for each environmental impact management action.

The completed template must be signed and dated on each page by both the contractor and the holder of the EA prior to commencement of the activity. The method statements prepared and agreed to by the holder of the EA must be appended to the template as Appendix 1. Each method statement must also be duly signed and dated on each page by the contactor and the holder of the EA. This template, once signed and dated, is legally binding. The holder of the EA will remain responsible for its implementation.

5.1 Environmental awareness training						
Impact management outcome: All onsite staff are aware and understand the individual responsibilities in terms of this EMPr.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
All staff must receive environmental awareness training prior to commencement of the activities						
The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course;						
Refresher environmental awareness training is available as and when required;						
All staff are aware of the conditions and controls linked to the EA and within the EMPr and made aware of their individual roles and responsibilities in achieving compliance with the EA and EMPr;						
The Contractor must erect and maintain information posters at key locations on site, and the posters must include the following information as a minimum: a) Safety notifications; and b) No littering						

Environmental awareness training must include as a minimum the following: a) Description of significant environmental impacts, actual or potential, related to their work activities; b) Mitigation measures to be implemented when carrying out specific activities; c) Emergency preparedness and response procedures; d) Emergency procedures; e) Procedures to be followed when working near or within sensitive areas; f) Wastewater management procedures; g) Water usage and conservation; h) Solid waste management procedures; i) Sanitation procedures; j) Fire prevention; and k) Disease prevention.						
A record of all environmental awareness training courses undertaken as part of the EMPr must be available;						

Educate workers on the dangers of open and/or unattended fires;	ECO / cEO / dEO					
A staff attendance register of all staff to have received environmental awareness training must be available.	ECO / cEO / dEO					
Course material must be available and presented in appropriate languages that all staff can understand	ECO / cEO / dEO					
5.2 Site Establishment development						
Impact management outcome: Impacts on the environment are minimised during site establishment and the development footprint are kept to demarcated development area.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

A method statement must be provided by the contractor prior to any onsite activity that includes the layout of the construction camp in the form of a plan showing the location of key infrastructure and services (where applicable), including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous materials storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management;						
Location of construction camps must be within approved area to ensure that the site does not impact on sensitive areas identified in the environmental assessment or site walk through;						
Sites must be located where possible on previously disturbed areas						

The camp must be fenced in accordance with ***Section 5.5: Fencing and gate installation***; and						
The use of existing accommodation for contractor staff, where possible, is encouraged.						
5.3 Access restricted areas						
Impact management outcome: Access to restricted areas prevented.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Identification of access restricted areas is to be informed by the environmental assessment, site walk through and any additional areas identified during development;						
Erect, demarcate and maintain a temporary barrier with clear signage around the perimeter of any access restricted area, colour coding could be used if appropriate; and						

Unauthorised access and development related activity inside access restricted areas is prohibited						
5.4 Access roads						
Impact management outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on site.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
An access agreement must be formalised and signed by the DPM, Contractor and landowner before commencing with the activities;						
All private roads used for access to the servitude must be maintained and upon completion of the works, be left in at least the original condition						
All contractors must be made aware of all the access routes.						

Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the contractor's expense;						
Maximum use of both existing servitudes and existing roads must be made to minimise further disturbance through the development of new roads;						
In circumstances where private roads must be used, the condition of the said roads must be recorded in accordance with s***ection 4.9: photographic record***; prior to use and the condition thereof agreed by the landowner, the DPM, and the contractor;						
Access roads in flattish areas must follow fence lines and tree belts to avoid fragmentation of vegetated areas or croplands;						

Access roads must only be developed on pre-planned and approved roads.						
5.5 Fencing and Gate installation						
Impact management outcome: Minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Use existing gates provided to gain access to all parts of the area authorised for development, where possible;						
Existing and new gates to be recorded and documented in accordance with ***section 4.9: photographic record***;						
All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner;						

At points where the line crosses an existing fence in which there is no suitable gate within the extent of the line servitude, on the instruction of the DPM, a gate must be installed at the approval of the landowner;						
Care must be taken that the gates must be so erected that there is a gap of no more than 100 mm between the bottom of the gate and the ground;						
Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill must be provided beneath the gate;						
Original tension must be maintained in the fence wires;						
All gates installed in electrified fencing must be re-electrified;						
All demarcation fencing and barriers must be maintained in good working order for the duration of overhead transmission and distribution						

electricity infrastructure development activities;						
Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas, where appropriate and would not cause harm to the sensitive flora;						
Any temporary fencing to restrict the movement of livestock must only be erected with the permission of the landowner.						
All fencing must be developed of high quality material bearing the SABS mark;						
The use of razor wire as fencing must be avoided as far as possible;						

Fenced areas with gate access must remain locked after hours, during weekends and on holidays if staff is away from site. Site security will be required at all times;						
On completion of the development phase all temporary fences are to be removed;						
The Contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.						
5.6 Water Supply Management						
Impact management outcome: Undertake responsible water usage.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
All abstraction points or bore holes must be registered with the DWS and suitable water meters installed to ensure that the abstracted						

volumes are measured on a daily basis;						
The Contractor must ensure the following: a. The vehicle abstracting water from a river does not enter or cross it and does not operate from within the river; b. No damage occurs to the river bed or banks and that the abstraction of water does not entail stream diversion activities; and c. All reasonable measures to limit pollution or sedimentation of the downstream watercourse are implemented.						
Ensure water conservation is being practiced by: a. Minimising water use during cleaning of equipment; b. Undertaking regular audits of water systems; and c. Including a discussion on water usage and conservation during environmental awareness training. d. The use of grey water is encouraged.						

5.7 Storm and waste water management						
Impact management outcome: Impacts to the environment caused by stormwater and wastewater discharges during construction are avoided						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Runoff from the cement/ concrete batching areas must be strictly controlled, and contaminated water must be collected, stored and either treated or disposed of off-site, at a location approved by the project manager;						
All spillage of oil onto concrete surfaces must be controlled by the use of an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility;						

Natural stormwater runoff not contaminated during the development and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO;						
Water that has been contaminated with suspended solids, such as soils and silt, may be released into watercourses or water bodies only once all suspended solids have been removed from the water by settling out these solids in settlement ponds. The release of settled water back into the environment must be subject to the Project Manager's approval and support by the ECO.						
5.8 Solid and hazardous waste management						
Impact management outcome: Waste is appropriately stored, handled and safely disposed of at a recognised waste facility.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

All measures regarding waste management must be undertaken using an integrated waste management approach;						
Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided;						
A suitably positioned and clearly demarcated waste collection site must be identified and provided;						
The waste collection site must be maintained in a clean and orderly manner;						

Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal;						
Staff must be trained in waste segregation;						
Bins must be emptied regularly;						
General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company;						
Hazardous waste must be disposed of at a registered waste disposal site;						

Certificates of safe disposal for general, hazardous and recycled waste must be maintained.						
5.9 Protection of watercourses and estuaries						
Impact management outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
All watercourses must be protected from direct or indirect spills of pollutants such as solid waste, sewage, cement, oils, fuels, chemicals, aggregate tailings, wash and contaminated water or organic material resulting from the Contractor's activities;						
In the event of a spill, prompt action must be taken to clear the polluted or affected areas;						

Where possible, no development equipment must traverse any seasonal or permanent wetland						
No return flow into the estuaries must be allowed and no disturbance of the Estuarine Functional Zone should occur;	NA					
Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available;						
There must not be any impact on the long-term morphological dynamics of watercourses or estuaries;						

Existing crossing points must be favoured over the creation of new crossings (including temporary access)						
When working in or near any watercourse or estuary, the following environmental controls and consideration must be taken: a) Water levels during the period of construction; No altering of the bed, banks, course or characteristics of a watercourse b) During the execution of the works, appropriate measures to prevent pollution and contamination of the riparian environment must be implemented e.g. including ensuring that construction equipment is well maintained; c) Where earthwork is being undertaken in close proximity to any watercourse, slopes must be stabilised using suitable materials, i.e. sandbags or geotextile fabric, to prevent sand and rock from entering the channel; and d) Appropriate rehabilitation and re-						

vegetation measures for the watercourse banks must be implemented timeously. In this regard, the banks should be appropriately and incrementally stabilised as soon as development allows.						
5.10 Vegetation clearing						
Impact management outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
General						
Indigenous vegetation which does not interfere with the development must be left undisturbed;						

Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species;						
Search, rescue and replanting of all protected and endangered species likely to be damaged during project development must be identified by the relevant specialist and completed prior to any development or clearing;						
Permits for removal must be obtained from the Department of Agriculture, Forestry and Fisheries (DAFF) prior to the cutting or clearing of the affected species, and they must be filed;						

The Environmental Audit Report must confirm that all identified species have been rescued and replanted and that the location of replanting is compliant with conditions of approvals;				Not Applicable		
Trees felled due to construction must be documented and form part of the Environmental Audit Report;				Not Applicable		
Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris;						
Only a registered pest control operator may apply herbicides on a commercial basis and commercial application must be carried out under the supervision of a registered pest control operator that is appropriately trained;						

A daily register must be kept of all relevant details of herbicide usage;						
No herbicides must be used in estuaries;	N/A					
All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance to ***Section 5.3: Access restricted areas***.						
5.11 Protection of fauna						
Impact management outcome: Disturbance to fauna is minimised						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present;						
The breeding sites of raptors and other wild bird species must be taken into consideration during the						

planning of the development programme;						
Breeding sites must be kept intact and disturbance to breeding birds must be avoided. Special care must be taken where nestlings or fledglings are present;						
Special recommendations of the avian specialist must be adhered to at all times to prevent unnecessary disturbance of birds;						
No poaching must be tolerated under any circumstances. All animal dens in close proximity to the works areas must be marked as Access restricted areas;						

No deliberate or intentional killing of fauna is allowed;						
In areas where snakes are abundant, snake deterrents are to be deployed on the pylons to prevent snakes climbing up, being electrocuted and causing power outages; and						
No Threatened or Protected species (ToPs) and/or protected fauna as listed according NEMBA (Act No. 10 of 2004) and relevant provincial ordinances may be removed and/or relocated without appropriate authorisations/permits.						
5.12 Protection of heritage resources						
Impact management outcome: Impact to heritage resources is minimised						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

Identify, demarcate and prevent impact to all known sensitive heritage features on site in accordance with the No-Go procedure in ***Section 5.3: Access restricted areas***;						
Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance;						
All work must cease immediately, if any human remains and/or other archaeological, palaeontological and historical material are uncovered. Such material, if exposed, must be reported to the nearest museum, archaeologist/ palaeontologist (or the South African Police Services), so that a systematic and professional investigation can be undertaken. Sufficient time must be allowed to						

remove/collect such material before development recommences.						
5.13 Safety of the public						
Impact management outcome: All precautions are taken to minimise the risk of injury, harm or complaints.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Identify fire hazards, demarcate and restrict public access to these areas as well as notify the local authority of any potential threats e.g. large brush stockpiles, fuels etc.;						

All unattended open excavations must be adequately fenced or demarcated;						
Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed towers and protective scaffolding;						
Ensure structures vulnerable to high winds are secured;						

Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.						
5.14 Sanitation						
Impact management outcome: Clean and well-maintained toilet facilities are available to all staff in an effort to minimise the risk of disease and impact to the environment						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Mobile chemical toilets are installed onsite if no other ablution facilities are available;						
The use of ablution facilities and or mobile toilets must be used at all times and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances;						

Where mobile chemical toilets are required, the following must be ensured: a) Toilets are located no closer than 100 m to any watercourse or water body; b) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause; c) No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMPr; d) Toilets have an external closing mechanism and are closed and secured from the outside when not in use to prevent toilet paper from being blown out; e) Toilets are emptied before long weekends and workers holidays, and must be locked after working hours; f) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards;						
A copy of the waste disposal certificates must be maintained.						
5.15 Prevention of disease						

Impact management outcome: All necessary precautions linked to the spread of disease are taken.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Undertake environmentally friendly pest control in the camp area;						
Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV/ AIDS;						
The Contractor must ensure that information posters on HIV/ AIDS are displayed in the Contractor Camp area;						
Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable;						
Free condoms must be made available to all staff on site at central points;						

Medical support must be made available;						
Provide access to Voluntary HIV Testing and Counselling Services.						
5.16 Emergency procedures						
Impact management outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project						

The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation;						
All staff must be made aware of emergency procedures as part of environmental awareness training;						
The relevant local authority must be made aware of a fire as soon as it starts;						

In the event of emergency, necessary mitigation measures to contain the spill or leak must be implemented (see ***Hazardous Substances section 5.17***).						
5.17 Hazardous substances						
Impact management outcome: Safe storage, handling, use and disposal of hazardous substances						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible;						
All hazardous substances must be stored in suitable containers as defined in the Method Statement;						

Containers must be clearly marked to indicate contents, quantities and safety requirements;						
All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers;						
Bunded areas to be suitably lined with a SABS approved liner;						
An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis;						
All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS);						

All employees working with HCS must be trained in the safe use of the substance and according to the safety data shee						
Employees handling hazardous substances / materials must be aware of the potential impacts and follow appropriate safety measures. Appropriate personal protective equipment must be made available;						
The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers						

The tanks/ bowsers must be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining must extend to the crest of the bund and the volume inside the bund must be 130% of the total capacity of all the storage tanks/ bowsers (110% statutory requirement plus an allowance for rainfall);						
The floor of the bund must be sloped, draining to an oil separator;						
Provision must be made for refuelling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained;						
All empty externally dirty drums must be stored on a drip tray or within a bunded area;						

No unauthorised access into the hazardous substances storage areas must be permitted;						
No smoking must be allowed within the vicinity of the hazardous storage areas;						
Adequate fire-fighting equipment must be made available at all hazardous storage areas;						
Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit must be used. Appropriate ground protection such as drip trays must be used;						
An appropriately sized spill kit kept onsite relevant to the scale of the activity/s involving the use of hazardous substance must be available at all times;						

The responsible operator must have the required training to make use of the spill kit in emergency situations;						
An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken;						
In the event of a spill, contaminated soil must be collected in containers and stored in a central location and disposed of according to the National Environmental Management: Waste Act 59 of 2008. Refer to ***Section 5.7 for procedures concerning storm and waste water management and 5.8 for solid and hazardous waste management***.						
5.18 Workshop, equipment maintenance and storage						
Impact management outcome: Soil, surface water and groundwater contamination is minimised.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

Where possible and practical all maintenance of vehicles and equipment must take place in the workshop area;						
During servicing of vehicles or equipment, especially where emergency repairs are effected outside the workshop area, a suitable drip tray must be used to prevent spills onto the soil.						
Leaking equipment must be repaired immediately or be removed from site to facilitate repair;						
Workshop areas must be monitored for oil and fuel spills;						
Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place must be available;						
The workshop area must have a bunded concrete slab that is sloped to facilitate runoff into a collection sump or suitable oil / water separator where maintenance work on vehicles and equipment can be performed;						

Water drainage from the workshop must be contained and managed in accordance with ***Section 5.7: storm and waste water management.***						
5.19 Batching plants						
Impact management outcome: Minimise spillages and contamination of soil, surface water and groundwater.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Concrete mixing must be carried out on an impermeable surface;						
Batching plants areas must be fitted with a containment facility for the collection of cement laden water.	N/A					
Dirty water from the batching plant must be contained to prevent soil and groundwater contamination	N/A					
Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies and drains;						

A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted;						
Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licensed disposal facility;						
Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site;						
Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to ***Section 5.20: Dust emissions***)						

Any excess sand, stone and cement must be removed or reused from site on completion of construction period and disposed at a registered disposal facility;						
Temporary fencing must be erected around batching plants in accordance with Section 5.5: Fencing and gate installation.	N/A					
5.20 Dust emissions						
Impact management outcome: Dust prevention measures are applied to minimise the generation of dust.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO;						
Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces must be re-vegetated or stabilised as soon as is practically possible;						

Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present;						
During high wind conditions, the ECO must evaluate the situation and make recommendations as to whether dust-damping measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level;				Not Applicable		
Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind;						
Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO;						
Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas;						

Straw stabilisation must be applied at a rate of one bale/10 m² and harrowed into the top 100 mm of top material, for all completed earthworks;						
For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.						
5.21 Blasting						
Impact management outcome: Impact to the environment is minimised through a safe blasting practice.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Any blasting activity must be conducted by a suitably licensed blasting contractor; and	N/A					
Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such activity taking place on Site.	N/A					
5.22 Noise						
Impact management outcome: Prevent unnecessary noise to the environment by ensuring that noise from development activity is mitigated.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

The Contractor must keep noise level within acceptable limits. Restrict the use of sound amplification equipment for communication and emergency only;						
All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained;						
Any complaints received by the Contractor regarding noise must be recorded and communicated. Where possible or applicable, provide transport to and from the site on a daily basis for construction workers;						
Develop a Code of Conduct for the construction phase in terms of behaviour of construction staff. Operating hours as determined by the environmental authorisation are adhered to during the development phase. Where not defined, it must be ensured that development activities must still meet the impact management outcome related to noise management.						
5.23 Fire prevention						
Impact management outcome: Prevention of uncontrollable fires.						

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Designate smoking areas where the fire hazard could be regarded as insignificant;						
Firefighting equipment must be available on all vehicles located on site;						
The local Fire Protection Agency (FPA) must be informed of construction activities;						

Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site;						
Two-way swop of contact details between ECO and FPA.				Not Applicable		
5.24 Stockpiling and stockpile areas						
Impact management outcome: Reduce erosion and sedimentation as a result of stockpiling						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on site in order to minimise impacts to watercourses and water bodies;						

All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods;						
Topsoil stockpiles must not exceed 2 m in height;						
During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.);						
Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material.						
5.25 Civil Works						
Impact to the environment minimised during civil works to create the substation terrace						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Where terracing is required, topsoil must be collected and retained for the purpose of re-use later to rehabilitate disturbed areas not covered by yard stone;						

Areas to be rehabilitated include terrace embankments and areas outside the high voltage yards;						
Where required, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled;						
These areas can be stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly;						
Rehabilitation of the disturbed areas must be managed in accordance with ***Section 5.35: Landscaping and rehabilitation***;						
All excess spoil generated during terracing activities must be disposed of in an appropriate manner and at a recognised landfill site; and						

Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes.						
5.26 Excavation of foundation, cable trenching and drainage systems						
Impact management outcome: No environmental degradation occurs as a result of excavation of foundation, cable trenching and drainage systems.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
All excess spoil generated during foundation excavation must be disposed of in an appropriate manner and at a licensed landfill site, if not used for backfilling purposes;						
Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes;						
Management of equipment for excavation purposes must be undertaken in accordance with *Section 5.18: Workshop equipment maintenance and storage*; and						

Hazardous substances spills from equipment must be managed in accordance with S***ection 5.17: Hazardous substances***.						
5.27 Installation of foundations, cable trenching and drainage systems						
Impact management outcome: No environmental degradation occurs during the installation of foundations, cable trenching and drainage systems						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Batching of cement to be undertaken in accordance with ***Section 5.19: Batching plants***; and						
Residual solid waste must be disposed of in accordance with ***Section 5.8: Solid waste and hazardous management***.						
5.28 Installation of equipment (circuit breakers, current transformers, isolators, insulators, surge arrestors, voltage transformers, earth switches?						
Impact management outcome: No environmental degradation occurs as a result of installation of equipment						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

Management of dust must be conducted in accordance with ***Section 5. 20: Dust emissions***;						
Management of equipment used for installation must be conducted in accordance with ***Section 5.18: Workshop, equipment maintenance and storage***;						
Management hazardous substances and any associated spills must be conducted in accordance with ***Section 5.17: Hazardous substances***; and						
Residual solid waste must be recycled or disposed of in accordance with ***Section 5.8: Solid waste and hazardous managemen***t.						
5.29 Steelwork Assembly and Erection						
Impact management outcome: No environmental degradation occurs as a result of steelwork assembly and erection						
Impact Management Actions	**Implementation**			**Monitoring**		

	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
During assembly, care must be taken to ensure that no wasted/unused materials are left on site e.g. bolts and nuts						
Emergency repairs due to breakages of equipment must be managed in accordance with ***Section 5. 18: Workshop, equipment maintenance and storage and Section 5.16: Emergency procedures***.						
5.30 Cabling and Stringing						
Impact management outcome: No environmental degradation occurs as a result of stringing.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Residual solid waste (off cuts etc.) shall be recycled or disposed of in accordance with S***ection 6.8: Solid waste and hazardous Management***;						

Management of equipment used for installation shall be conducted in accordance with ***Section 5.18: Workshop, equipment maintenance and storage***;						
Management hazardous substances and any associated spills shall be conducted in accordance with ***Section 5.17: Hazardous substances***.						
5.31 Testing and Commissioning (all equipment testing, earthing system, system integration)						
Impact management outcome: No environmental degradation occurs as a result of Testing and Commissioning						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Residual solid waste must be recycled or disposed of in accordance with ***Section 5.8: Solid waste and hazardous management***.						
5.32 Socio-Economic						
Impact management outcome: enhanced socio-economic development						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

Develop and implement communication strategies to facilitate public participation;						
Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process;						

Sustain continuous communication and liaison with neighboring owners and residents						
Create work and training opportunities for local stakeholders; and						
Where feasible, no workers, with the exception of security personnel, must be permitted to stay over-night on the site. This would reduce the risk to local farmers.	N/A					
5.33 Temporary Closure of Site						
Impact management outcome: Minimise the risk of environmental impact during periods of site closure greater than five days						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in ***sections 5.17: Hazardous substances and 5.18: Workshop, equipment maintenance and storage***;						
Hazardous storage areas must be well ventilated;						
Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service;						
Emergency and contact details displayed must be displayed;						
Security personnel must be briefed and have the facilities to contact or be contacted by relevant						

management and emergency personnel;						
Night hazards such as reflectors, lighting, traffic signage etc. must have been checked;						
Fire hazards identified and the local authority must have been notified of any potential threats e.g. large brush stockpiles, fuels etc.;						
Structures vulnerable to high winds must be secured;						
Wind and dust mitigation must be implemented;						
Cement and materials stores must have been secured;						
Toilets must have been emptied and secured;						

Refuse bins must have been emptied and secured;						
Drip trays must have been emptied and secured.						
5.34 Dismantling of old equipment						
Impact management outcome: Impact on the environment to be minimised during the dismantling, storage and disposal of old equipment commissioning						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
All old equipment removed during the project must be stored in such a way as to prevent pollution of the environment;						
Oil containing equipment must be stored to prevent leaking or be stored on drip trays;						
All scrap steel must be stacked neatly and any disused and broken insulators must be stored in containers;						
Once material has been scrapped and the contract has been placed for removal, the disposal Contractor must ensure that any equipment containing pollution causing substances is dismantled and						

transported in such a way as to prevent spillage and pollution of the environment;						
The Contractor must also be equipped to contain and clean up any pollution causing spills; and						
Disposal of unusable material must be at a licensed waste disposal site.						
5.35 Landscaping and rehabilitation						
Impact management outcome: Areas disturbed during the development phase are returned to a state that approximates the original condition						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
All areas disturbed by construction activities must be subject to landscaping and rehabilitation. All spoil and waste must be disposed of to a registered waste site;						
All slopes must be assessed for contouring, and to contour only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983						

All slopes must be assessed for terracing, and to terrace only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983;						
Berms that have been created must have a slope of 1:4 and be replanted with indigenous species and grasses that approximates the original condition;						
Where new access roads have crossed cultivated farmlands, that lands must be rehabilitated by ripping which must be agreed to by the holder of the EA and the landowners;						
Rehabilitation of access roads outside of farmland;	N/A					
Indigenous species must be used for with species and/grasses to where it compliments or approximates the original condition;						
Stockpiled topsoil must be used for rehabilitation (refer to ***Section 5.24: Stockpiling and stockpiled areas***);						
Stockpiled topsoil must be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion;						

Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed;						
Subsoil must be ripped before topsoil is placed;						
The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment;						
Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled;						
Sloped areas stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly;						

Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil.						
Where required, re-vegetation including hydro-seeding can be enhanced using a vegetation seed mixture as described below. A mixture of seed can be used provided the mixture is carefully selected to ensure the following: a) Annual and perennial plants are chosen; b) Pioneer species are included c) Species chosen must be indigenous to the area with the seeds used coming from the area; d) Root systems must have a binding effect on the soil; e) The final product must not cause an ecological imbalance in the area.						

5 ACCESS TO THE GENERIC EMPr

Once completed and signed, to allow the public access to the generic EMPr, the holder of the EA must make the EMPr available to the public in accordance with the requirements of Regulation 26(h) of the EIA Regulations.

PART B: SECTION 2

6 SITE SPECIFIC INFORMATION AND DECLARATION

7.1 Sub-section 1: contact details and description of the project

7.1.1 Details of the applicant: Karreebosch Wind Farm (RF) (Pty)

Name of applicant: Dr Kilian Hagemann

Tel No: +27 21 300 0160

Fax No: 086 768 9830

Postal Address: 125 Buitengracht Street, 5th Floor, Cape Town, 8001

Physical Address: 125 Buitengracht Street, 5th Floor, Cape Town, 8001

7.1.2 Details and expertise of the EAP:

Name of applicant: SLR Consulting South Africa (Pty) Ltd

Tel No: +27 11 467 0945

Fax No: N/A

E-mail address: rpatak@slrconsulting.com; shclark@slrconsulting.com

Expertise of the EAP (Curriculum Vitae included): Appendix A.

7.1.3 Project name:

The Final Layout and Environmental Management Programme for the Karreebosch 132kv Overhead Powerline And Substation (14/12/16/3/3/1/2608/AM3/1) within the Karoo Hoogland Local Municipality and the Laingsburg Local Municipality in the Northern Cape Province and Western Cape Province.

7.1.4 Description of the project:

Karreebosch Wind Farm (RF) (Pty) Ltd obtained Environmental Authorisation (EA) for the construction of a 132kV twin tern double circuit overhead powerline (OHPL), an onsite 33/132kV substation and associated road infrastructure to evacuate power for the authorised Karreebosch WEF to the existing Bon Espirange substation (Ref: 14/12/16/3/1/2608/AM3/1).

The proposed OHPL is situated near Matjiesfontein in the Laingsburg Local Municipality within the Central Karoo District Municipality of the Western Cape Province as well as near Sutherland in the Karoo Hoogland Local Municipality in the Namakwa District Municipality of the Northern Cape, South Africa.

The entire extent of the proposed 132kV Karreebosch OHPL, 33/132kV Substation and associated infrastructure is located within one (1) of the Strategic Transmission Corridors, namely the Central Corridor, as defined in and in terms of the procedures laid out in Government Notice (GN) No. 113.

Condition 12 and 13 of the Environmental Authorisation requires submission of the final layout and Environmental Management Programme to the Department of Forestry, Fisheries and the Environment (DFFE) for approval.

7.1.5 Project location:

Farm Name and Description	21 SG Code	Latitude	Longitude
Site Coordinates			
Remainder of Farm Klipbanks Fontein No. 198	C00730000000019800000	S32° 51.656'	E20° 28' 46.383"

Project coordinates are as follows:

POINT	**SOUTH**	**EAST**
1	S32° 51' 42.128"	E20° 28' 42.858"
2	S32° 51' 35.740"	E20° 28' 44.231"
3	S32° 51' 36.609"	E20° 28' 49.908"
4	S32° 51' 42.997"	E20° 28' 48.535"
COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
5	S32° 51.656'	E20° 28' 46.383"

7.2 Sub-section 2: Development footprint site map

This sub-section must include a map of the site sensitivity overlaid with the preliminary infrastructure layout. The sensitivity map must be prepared from the national web based environmental screening tool, when available for compulsory use at: https://screening.environment.gov.za/screeningtool. The sensitivity map shall identify the nature of each sensitive feature e.g. threatened plant species, archaeological site, etc. Sensitivity maps shall identify features both within the planned working area and any known sensitive features within 50 m from the development footprint.

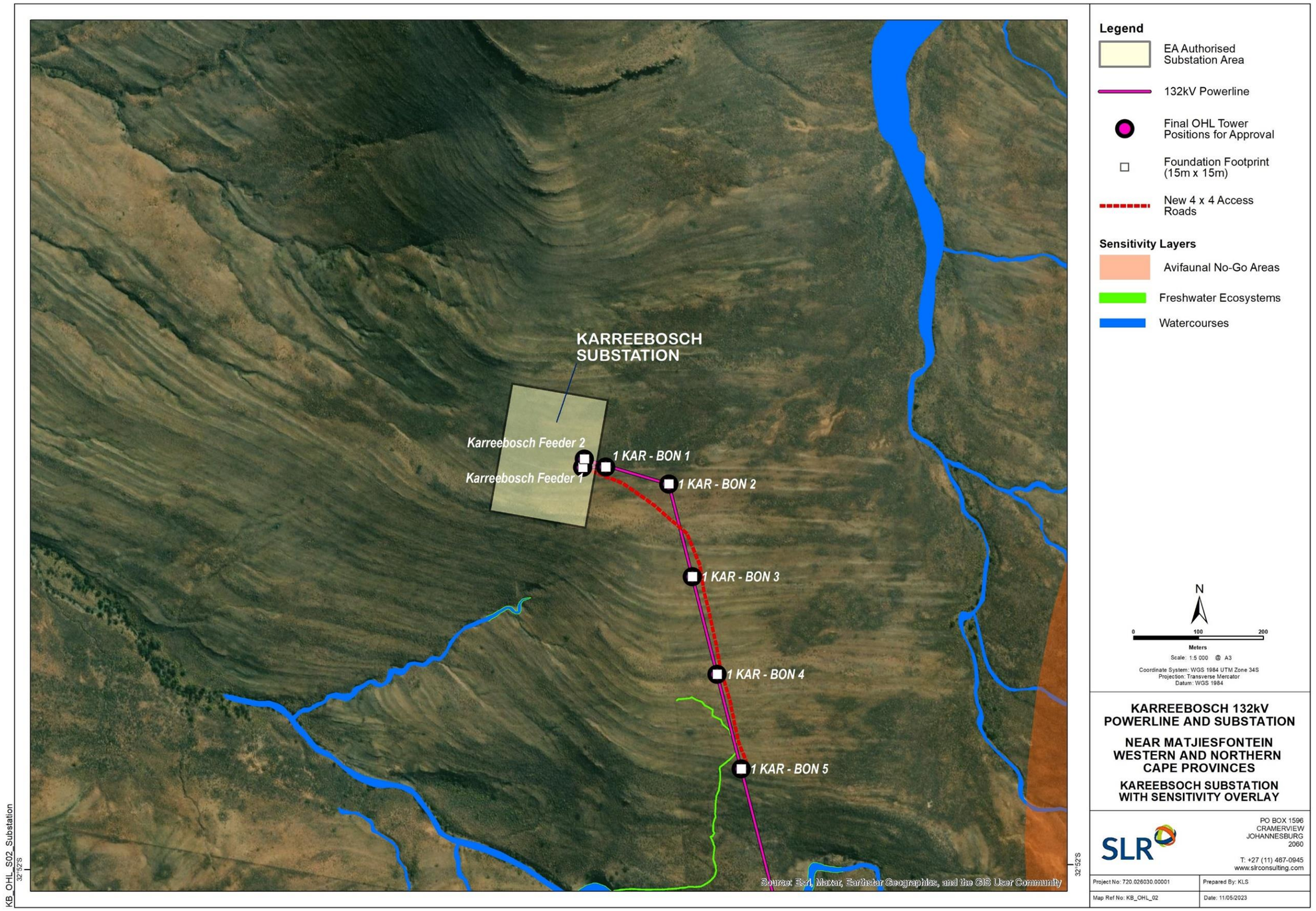


Figure 1: Substation in relation to sensitive areas map

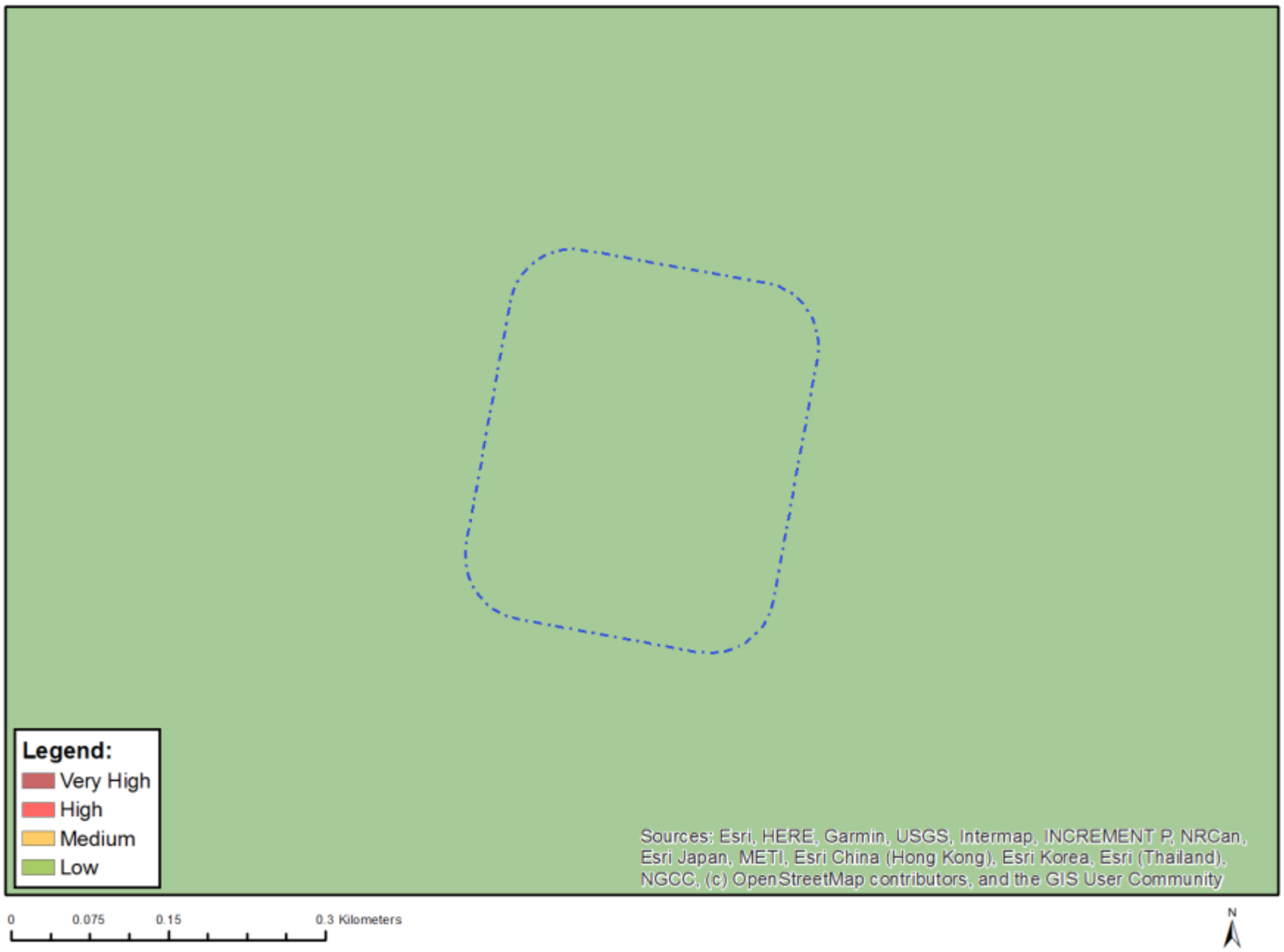


Figure 2: Map of relative Agriculture Theme sensitivity for the substation

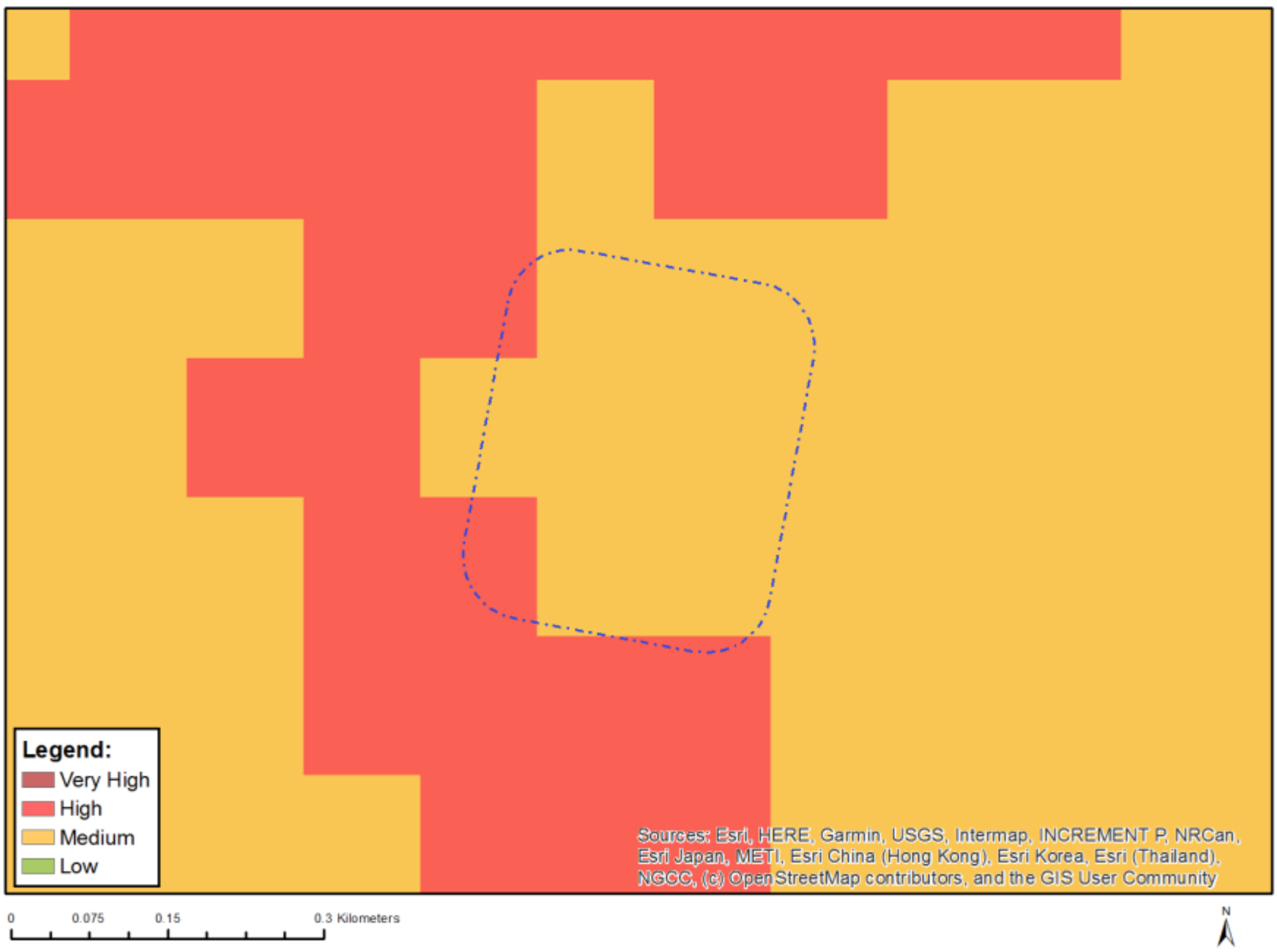


Figure 3: Map of relative Animal Species Theme sensitivity for the substation)

Figure 4: Map of relative Palaeontology Theme sensitivity for the substation

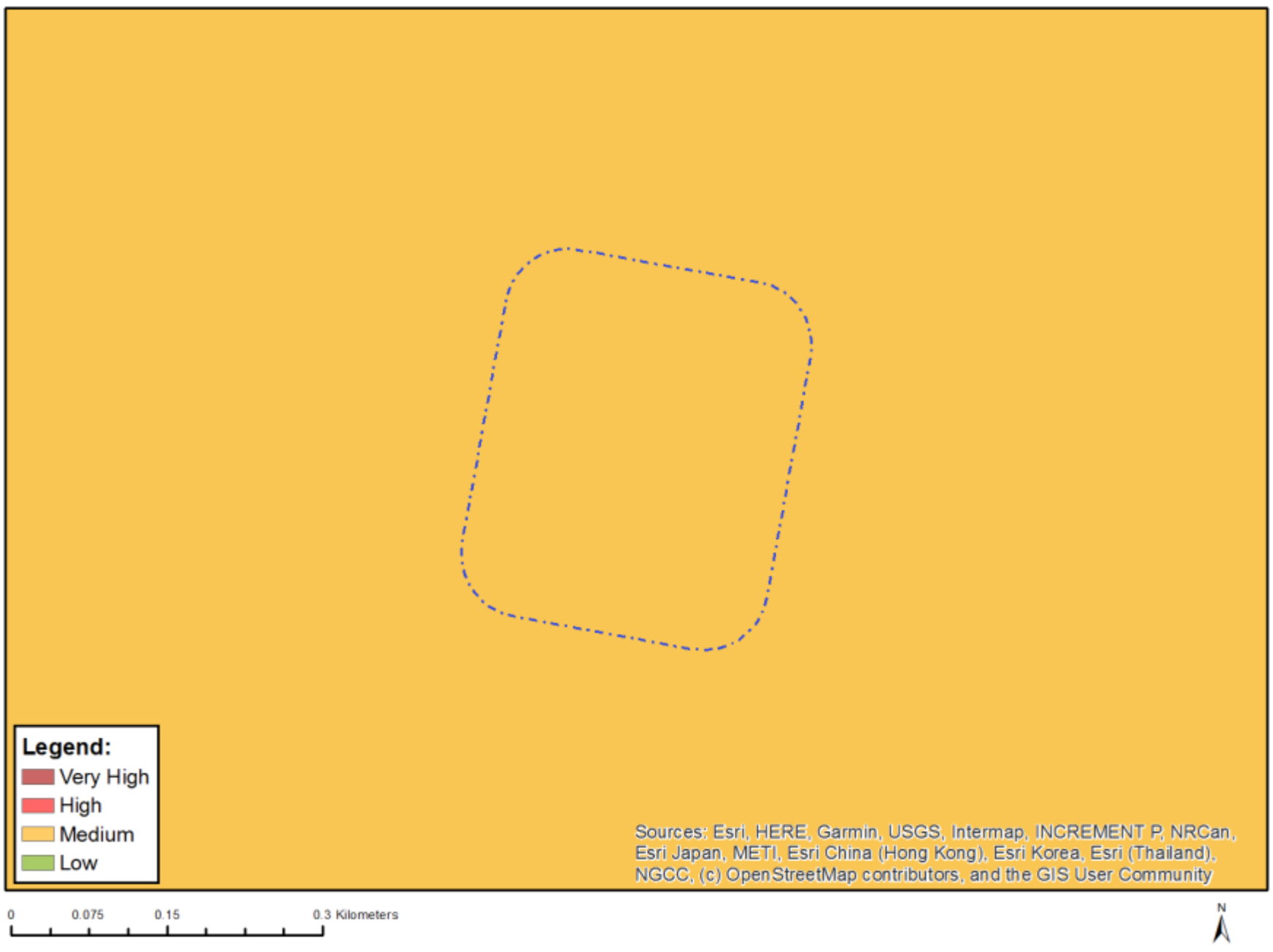


Figure 5: Map of relative Plant Theme sensitivity for the substation

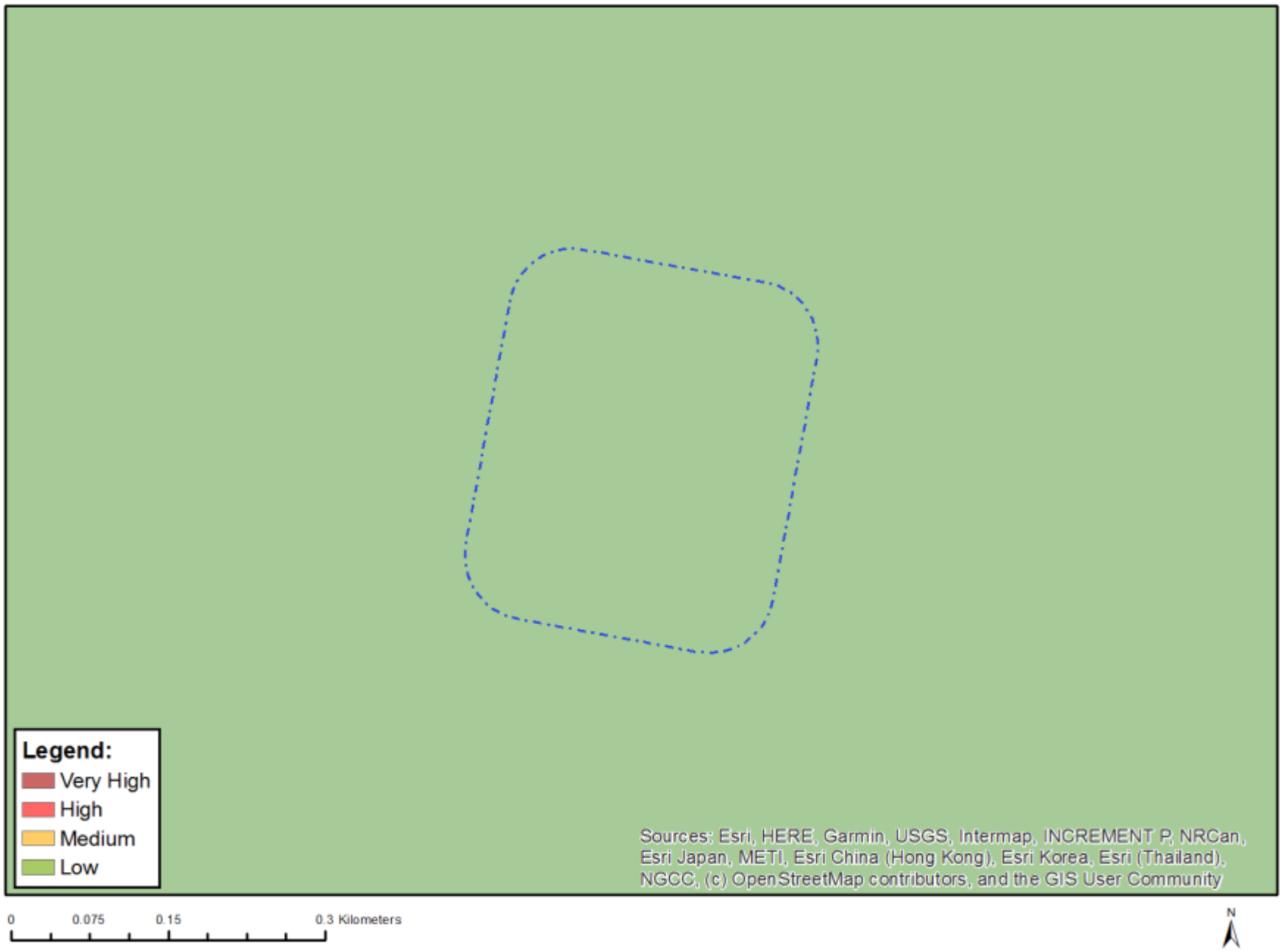


Figure 6: Map of relative Aquatic Theme sensitivity for the substation

Figure 7: Map of relative Archaeology Theme sensitivity for the substation

Figure 8: Map of relative Civil Aviation Theme sensitivity for the substation

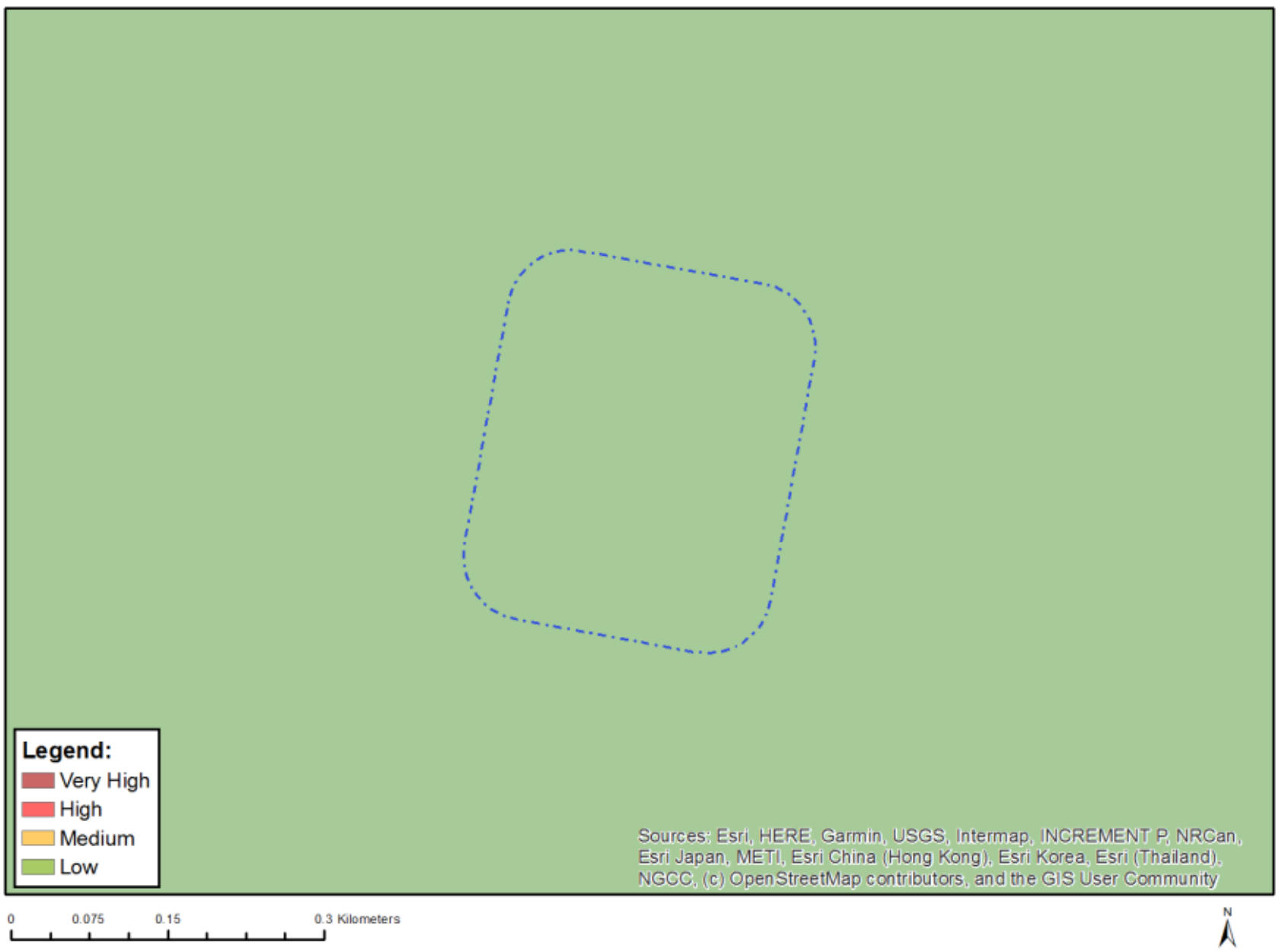


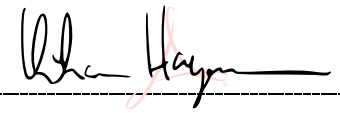
Figure 9: Map of relative Defence Theme sensitivity for the substation

Figure 10: Map of relative Terrestrial Biodiversity Theme sensitivity for the substation

7.3 Sub-section 3: Declaration

The proponent/applicant or holder of the EA affirms that he/she will abide and comply with the prescribed impact management outcomes and impact management actions as stipulated in part B: section 1 of the generic EMPr and have the understanding that the impact management outcomes and impact management actions are legally binding. The proponent/applicant or holder of the EA affirms that he/she will provide written notice to the CA 14 day prior to the date on which the activity will commence of commencement of construction to facilitate compliance inspections.

Signature Proponent/applicant/ holder of EA Date: 2023-07-05



7.4 Sub-section 4: amendments to site specific information (Part B; section 2)

Should the EA be transferred to a new holder, Part B: Section 2 must be completed by the new holder and submitted with the application for an amendment of the EA in terms of Regulations 29 or 31 of the EIA Regulations, whichever applies. The information submitted for an amendment to an environmental authorisation will be considered to be incomplete should a signed copy of Part B: Section 2 not be submitted. Once approved, Part B: Section 2 forms part of the EMPr for the development and the EMPr becomes legally binding to the new EA holder.

PART C

8 SITE SPECIFIC ENVIRONMENTAL ATTRIBUTES

If any specific environmental sensitivities/attributes are present on the site which require more specific impact management outcomes and actions, not included in the pre-approved generic EMPr template, to manage impacts, those impact management outcomes and impact management actions must be included in this section. These specific management controls must be referenced spatially, and must include impact management outcomes and impact management actions. The management controls including impact management outcomes and impact management actions must be presented in the format of the pre-approved generic EMPr template. This applies only to additional impact management outcomes and impact management actions that are necessary.

If Part C is applicable to the development as authorised in the EA, it is required to be submitted to the CA together with the BAR or EIAR, for consideration of, and decision on, the application for EA. The information in this section must be prepared by an EAP and the name and expertise of the EAP, including the curriculum vitae are to be included. Once approved, Part C forms part of the EMPr for the site and is legally binding.

This section will **not be required** should the site contain no specific environmental sensitivities or attributes.

It should be noted that while the pre-approved generic EMPr template has covered the impacts identified for the site in the EIA, there may be additional specific environmental sensitivities/attributes that will need to be mitigated once the final walk-downs by a number of specialists for the Wind Energy Facility and Associated Infrastructure is undertaken when the project is considered a Preferred bidder and prior to Financial Close. This EMPr will need to be amended to include any new specific environmental sensitivities/attributes.

The following specialist studies were commissioned for a walk through of the site:

- Aquatic Assessment
- Avifaunal Assessment
- Terrestrial Assessment

Furthermore, a desktop Heritage Assessment was undertaken.

No sensitive features were identified on the substation footprint however the management plans and chance find procedure which has developed for the associated 132kV powerline will be applicable to the substation site. These can be found as listed below:

- Alien Plant Management Plan – Appendix B
- Plant Rescue Plan – Appendix C
- Revegetation and Rehabilitation Plan – Appendix D
- Chance Find Procedure – Appendix E.

1. Aquatic Assessment - site specific mitigation measures						
Impact management outcome: All onsite staff are aware and understand the individual responsibilities in terms of this EMPr.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Access Road crossing # 1 (existing) This existing access road if widened must ensure that edge effects to the surrounding vegetation are limited and the opportunity must be used to assess whether the existing box culverts have afforded appropriate protection of the tributary banks historically. If not, the box culvert dimension must be appropriately specified and reinstalled during dry periods.	DPM Contractor	Detailed design	Construction	ECO / dEO	Monthly and as and when required	Implement approved designs
Access Road crossing # 2 (existing) This existing access road if widened must ensure that edge effects to the surrounding vegetation are limited and formalisation of	DPM Contractor	Detailed design	Construction	ECO / dEO	Monthly and as and when required	Implement approved designs

this crossing must be considered in terms of box culverts/low level bridge/low level crossing to afford appropriate protection of the tributary banks.						
Access Road crossings # 3-5 (existing) This existing access road if widened, must ensure that edge effects to the surrounding vegetation are limited, and flows from the south westerly upgradient area must be allowed to flow freely to their downgradient reaches, using low level crossings that do not create upstream ponding or downstream erosion and sedimentation.	DPM Contractor	Detailed design	Construction	ECO / dEO	Monthly and as and when required	Implement approved designs
Access Road crossings # 6-7 (existing) This existing access road if widened, must ensure that edge effects to the surrounding vegetation are limited, and flows from the westerly upgradient area must be allowed to flow freely to their downgradient reaches,	DPM Contractor	Detailed design	Construction	ECO / dEO	Monthly and as and when required	Implement approved designs

using low level crossings that do not create upstream ponding or downstream erosion and sedimentation.						
Access Road crossing # 8, #15 and #16 (proposed) The proposed access road must allow for the Episodic Drainage Lines (EDL) to drain freely to its downstream reach using a low level crossing.	DPM Contractor	Detailed design	Construction	ECO / dEO	Monthly and as and when required	Implement approved designs
Access Road crossings # 9-10 (proposed) #9: The access road must allow for the EDL to drain freely to its downstream reach using a low level crossing that do not create upstream ponding or downstream erosion and sedimentation. #10: Refer to mitigation using the appropriate throughflow infrastructure (box culverts/low level bridge/low level crossing) and erosion protection methods.	DPM Contractor	Detailed design	Construction	ECO / dEO	Monthly and as and when required	Implement approved designs

Access Road crossings # 11 (proposed) Ensure that the proposed road is stabilised and does not lead to erosion of the EDL bank and subsequent sedimentation of the EDL. If possible, terminate the road at least 10 m from the EDL.	DPM Contractor	Detailed design	Construction	ECO / dEO	Monthly and as and when required	Implement approved designs
Access Road crossings # 12-14 (proposed) #12: The proposed access road must allow for the EDL to drain freely to its downstream reach using a low level crossing. #13: For the proposed access road, refer to mitigation using the appropriate throughflow infrastructure (box culverts/low level bridge/low level crossing) and erosion protection. #14: The proposed access road must allow for the EDL to drain freely to its downstream reach using a low level crossing.	DPM Contractor	Detailed design	Construction	ECO / dEO	Monthly and as and when required	Implement approved designs

Access Road crossing # 17 (proposed) For the proposed access road, refer to mitigation using the appropriate throughflow infrastructure (box culverts/low level bridge/low level crossing) and erosion protection methods.	DPM Contractor	Detailed design	Construction	ECO / dEO	Monthly and as and when required	Implement approved designs
Access Road crossings # 18 – 19 (proposed) #18: For the proposed access road, refer to mitigation using the appropriate throughflow infrastructure (box culverts/low level bridge/low level crossing) and erosion protection methods. #19: The proposed access road must allow for the EDLs to drain freely to their downstream reaches using low level crossings that do not create upstream ponding or downstream erosion and sedimentation.	DPM Contractor	Detailed design	Construction	ECO / dEO	Monthly and as and when required	Implement approved designs

Access Road crossing # 20-21 #20: This existing access road must allow for the EDL to drain freely to its downstream reach using a low level crossing. Edge effect as with newly proposed access roads must be monitored during the operational phase. #21: This is a proposed access road -refer to mitigation using the appropriate throughflow infrastructure (box culverts/low level bridge/low level crossing) and erosion protection methods.	DPM Contractor	Detailed design	Construction	ECO / dEO	Monthly and as and when required	Implement approved designs
Access Road crossings # 22-24 (proposed) The proposed access roads must allow the headwaters of these EDLs to flow freely towards their downgradient reaches using low water crossings that will also afford these freshwater features erosion protection during the operation phase of these roads.	DPM Contractor	Detailed design	Construction	ECO / dEO	Monthly and as and when required	Implement approved designs

Support Tower (1 KAR-BON 35) Install rip rap around the vertices of the support tower lattice to ensure that any potential preferential flow paths continue to drain to their intended downstream reaches and to protect the downstream EDLs from any potential erosion generated around these vertices.	DPM Contractor	Detailed design	Construction	ECO / dEO	Monthly and as and when required	Implement approved designs
Support Tower (1 KAR-BON 34) Install gabions/rip rap around the vertices of the support tower to ensure that erosion around its base and subsequent sedimentation of the downstream (southernly) EDL does not occur.	DPM Contractor	Detailed design	Construction	ECO / dEO	Monthly and as and when required	Implement approved designs
Support Tower (1 KAR-BON 25, 1 KAR-BON 7, 1 KAR-BON 6, 1 KAR-BON 5 and 1 KAR-BON 9) Ensure that no edge effects occur from the installation of the support tower as with all other support towers.	DPM Contractor	Detailed design	Construction	ECO / dEO	Monthly and as and when required	Implement approved designs

Support towers located within or upgradient of freshwater features must be stabilised against soil erosion at their vertices by rock packing around their base which extends into the downgradient of the support tower to prevent erosion and subsequent sedimentation of these downstream freshwater features. These piles must be monitored during the operational phase and repacked if necessary	DPM Contractor	Detailed design	Construction and Operation	ECO / dEO	Monthly and as and when required	Photographic Records
All developed areas associated with the support towers must be compacted or loosened as required to natural soil compaction levels to prevent the formation of referential surface flow paths, subsequent erosion and elevated sediment flows.	DPM Contractor	Detailed design	Construction and Operation	ECO / dEO	Monthly and as and when required	Photographic Records
Access roads traversing the headwaters of smaller freshwater features must allow for the free and diffuse flow of the upgradient flows using a low level crossing built out of suitable road surface armouring using armorflex blocks or an embedded reno	DPM Contractor	Detailed design	Construction and Operation	ECO / dEO	Monthly and as and when required	Photographic Records

mattress made out of local cobbles. This is to protect the freshwater feature and the works from creating upstream ponding or downstream erosion and sedimentation. These crossings must be continuously monitored during the operation phase for any damage						
Access roads traversing larger freshwater features such a larger reaches of EDLs, ephemeral tributaries and river mainstems must cross these features using an appropriately sized box culvert/low level bridge or low level crossings (where deemed appropriate) that can enable the conveyance of 1:100 year flood events. In the case of box culverts or low lying bridges, suitable erosion protection of the associated banks and river bed using gabion boxes and reno mattresses must be used. Reshaping of the river bed using these structures may be necessary and these structures must be	DPM Contractor	Detailed design	Construction and Operation	ECO / dEO	Monthly and as and when required	Photographic Records

continuously monitored during the operation phase.						
5.2 Avifauna						
Impact management outcome: Impacts on the environment are minimised during site establishment and the development footprint are kept to demarcated development area.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Prevent displacement of avifauna by the implementation of buffer zones	DPM	Implement a 1.5km No Go zone around the Verreaux's Eagle nest at 32°51'59.27"S 20°30'12.02"E (Beacon Hill).	Detailed Design	ECO	Once, prior to construction	Implement approved layout

Prevent unnecessary displacement of avifauna by ensuring that the rehabilitation of transformed areas is implemented where possible by an appropriately qualified specialist, according to the recommendations of the vegetation/terrestrial biodiversity specialist study.	DPM Contractor	Adhere to the recommendations of the vegetation/terrestrial biodiversity specialist Monitor rehabilitation via site audits and site inspections to ensure compliance. Record and report any non-compliance.	Construction	ECO	Annually and as required.	1. Appointment of vegetation/terrestrial biodiversity specialist to oversee the rehabilitation process. 2. Site inspections to monitor progress of rehabilitation. 3. Adaptive management to ensure rehabilitation goals are met.
Reduction of avian electrocution mortality.	DPM Contractor	1. Monitor the electrocution mortality in the substations. 2. Apply mitigation if electrocution happens regularly.	Operation	Facility Operator	Monthly	Regular inspections of the substation yard
The noise and movement associated with the decommissioning activities will be a source of disturbance which would lead to the displacement of avifauna from the area	DPM Contractor	A site-specific Decommissioning EMPr (DEMPr) must be implemented, which gives appropriate and detailed description of how construction activities must be conducted. All contractors are to adhere to the DEMPr and should apply good environmental practice during decommissioning. The DEMPr must specifically include the following:	Decommissioning	Contractor and ECO	Monthly	ECO Report

		1. Construction vehicles must stick to designated access roads as much as possible; 2. Maximum use of existing roads during the decommissioning phase and the construction of new roads should be kept to a minimum as far as practical; 3. Measures to control noise and dust according to latest best practice; 4. Strict application of all recommendations in the vegetation/terrestrial biodiversity specialist report pertaining to the limitation of the footprint.				
5.3 Terrestrial Ecology						
Impact management outcome: Access to restricted areas prevented.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

Prevention of destruction of protected species	DPM	Plant Removal Permits must be obtained	Pre-Construction	DPM ECO	Once Off	Plant Removal Permits
5.4 Heritage						
Impact management outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on site.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Prevention of the destruction of heritage features.	DPM Contractor	Chance Find Procedure to be followed.	Construction	dEO / ECO	Ongoing	Written register of events

APPENDIX 1: METHOD STATEMENTS

To be prepared by the contractor prior to commencement of the activity. The method statements are **not required** to be submitted to the CA.

APPENDIX A: EAP CVs

APPENDIX B: ALIEN PLANT MANAGEMENT PLAN

APPENDIX C: PLANT RESCUE PLAN

APPENDIX D: REVEGETATION AND REHABILITATION PLAN

APPENDIX E: CHANCE FIND PROCEDURE