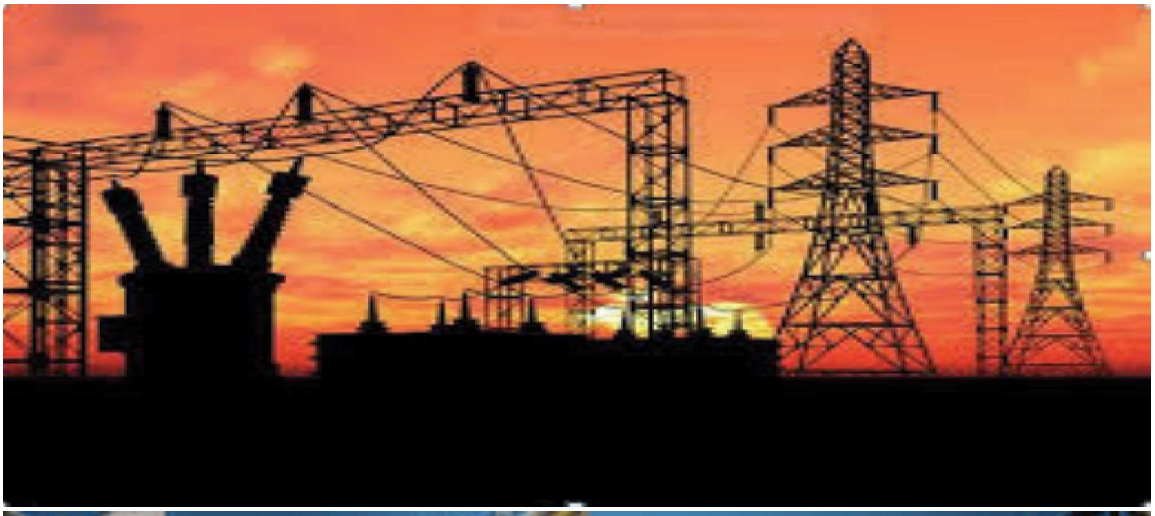
GENERIC ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE DEVELOPMENT AND EXPANSION OF SUBSTATION INFRASTRUCTURE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY



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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.
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

Part	Section	Heading	Content
			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 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

Part	Section	Heading	Content
			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 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.

Responsible Person(s)	Role and Responsibilities
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. 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

Responsible Person(s)	Role and Responsibilities
	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. <u>Responsibilities</u> The responsibilities of the ECO will include the following: - 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;

Responsible Person(s)	Role and Responsibilities
	- 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; - Maintenance, update and review of the EMPr; - Communication of all modifications to the EMPr to the relevant stakeholders.
developer Environmental Officer (dEO)	<u>Role</u> 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. <u>Responsibilities</u> - 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;

Responsible Person(s)	Role and Responsibilities
	- 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 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. Responsibilities - 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.

Responsible Person(s)	Role and Responsibilities
contractor Environmental Officer (cEO)	Role 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: Responsibilities - 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; - 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 understands 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; – A staff attendance register of all staff to have received environmental awareness training must be available. – Course material must be available and presented in appropriate languages that all staff can understand.						

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 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 these 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 minimize 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 ***section 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 a 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 a 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 the development activities; – Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas, where applicable; – Any temporary fencing to restrict the movement of life-stock must only be erected with the permission of the land owner. – All fencing must be developed of high quality material bearing the SABS mark; – The use of razor wire as fencing must be avoided;						

– 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 storm water 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 storm water 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: Wastes are 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; – 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 favored 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 relevant CA 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; – Trees felled due to construction must be documented and form part of the Environmental Audit Report; – 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, supervision of a registered pest control operator or is appropriately trained; – A daily register must be kept of all relevant details of herbicide usage; – No herbicides must be used in estuaries; – 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***. Alien invasive vegetation must be removed and disposed of at a licensed waste management facility.						

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 birds 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 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 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 sheet; – 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 refueling 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 refueling away from the dedicated refueling station is required, a mobile refueling 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. The relevant local authority must be made aware of a fire as soon as it starts; – 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 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. – Dirty water from the batching plant must be contained to prevent soil and groundwater contamination – 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 licenced 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***.						

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;						

– 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 – Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such activity taking place on Site.						

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.						

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, 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 management outcome: 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 ***Section 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 foundation, cable trenching and drainage system.						
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 arresters, 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 management***.						

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 **Section 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.						

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 to 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; – 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						

6 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

7 SITE SPECIFIC INFORMATION AND DECLARATION

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

7.1.1 Details of the applicant: Name of applicant: **ENERTRAG South Africa (Pty)**

Tel No: **021 207 2081**

Fax No: -

Postal Address: **Suite 104, Albion Springs, 183 Main Road, Rondebosch, Cape Town**

Physical Address: **Suite 104, Albion Springs, 183 Main Road, Rondebosch, Cape Town**

7.1.2 Details and expertise of the EAP:

Name of EAP: **Michelle Venter**

Tel No: **011 794 7539**

Fax No: **011 794 6946**

E-mail address**: info@cabangaenvironmental.co.za**

Expertise of the EAP (Curriculum Vitae included): **See attached CV**

Michelle holds an Honours Degree in Geography from UNISA (2014), which she completed part-time following the successful completion of a BSc Degree in Environmental Management and Zoology (2010).

She has been employed as an Environmental Assessment Practitioner (EAP) at Cabanga Environmental since 2016 working predominantly with mining and development projects. Previously she has worked as an assistant auditor (ISO 14001), public participation officer as well as an Environmental Control Officer (ECO).

Michelle's key experience includes:

- Monitoring (dust, water and noise) and Compliance
- Environmental Performance Assessments
- Water Use License Auditing
- Environmental Impact Assessments
- Environmental Management Programmes
- Rehabilitation and Closure reports (including the assessment of Financial Provision)
- Water Use License Applications and Integrated Water and Waste Management Plans
- GIS Mapwork
- Public Participation and Stakeholder Engagement

Michelle is a Registered EAP (Registration Number 2019/457) with the Environmental Assessment Practitioner's Association of South Africa (EAPASA), the only Registration Authority for EAPs in South Africa in terms of Section 24H of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA).

Michelle is also a Certificated Natural Scientist with the South African Council for Natural Scientific Professions (SACNASP) (Environmental Science) (Cert. Sci. Nat. 114447), the legislated regulatory body for natural science practitioners in South Africa in terms of the Natural Scientific Professions Act of 2003.

7.1.3 Project name: **Hendrina North Grid Infrastructure**

7.1.4 Description of the project:

The Project entails the development of electricity transmission and distribution infrastructure required to connect the proposed Hendrina North Wind Energy Facility (WEF) to the National Grid via the existing Eskom substation, located at the Komati Power Station. The Project is dependent on the Hendrina North WEF Project, and will only be constructed if the Hendrina North WEF is developed.

The Applicant intends to develop the Project under a self-build agreement with Eskom. Once construction is complete it is anticipated that the Grid Infrastructure, and associated Environmental Authorisation, will be transferred to the Grid Operator (Eskom). Eskom will be the ultimate owner of the Grid Infrastructure and will be responsible for the operation, maintenance and decommissioning (if applicable) thereof.

The Project comprises the following key components:

- 1 x substation/switching station (132kV, with a 3 Ha footprint);
- 1 x overhead powerline (132 kV Intermediate Self-Supporting Double Circuit Monopole);
- Associated Infrastructure, including but not limited to:
    - Service/access tracks where required (approximately 4-5m wide)
    - Fencing

Two alternative substation locations were assessed, Option 1 is the preferred option. The proposed powerline route (Option 1 A) to the existing Komati substation will be approximately 16km long. A 500m corridor along the proposed powerline route (250m from the centre-lines) has been assessed to allow for some flexibility in the micro siting of the pylons. The preferred route alternative is largely aligned to existing powerline servitudes, and existing access roads and maintenance tracks will be utilised as far as possible so as to minimise the environmental impacts associated with the Project. The Project will make use of the Hendrina North WEF Project laydown areas and construction camps (subject to a separate application for EA).

7.1.5 Project location:

Number:	Farm Name	Farm Number	Portion Number	Latitude	Longitude
1	Dunbar	189 IS	1	26°11'17.67"S	29°33'18.95"E
2	Dunbar	189 IS	1	26°11'14.84"S	29°33'22.16"E
3	Dunbar	189 IS	1	26°11'20.64"S	29°33'29.16"E
4	Dunbar	189 IS	1	26°11'23.05"S	29°33'26.09"E

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 depicts the overall site sensitivity as received by the specialists with the preferred alternative overlaid.
Figure 2-Figure 10 depict plans that have been extracted from the Screening Tool Report.

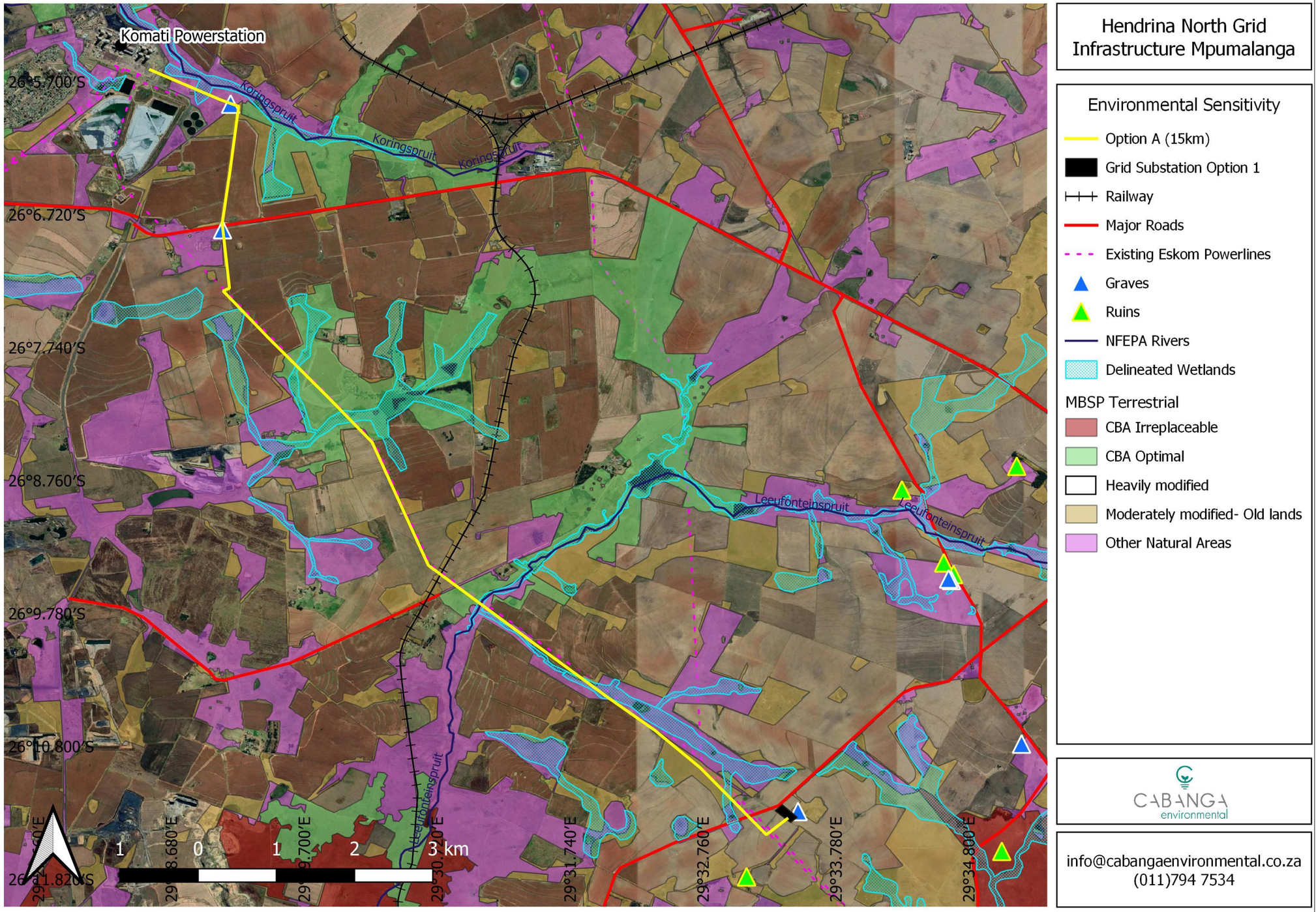

Figure 1 Overall site sensitivity for the preferred option

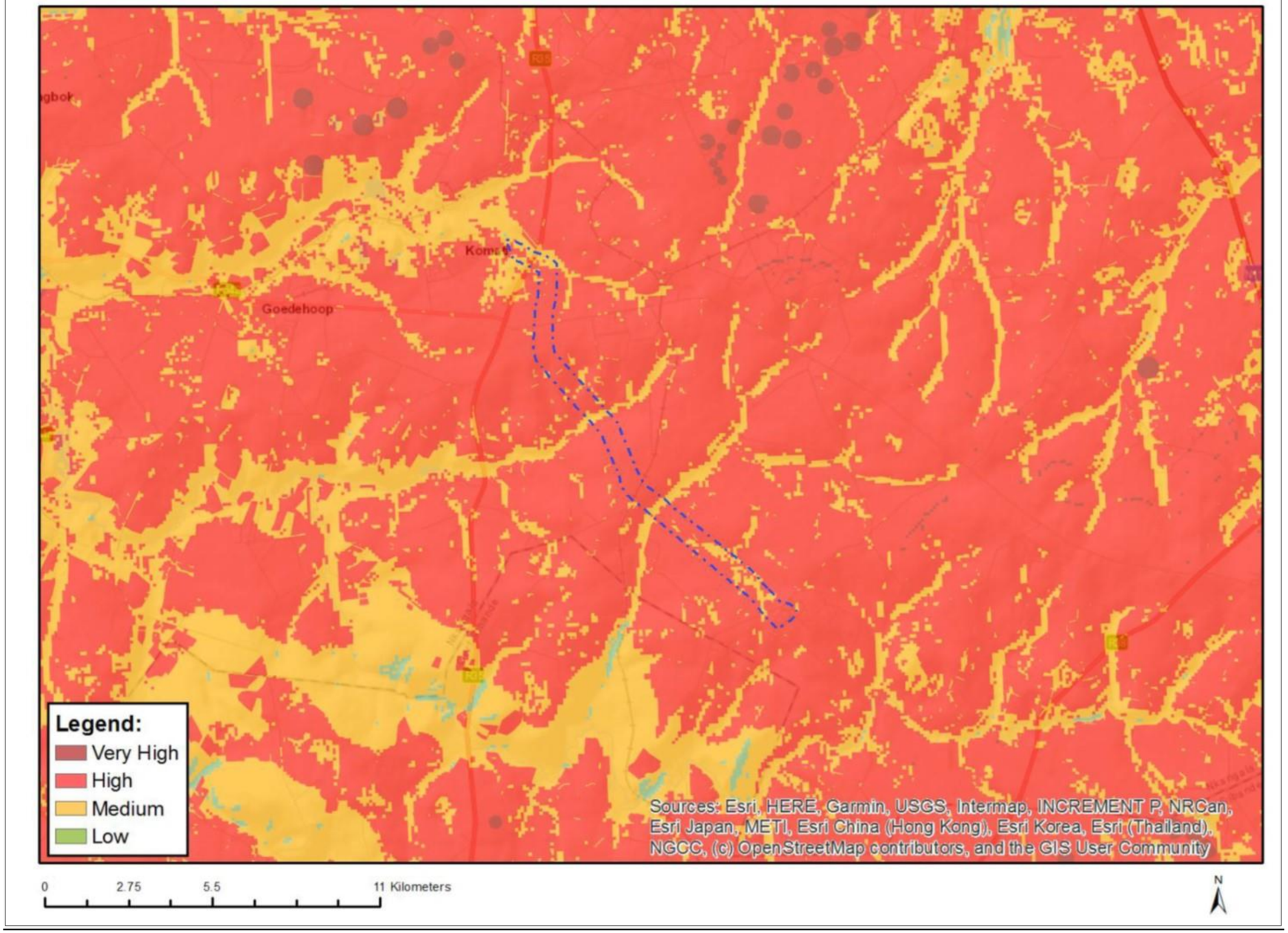

Figure 2: Agriculture Theme sensitivity

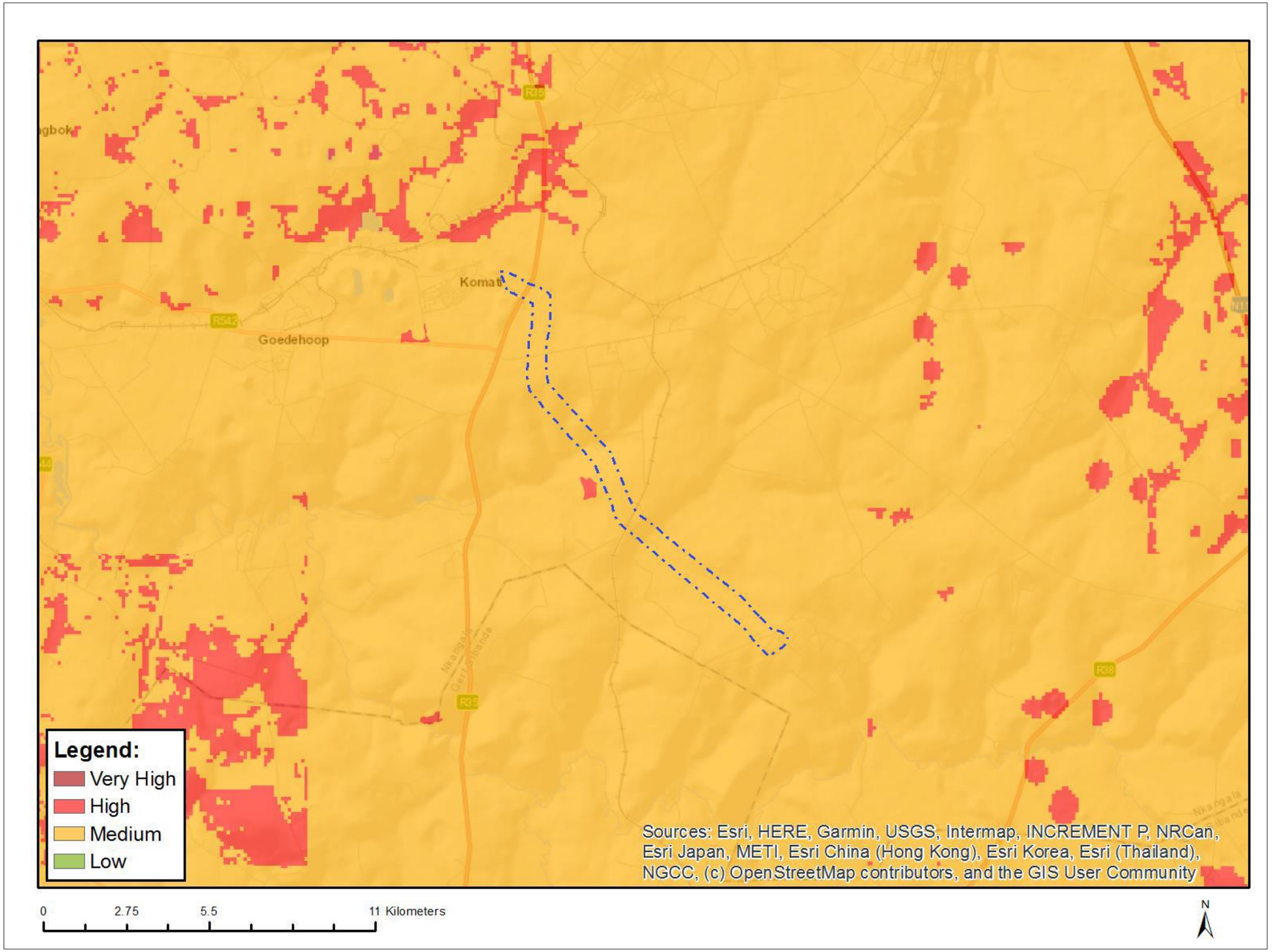

Figure 3: Animal species theme sensitivity

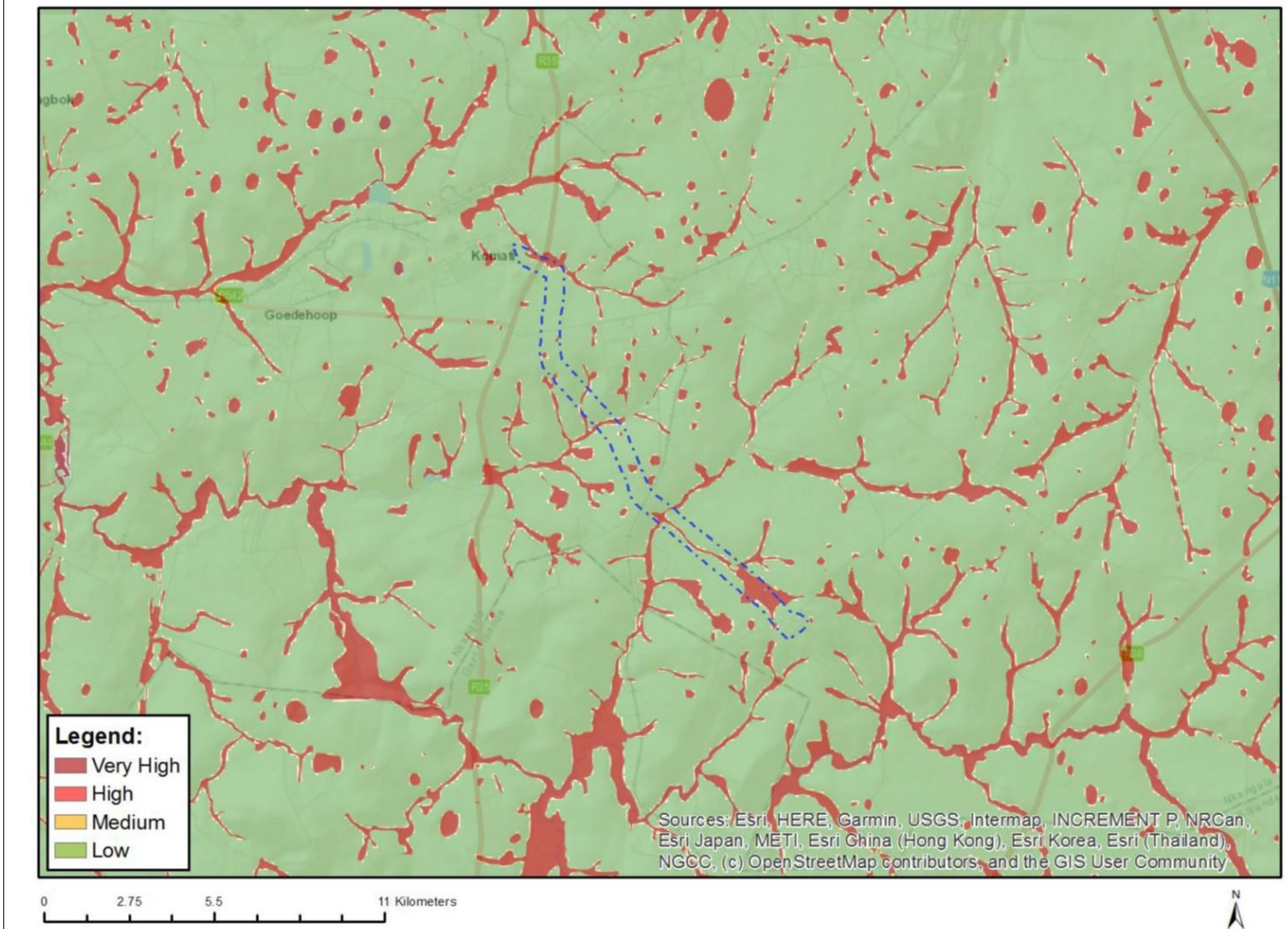

Figure 4: Aquatic Biodiversity Theme sensitivity

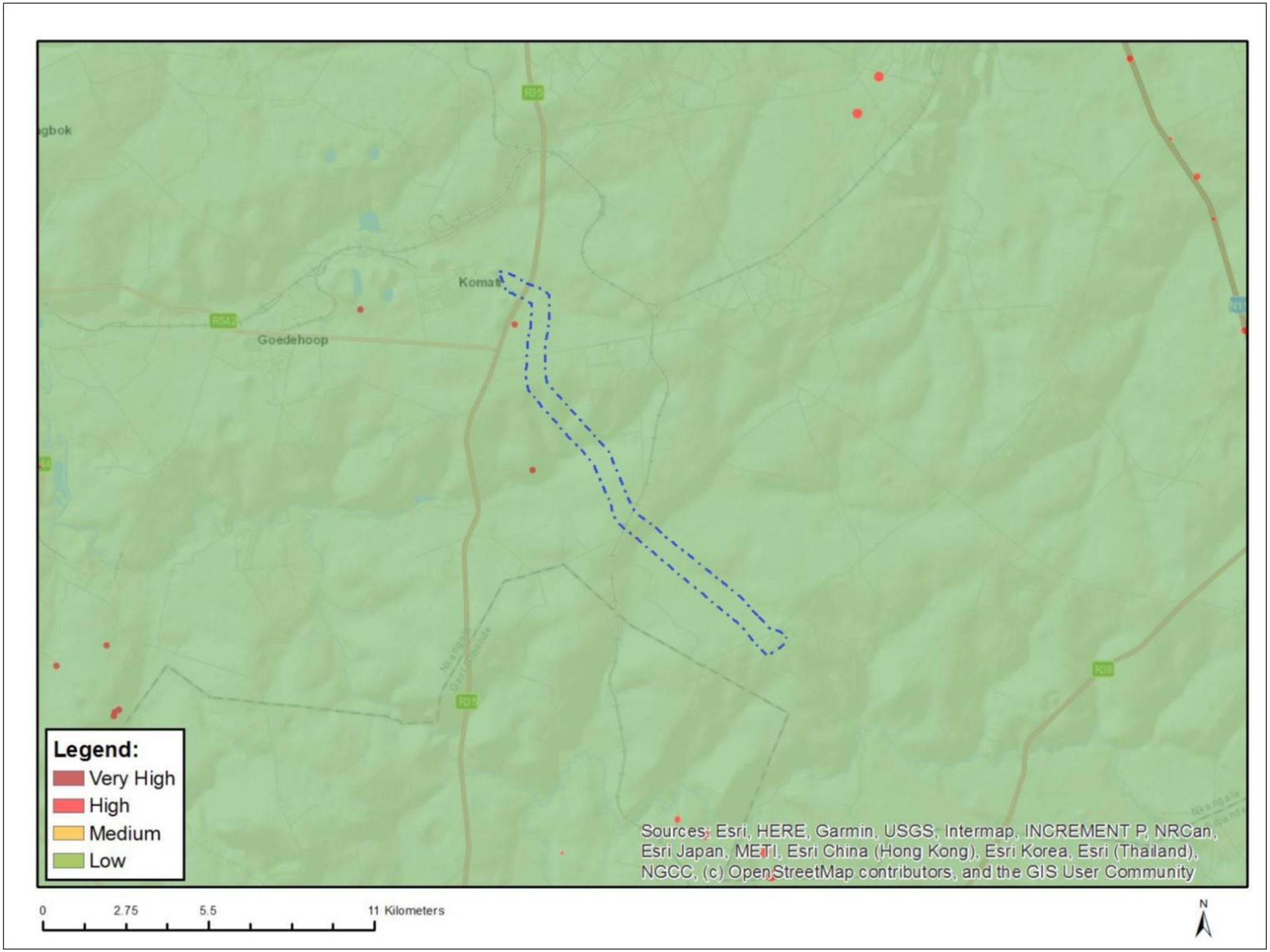

Figure 5: Archaeological and Cultural Heritage Theme sensitivity

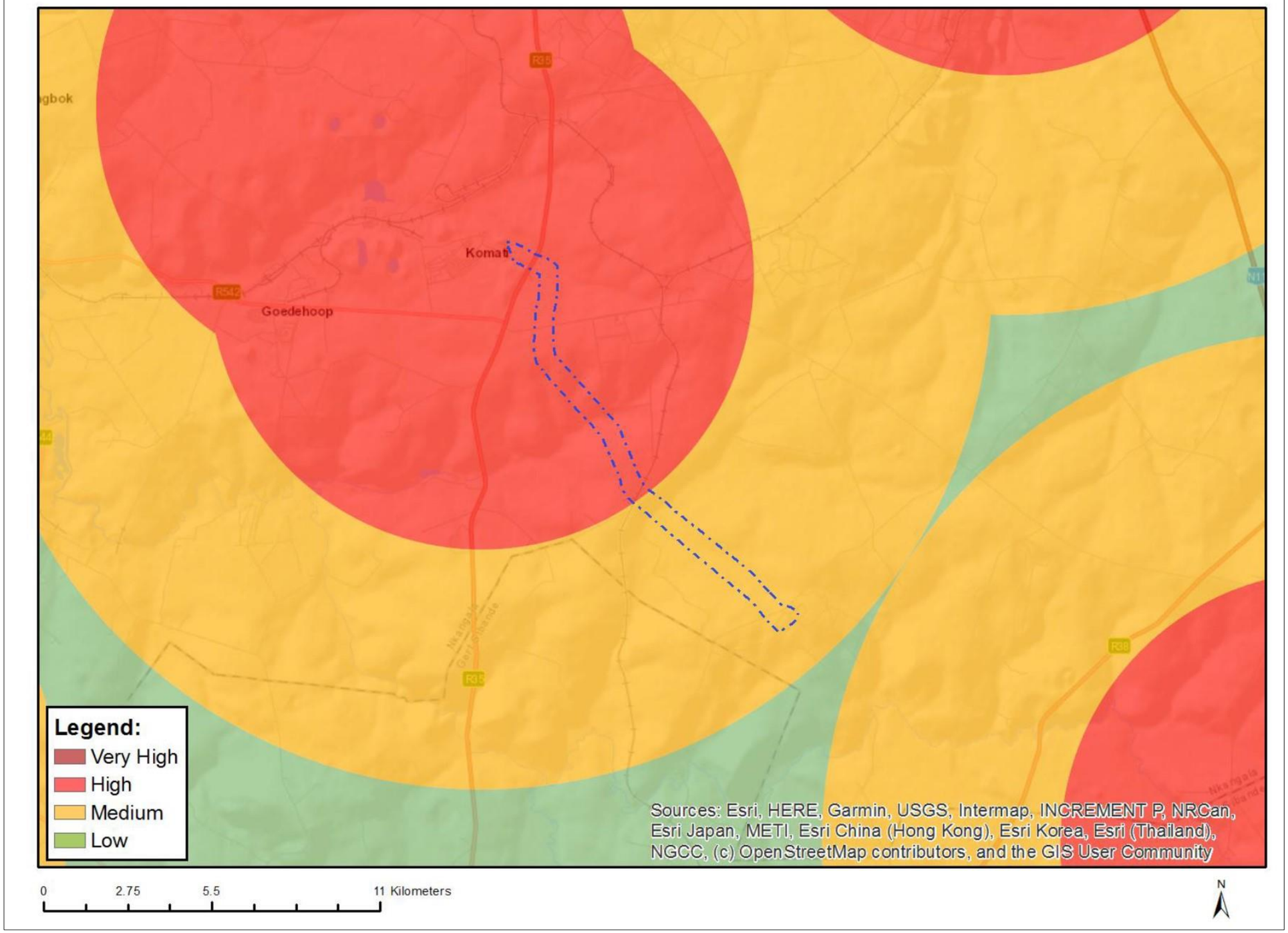

Figure 6: Civil aviation theme sensitivity

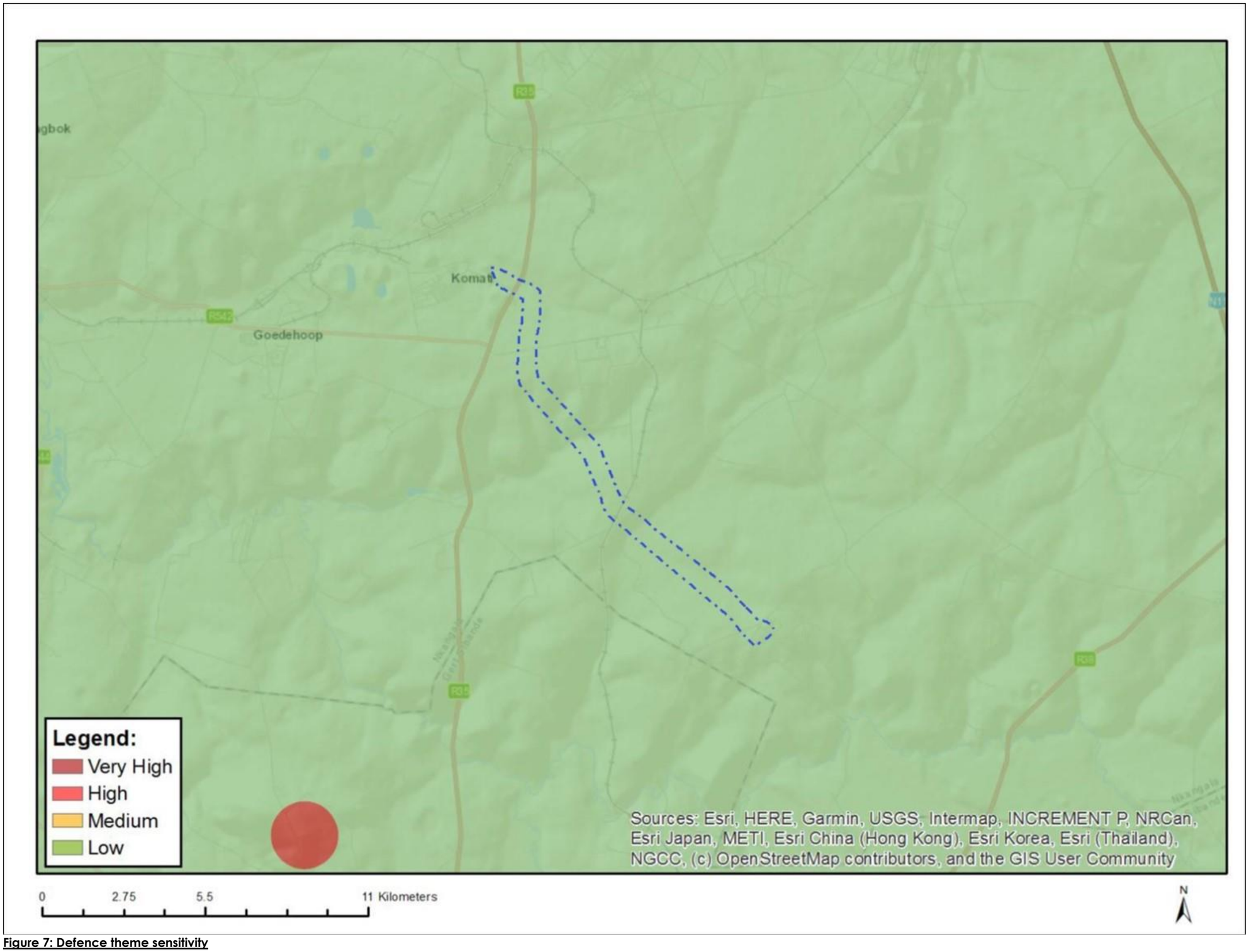

Figure 7: Defence theme sensitivity

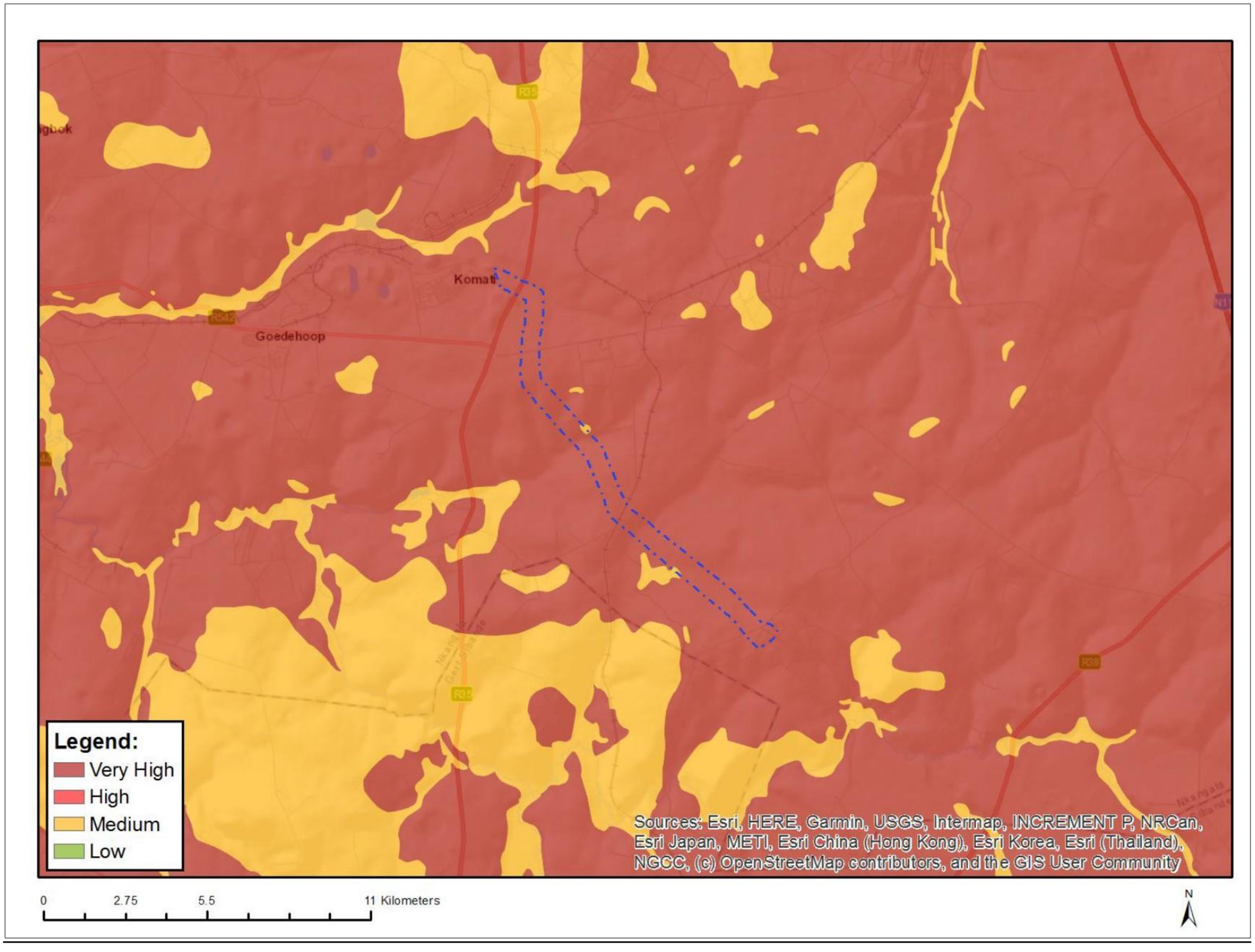

Figure 8: Paleontology Theme sensitivity

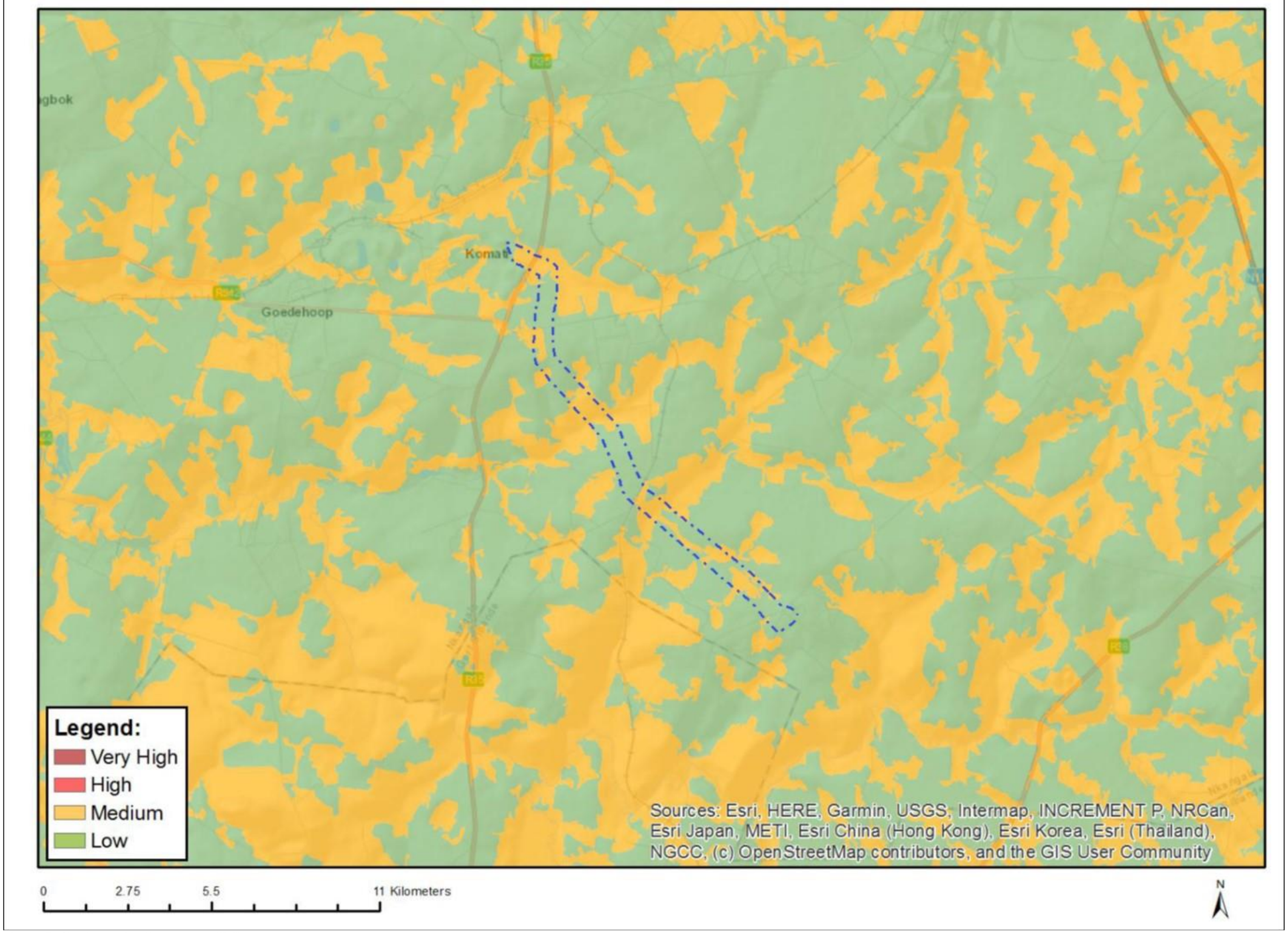

Figure 9: Plant species theme sensitivity

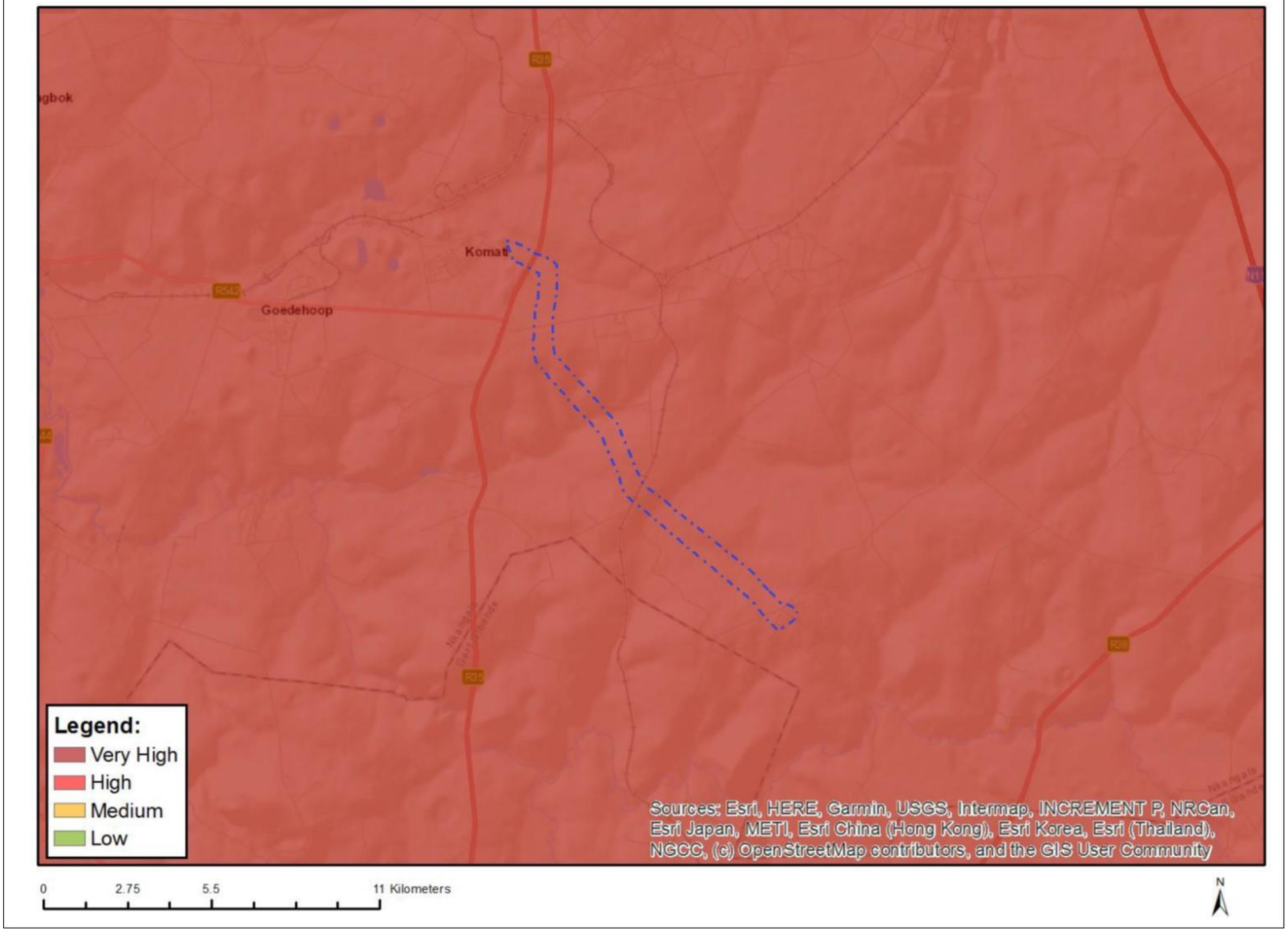

Figure 10: Terrestrial biodiversity theme sensitivity

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.

DocuSigned by:
Mercia Grimbeek
Director: Project Development
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Signature Proponent/applicant/ holder of EA Date: 24/8/2022

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.

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 preapproved 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.

The site specific impact management outcomes and actions are presented overleaf (Pages 69 – 76).

8.1 Land Use, Soil and Agricultural Potential

Impact Management outcome: To minimise the potential of soil degradation and topsoil loss from spills and/or leaks and erosion so that soils can have the same capacity as prior to the activity.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Time frame for implementation	Responsible person	Frequency	Evidence of compliance
If an activity will mechanically disturb the soil below surface in any way, then any available topsoil should first be stripped from the entire surface to be disturbed to 30cm depth and stockpiled for respreading during rehabilitation. Topsoil stockpiles should not exceed a height of 2m. All stockpiles must be positioned away from drainage lines. Sediment fencing should be erected downslope of all stockpiles to intercept any sediment runoff from the stockpiles. Sediment fencing should be erected upslope of topsoil stockpiles to prevent ups lope runoff from eroding the topsoil stockpiles. During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface to the original depth of 30cm.	Contractor	Record GPS positions of all occurrences of below-surface soil disturbance (e.g. excavations). Record the date of topsoil stripping and replacement. Check that topsoil covers the entire disturbed area.	Construction	Contractor Environmental Officer (cEO)	As required, whenever areas are disturbed.	Spot checks of GPS positions
Upstream berms to be placed to aid in topsoil management.	Contractor	Placement of upstream berms	Construction	cEO	Weekly and after heavy rains	Site inspection checklist

8.2 Water Resources

Impact Management outcome: Protection of water resources.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Time frame for implementation	Responsible person	Frequency	Evidence of compliance
Fences to demarcate activity areas, prevent activities in no-go areas.	cEO Contractor	Undertake awareness training on no-go areas. Fencing or signage	Construction	cEO Contractor	Continuously	Checklist and Intact fences/signage Availability of a layout and sensitivity map indicating avoidance of sensitive areas. Training records.
Small temporary diversion berms to be constructed upstream of all construction sites to prevent runoff from draining through these sites and becoming contaminated (such to be undertaken in consideration of any drainage lines or proximity to water courses).	Contractor	Placement of upstream berms	Construction	Environmental Officer	Weekly and after heavy rains	Site inspection checklist

Impact Management outcome: Protection of water resources.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Time frame for implementation	Responsible person	Frequency	Evidence of compliance
Diesel storage to be above ground in accordance with SANS 10131.	Contractor & O&M Contractor	Construction of diesel storage in accordance with SANS 10131 Inspections to ensure diesel storage has no leaks, bund tap is closed.	Construction Operation Decommissioning	cEO O&M cEO	Weekly and after heavy rains	Site inspection checklist
Once construction is complete, areas where vegetation was cleared, and soil was stripped must be stabilised by shaping and re-vegetating to prevent erosion.	Contractor	Inspections and photographs of erosion prevention measures.	Construction	cEO	Monthly and after heavy rains	Site inspection checklist Implementation of rehabilitation plan.
Stockpiles should be monitored to ensure no runoff, erosion and sedimentation into the adjacent areas, especially the wetlands and freshwater systems.	Contractor	Inspections and photographs of erosion prevention measures and evidence of sedimentation.	Construction	cEO	Monthly and after heavy rains	Site inspection checklist
Erosion prevention measures such as grassing along surface areas where increased erosion could take place such as substations and transmission tower pylons.	O&M Contractor	Inspections and photographs of erosion prevention measures.	Operation	O&M cEO	Monthly and after heavy rains	Site inspection checklist
Areas where there are erosion prevention measures must be included in a maintenance schedule so that erosion is kept minimal.	O&M Contractor	Inspections and photographs of erosion prevention measures.	Operation	O&M cEO	Monthly and after heavy rains	Site inspection checklist
The maintenance and decommissioning of infrastructure must ensure that the quality of the groundwater that feeds sensitive receptors (groundwater abstractions and groundwater dependent terrestrial systems) downstream from any infrastructure does not significantly change and the development does not act as a preferential pathway.	Contractor & O&M Contractor	Compile a storm water management plan.	Construction Operation Decommissioning	cEO O&M cEO	Monthly and after heavy rains	Implementation of the storm water management plan.

8.3 Freshwater Ecology

Impact Management outcome: Protection of fresh water ecology and that there are functional wetlands post operation.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Time frame for implementation	Responsible person	Frequency	Evidence of compliance
On-site staff to be provided training as to the no-go and sensitive areas.	cEO	Demarcate areas to be cleared before commencement of any wetland clearance. Maintain demarcations throughout construction. Photographs and reports.	Construction	cEO	Weekly photographic record, monthly environmental reports to Project Proponent and DFFE during construction.	Photographs and report. Training toolbox talks. Register of attendance.
Environmental Compliance Officer (ECO) to be present during vegetation clearing to prevent unnecessary clearing of extensive areas not part of the direct footprint area.	cEO	Demarcate areas to be cleared before commencement of any wetland clearance. Maintain demarcations throughout construction. Photographs and reports.	Construction	cECO	Weekly photographic record, monthly environmental reports to Project Proponent and DFFE during construction.	Photographs and report.

Impact Management outcome: Protection of fresh water ecology and that there are functional wetlands post operation.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Time frame for implementation	Responsible person	Frequency	Evidence of compliance
All areas of increased ecological sensitivity should be designated as "No-Go" areas and be off-limits to all unauthorised vehicles and personnel	cEO Contractor	Included in environmental awareness training Fencing or signage	Construction	cEO Contractor	Weekly photographic record, monthly environmental reports to Project Proponent and DFFE during construction.	Photographs and report.
Wetland monitoring must be carried out after the decommissioning phase to ensure the success of wetland rehabilitation.	Independent Wetland Specialist	Photographs and reports.	Decommissioning	cEO	Weekly photographic record, monthly environmental reports to Project Proponent and DFFE.	Photographs and report. Training toolbox talks. Register of attendance.

8.4 Terrestrial Ecology

Impact Management outcome: Protection of fauna, flora and SCC (both fauna and flora) so that they are not negatively impacted.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Time frame for implementation	Responsible person	Frequency	Evidence of compliance
Fences to demarcate activity areas, prevent activities in no-go areas.	cEO Contractor	Include in environmental awareness training Fencing or signage	Construction	cEO Contractor	Continuously	Checklist and Intact fences/signage Availability of a layout and sensitivity map indicating avoidance of sensitive areas. Training records.
Undertake a detailed walk-through survey of footprint areas that are within habitats where SCC are likely to occur.	Contractor appointing Botanist	Demarcate areas of SCC habitats	Pre- Construction	cEO	Early to late Summer, but dependent on recent rainfall and vegetation growth.	Botanist walk down survey report.
Sensitize staff to presence of SCC and the importance of their protection.	cEO	Training and site walk through	Pre- Construction	cEO	Throughout construction	Training material and attendance register of training
Avoid dolomite areas for powerline routes.	Contractor	Geological map	Pre- Construction	Site contractor	Construction	Site plan overlaid on geological map

Impact Management outcome: Protection of fauna, flora and SCC (both fauna and flora) so that they are not negatively impacted.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Time frame for implementation	Responsible person	Frequency	Evidence of compliance
Compile and implement a Plant Search Rescue and Relocation Plan	Contractor appointing Botanist	Plan to include: Rescued Plants: • The location of all transplanted rescued plants must be recorded, along with the identity of the plant. • The health / vigour of each transplanted individual should be monitored annually for a minimum of three years. • As a scientific control, an equal number of non-transplanted individuals of the same species, within similar habitats, should be monitored in the same way as the transplanted specimens. This will provide comparative data on the survival of wild populations relative to transplanted plants.	Construction	Botanist/ cEO	Annual monitoring for a period of three years Where populations of threatened plant species are found to occur on site, annual monitoring of population health should take place. This should be appropriate to the species concerned.	Photographs and monitoring reports.
Compile and implement a Rehabilitation Plan.	Contractor & O&M Contractor appointing Botanist	• All rehabilitated areas should be monitored to assess vegetation recovery. For each monitoring site, an equivalent comparative site in adjacent undisturbed vegetation should be similarly monitored. Monitoring data collection should include the following: o total vegetation cover and height, as well as for each major growth form; o species composition, including relative dominance; o soil stability and/or development of erosion features; o representative photographs should be taken at each monitoring period.	Construction Operation	cEO	Annual monitoring for a period of three years	Photographs and monitoring reports.

8.5 Avifauna

Impact Management outcome: Avifauna are not negatively impacted by the Grid project, minimal injuries and fatalities.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Time frame for implementation	Responsible person	Frequency	Evidence of compliance
The authorised alignment must be inspected by an avifaunal specialist by means of a "walk-through" inspection i.e. through a combination of satellite imagery supplemented with in situ inspections by vehicle and where necessary, on foot, once the pole positions have been finalised. The objective would be to demarcate the sections of the powerline that need to be fitted with Bird Flight Diverters.	Contractor appointing an avifaunal specialist	Walk-through by avifaunal specialist.	Pre- construction	Contractor	Once off	Report from avifaunal specialist
Conduct a pre-construction inspection to identify Red List species that may be breeding within the project footprint to ensure that the impacts to breeding species (if any) are adequately managed.	Contractor appointing an avifaunal specialist	Walk-through by avifaunal specialist to record any Red List species nests	Pre- construction	Contractor	Once off	Report from avifaunal specialist
If on-going impacts are recorded (mortality of priority species), site specific mitigation (insulation) to be applied reactively.	O&M Contractor	Walk through by O&M cEO- if there are regular fatalities the O&M Contractor to install site specific mitigation such as insulation.	Operation	O&M cEO O&M Contractor	Quarterly audits. Once-off should site specific mitigation such as insulation be needed	O&M cEO inspection reports. Lack of avifauna fatalities as evidence of insulation being effective.
Once the relevant spans have been identified flight diverters to be installed.	O&M Contractor	Bird Flight Diverters must be fitted according to the applicable Eskom Engineering Instruction (Eskom Unique Identifier 240 – 93563150: The utilisation of Bird Flight Diverters on Eskom Overhead Lines). They are to be installed for the full span length on the earth wire (according to Eskom guidelines – five metres apart). Light and dark colour devices must be alternated to provide contrast against both dark and light backgrounds respectively.	Operation	Contractor	Once- off	Flight diverter installation manual checklist.
Measures to control noise and dust should be applied according to current best practice in the industry.	Contractor	Access roads must be demarcated clearly. Undertake site inspections to verify.	Decommissioning	cEO	Once- off	Photographs and site inspection reports

8.6 Air and Noise

Impact Management outcome: Minimal impact on air and noise from the Grid project						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Time frame for implementation	Responsible person	Frequency	Evidence of compliance
Make use of dust suppression techniques to minimise dust entrainment along unpaved roads and during periods of high wind speeds.	Contractor	Dust suppressant	Construction	cEO	Daily/ weekly	Dust suppressant schedule. Water usage for dust suppression.
Ensure trucks transporting sand and other dust generating material are covered with tarpaulins.	Contractor	Checklist at security prior to truck being permitted entry	Construction	cEO	Weekly	Photographic evidence.

Impact Management outcome: Minimal impact on air and noise from the Grid project						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Time frame for implementation	Responsible person	Frequency	Evidence of compliance
If construction necessitates blasting, inform nearby residences and road users of planned blasting activities ahead of time.	Blasting specialist	Signage by the nearest road(s) warning of blasting. Whatsapp or email notification to inform nearby residents of blasting.	Construction	CHSO	When blasting occurs	Photographs of signage and proof of communication
Ensure regular vehicle maintenance is undertaken, as per supplier specification, to prevent the noise and emissions that can be generated by vehicles and machinery in disrepair.	Contractor	Service at manufacturer	Construction	Vehicle contractor	Annually or when the maximum kilometres are driven before a vehicle service is required	Service booklet stamped, dated and signed
Scheduling of noisy activities such as pile driving, rock breaking and excavation during the daytime period.	Contractor	Planning of day to day construction activities in a spreadsheet indicating activity, date and time.	Construction	Site manager	Continuously	Review of planning spreadsheet

8.7 Visual

Impact Management outcome: Minimal change to sense of place and visual resource.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Time frame for implementation	Responsible person	Frequency	Evidence of compliance
Carefully plan to minimise the construction period and avoid construction delays.	Contractor	This will include monitoring activities associated with visual impacts such as the siting of construction camp, management of soil stockpiles, screening and dust suppression. Regular reporting to an environmental management team must also take place during the construction phase.	Construction	cEO	On- going during construction	Inspection of planning schedule.
Inform receptors within 500M of the proposed power line of the construction programme and schedules.						Proof of communication.
Minimise vegetation clearing and rehabilitate cleared areas as soon as possible.						Availability of a layout map indicating activity area being kept to a minimum. Implementation of rehabilitation plan.
Vegetation clearing must take place in a phased manner.						Inspection of planning schedule and visual inspections.
Position storage / stockpile areas in unobtrusive positions in the landscape, where possible.						Visual inspections and availability of a layout map.
Make use of existing gravel access roads where possible.						Availability of a layout map.
Ensure that dust suppression techniques are implemented: -on all access roads; -in all areas where vegetation clearing has taken place; -On all soil stockpiles.						Dust suppression schedule visual inspections.
Maintain a neat construction site by removing litter, rubble and waste materials regularly.						Visual inspections. Safety disposal certificates of waste.
Limit the number of vehicles and trucks travelling to and from the construction site, where possible.						Inspection of planning schedule.
No vehicle maintenance must occur on site.	O&M Contractor	Service at manufacturer/owner	Operation	Vehicle contractor	Annually or when the maximum kilometres are driven before a vehicle service is required	Service booklet stamped, dated and signed
Maintenance must take place off site. Refueling to take place on an impervious surface or with the use of a drip tray to prevent spills.	O&M Contractor	Service at manufacturer Refueling to take place on an impervious surface or with the use of a drip tray to prevent spills.	Operation	Vehicle contractor	Annually or when the maximum kilometres are driven before a vehicle service is required. When the tank is empty	Service booklet stamped, dated and signed Fuel records.
Ensure that dust suppression procedures are maintained on all gravel access roads throughout the	Contractor	Ensure that procedures for the removal of structures	Decommissioning	cEO	Ongoing during decommissioning.	Visual inspections and check lists. Dust suppression schedule.

Impact Management outcome: Minimal change to sense of place and visual resource.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Time frame for implementation	Responsible person	Frequency	Evidence of compliance
decommissioning phase		and stockpiles during decommissioning are implemented, including recycling of materials. In addition, it must beensured that rehabilitation of the site to a visually acceptable standard is undertaken.				

8.8 <u>Socio-Economic</u>

Impact Management outcome: Locals not being affected negatively by the Grid (noise, air quality etc)and there being positive impacts (jobs).						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Time frame for implementation	Responsible person	Frequency	Evidence of compliance
Controlling dust and noise at source by ensuring equipment is well-maintained to prevent noise they would make if in disrepair	Contractor	Dust suppression Maintaining equipment	Construction	cEO Contractor	Weekly Annually	Dust suppressant schedule. Water usage for dust suppression. Service booklet stamped, dated and signed.
Co-ordinate with the local municipality and relevant labour unions to inform the local labour force about the project that is planned to be established and the jobs that can potentially be applied for.	Contractor	Meetings with local municipality and labour unions.	Construction	Contractor	Pre construction Construction	Minutes of meetings and attendance register with local municipality and labour unions.
Facilitate a broader skills development programme as part of socio-economic development commitments.	Contractor	Training	Construction	Contractor	Pre construction	Attendance register and training material
Recruit local labour as far as feasible to increase the benefits to the local households. Employ labour intensive methods in construction where feasible. Sub-contract to local construction companies where possible.	Contractor	Develop a local labour policy.	Construction	Contractor	Ongoing during construction	Local labour policy will form part of the employment contract.
Provide adequate signage along the access roads to warn motorists of the construction activities taking place on the site.	Contractor	Signage by the nearest access road(s).	Construction	CHSO	During construction	Photographs of signage and proof of communication

7.1 <u>Heritage</u>

Impact Management outcome: Protection of heritage resource.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Time frame for implementation	Responsible person	Frequency	Evidence of compliance
The study area should be subjected to a final heritage walkthrough prior to development to identify and mitigate potential impacts to heritage resources.	Applicant to appoint qualified archaeologist	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 35, 36 and 38 of NHRA	Pre- Construction	Applicant to appoint qualified archaeologist	Once off prior to construction	Final heritage walkthrough statement.

Impact Management outcome: Protection of heritage resource.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Time frame for implementation	Responsible person	Frequency	Evidence of compliance
Avoid ruins at 089, 090, 091 and 092 during pre-construction and construction.	Contractor	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 35, 36 and 38 of NHRA	Construction	cECO	Weekly inspections during the pre-construction and construction phase.	Site inspection report
Avoid graves at 093; 094 and 98 (with a 50 m buffer) during pre-construction and construction.	Contractor	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 35, 36 and 38 of NHRA	Construction	cECO	Weekly inspections during the pre-construction and construction phase.	Site inspection report
Avoidance of the graves at 095 and 096 and manage these *in-situ* with a 30 m buffer. - if this is not possible the graves can be relocated adhering to all legal requirements.	Contractor	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 35, 36 and 38 of NHRA	Construction	cECO	Weekly inspections during the pre-construction and construction phase.	Site inspection report
Implement the chance-find procedure during construction.	Contractor responsible for implementing Chance Find Procedure.	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 35, 36 and 38 of NHRA Training in the Chance Find Procedure.	Construction	cECO and cEO	Weekly inspections during the construction phase.	Site inspection report.

8.9 Dangerous Goods

Impact Management outcome: Hazardous chemicals and dangerous goods handled, stored and disposed of securely to not impacts on site personnel's health nor impact on the environment.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Time frame for implementation	Responsible person	Frequency	Evidence of compliance
All site personnel must receive training on the dangers associated with hazardous chemical substances on site, including the proper handling and storage and disposal requirements for such substances.	cEO	Develop environmental awareness training which includes hazardous chemical handling, disposal and storage	Construction Decommissioning	cEO	Prior to being employed.	Environmental awareness training checklist. Proof of training material and attendance register.
Scheduled servicing and maintenance of vehicles to be undertaken off-site.	Contractor	Service at manufacturer	Construction	Vehicle contractor	Annually or when the maximum kilometres are driven before a vehicle service is required	Service booklet stamped, dated and signed
Measures must be in place, should there be dangerous and hazardous materials on site, so that they are to be stored and handled appropriately. Surfaces must be concrete lined and sloped so that hazardous substances can drain towards the collection sump from where it can be removed by a registered hazardous waste management company and be disposed of in accordance with the relevant national legislation.	O&M Contractor	Surfaces to be established before the hazardous materials and dangerous goods are used. Cleaning of collection sump as necessary throughout operational phase. Awareness training on hazardous material and dangerous good storage and handling.	Operation	O&M EO	Quarterly audits Training: continuously	O&M EO to check surfaces, sump and storage areas during quarterly audits. Maintain safe disposal certificates in environmental file. Environmental awareness training checklist. Proof of training material and attendance register.

APPENDIX 1: METHOD STATEMENTS

(Not required to be submitted to the CA)

APPENDIX 2: PLANT RESCUE AND RELOCATION PLAN FOR PROTECTED SPECIES

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RESCUE AND RELOCATION PLAN FOR PROTECTED PLANT SPECIES

Hendrina North Wind Energy Facility; Hendrina North Grid Infrastructure; Hendrina South Wind Energy Facility; Hendrina South Grid Infrastructure

A Plant Species Assessment was carried out on the Project Site by David Hoare Consulting (Pty) Ltd.

None of the tree species protected under the National Forests Act have been previously recorded in the area in which the site is located.

No restricted activity may be carried out in terms of any flora protected under the National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) (as updated in R. 1187, 14 December 2007) (NEMBA) without the necessary permits in terms of Section 7 of NEMBA.

There are a number of species recorded on site that are protected under the Mpumalanga Nature Conservation Act No. 10 of 1998 (MNCA). It is a legal requirement to obtain a permit from the provincial authorities for the destruction of any of these species.

A comprehensive walk-through survey of the final footprint (during the detailed design phase) is required to compile a complete list of these protected species, and obtain the necessary permits for their translocation, or destruction where species translocation is known to be ineffective.

The following methodology to identify and conserve plants that are situated within the proposed Project footprint and those likely to be impacted on by edge effects is proposed:

1. **Detailed Site Walk-down to identify species**:
    a. A detailed walk-down must be undertaken on the final infrastructure footprints, including all areas where vegetation removal is to take place, and all areas within a 100m buffer of areas scheduled for vegetation clearance.
    b. The walk-down must be undertaken immediately ahead of vegetation clearance in each specific area.
    c. The walk-down must be undertaken by a qualified person, with knowledge of the identification of protected species potentially occurring in the area.
    d. The walk-downs must be undertaken in the correct season.
    e. Protected species identified on the site must be demarcated (demarcate an area around the species or grouping of species with danger tape or similar) to prevent accidental damage to these plants until they can be relocated.
2. **Permit Application for identified species:**
    a. Prior to any disturbance of a protected species, apply for a permit from the MPTA. By following the procedure stipulated in the MNCA.
    b. The Permit Application(s) can be undertaken by a suitably experienced specialist, or by the EPC.
3. **Relocation:**
    a. Alternative suitable habitats exist on the development area that are not directly affected by the Project infrastructure footprints. These include areas of intact grassland and wetland areas. Suitable habitat (per species) must be identified for translocation of protected species.

b. The Land Owner of the land where the species will be removed from, and the land owner of the land where each species will be transplanted to, must be notified and consulted throughout the process.
c. Ideally, protected species should be removed when dormant (usually in the winter months in this area). However, as the plants are dormant, they may be difficult to observe. The timing of relocation should thus be stipulated by the MTPA in the relevant permit(s) for different species.

4. Monitoring

a. Survival of relocated plants must be monitored for success of establishment, so that corrective action can be taken if necessary.
b. Monitoring must be undertaken by a suitably experienced and knowledgeable person, familiar with the species.
c. Monitoring must be undertaken for the first two growing seasons after relocation.
d. Monitoring results must be submitted, in the form of a report, to the MTPA.
    i. If, after the first two growing seasons, monitoring results indicate the successful establishment of relocated species, monitoring need not continue.
    ii. If, after the first two growing seasons, monitoring results indicate the decline of relocated species, interventions to promote the successful establishment of the species, and continued monitoring requirements, must be agreed to between the Developer and EPC.

APPENDIX 3: HIGH LEVEL ALIEN INVASIVE MANAGEMENT PLAN

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HIGH-LEVEL ALIEN INVASIVE PLANT MANAGEMENT PLAN

Hendrina North Wind Energy Facility; Hendrina North Grid Infrastructure; Hendrina South Wind Energy Facility; Hendrina South Grid Infrastructure

1 Introduction and legal context

The National Environmental Management: Biodiversity Act, 2004 (Act No 10 of 2004) (NEMBA) provides for the management and conservation of South Africa's biodiversity. Chapter 5 of NEMBA deals specifically with species and organisms posing potential threats to Biodiversity.

The following definitions are pertinent to understanding the purpose and intention of the NEMBA, and the Regulations published thereunder:

alien species	(a) a species that is not an indigenous species; or (b) an indigenous species translocated or intended to be translocated to a place outside its natural distribution range in nature, but not an indigenous species that has extended its natural distribution range by natural means of migration or dispersal without human intervention;
control	in relation to an alien or invasive species, means- (a) to combat or eradicate an alien or invasive species; or (b) where such eradication is not possible, to prevent, as far as may be practicable, the recurrence, re-establishment, re-growth, multiplication, propagation, regeneration or spreading of an alien or invasive species
introduction	in relation to a species, means the introduction by humans, whether deliberately or accidentally, of a species to a place outside the natural range or natural dispersal potential of that species
invasive species	means any species whose establishment and spread outside of its natural distribution range- (a) threaten ecosystems, habitats or other species or have demonstrable potential to threaten ecosystems, habitats or other species; and (b) may result in economic or environmental harm or harm to human health
listed invasive species	means any invasive species listed in terms of section 70(1). Section 70(1) compels the Minister to publish a national list of invasive species, and empowers the provincial authorities to publish similar lists relevant to a Province. Thus, "listed invasive species" include all species listed in the Alien and Invasive Species Lists, 2020 (GN1003), or in Schedule 13 to the Mpumalanga Nature Conservation Act (Act No 10 of 1998) (MNCA).
restricted activity	(b) in relation to a specimen of an alien species or listed invasive species, means- (i) importing into the Republic, including introducing from the sea, any specimen of an alien or listed invasive species; (ii) having in possession or exercising physical control over any specimen of an alien or listed invasive species; (iii) growing, breeding or in any other way propagating any specimen of an alien or listed invasive species, or causing it to multiply; (iv) conveying, moving or otherwise translocating any specimen of an alien or listed invasive species; (v) selling or otherwise trading in, buying, receiving, giving, donating or accepting as a gift, or in any way acquiring or disposing of any specimen of an alien or listed invasive species; or (vi) any other prescribed activity which involves a specimen of an alien or listed invasive species;

Section 65(1) of NEMBA prohibits a person from carrying out a restricted activity involving a specimen of an alien species without a permit issued in terms of Chapter 7 of NEMBA.

Section 73 (2) of NEMBA places an obligation on the owners of land where a listed invasive species occurs to:

(a) notify any relevant competent authority, in writing, of the listed invasive species occurring on that land;
(b) take steps to control and eradicate the listed invasive species and to prevent it from spreading; and
(c) take all the required steps to prevent or minimise harm to biodiversity.

NEMBA distinguishes three categories of species, that must be controlled, as follows:

- **Category 1a**: Invasive species requiring compulsory control. Remove and destroy. Any specimens of Category 1a listed species need, by law, to be eradicated from the environment. No permits will be issued.
  Category 1b: Invasive species requiring compulsory control as part of an invasive species control programme. Remove and destroy. These plants are deemed to have such a high invasive potential that infestations can qualify to be placed under a government sponsored invasive species management programme. No permits will be issued.
- **Category 2**: Invasive species regulated by area. A demarcation permit is required to import, possess, grow, breed, move, sell, buy or accept as a gift any plants listed as Category 2 plants. No permits will be issued for Category 2 plants to exist in riparian zones.
- **Category 3**: Invasive species regulated by activity. An individual plant permit is required to undertake any of the following restricted activities (import, possess, grow, breed, move, sell, buy or accept as a gift) involving a Category 3 species. No permits will be issued for Category 3 plants to exist in riparian zones.

The Conservation of Agricultural Resources, 1983 (Act No. 43 of 1983) (CARA) provides for the control over the use of the natural agricultural resources in South Africa, to promote the conservation of soil, water sources and vegetation, and the combating of weeds and invader plants.

Declared Weeds and Invaders in South Africa are categorised according to one of the following categories in terms of CARA:

- **Category 1 plants**: are prohibited and must be controlled.
- **Category 2 plants**: (commercially used plants) may be grown in demarcated areas providing that there is a permit and that steps are taken to prevent their spread.
- **Category 3 plants**: (ornamentally used plants) may no longer be planted; existing plants may remain, as long as all reasonable steps are taken to prevent the spreading thereof, except within the floodline of watercourses and wetlands.

2 Purpose of the Management Plan

While it is acknowledged that a Project Developer, Applicant or Contractor may not be the owner of the land, there remains a responsibility on parties in control of land to control the occurrence of alien invasive plants (whether listed or not) and weeds (AIPs).

The purpose of this Management Plan is therefore to specify general measures that must be undertaken at the Project, during all phases of development, to:

- ensure the identification of AIPs on the development site;
- prevent the spread of AIPs onto the development site, or from the development site onto adjacent land;
- facilitate the eradication of AIPs that may become established on the development site; and
- take all the reasonably required steps to prevent or minimise harm to biodiversity caused by AIPs on the development site.

3 Alien Invasive Plants likely occurring on the Development Area

Table 1 defines some of the AIPs that are expected to occur in the Development Area. Note, this list is not exhaustive and merely indicates some of the problem species known to occur in the general region. The on-site Environmental Officer may amend this list according to on-site observations.

Table 1: Alien Invasive Plants expected within the development area

Species	Common Name	NEMBA Category	CARA Category	MNCA Category
Argemone ochroleuca	White flowered Mexican poppy	1b	1	Not Listed (NL)
Campuloclinium macrocephalum	Pompom weed	1b	1	NL
Cirsium vulgare	Scotch thistle	1b	1	Invader weeds and plants
Cortaderia jubata	Pampas grass	1b	1	Invader weeds and plants
Datura stramonium	Common thorn apple	1b	1	Invader weeds and plants
Eucalyptus camaldulensis	Red river gum	1b	2	Invader weeds and plants
Malvastrum coromandelianum	Common false mallow	1b	NL	NL
Ligustrum lucidum	Broad-leaved privet	1b	3	NL
Melia azedarach	Syringa	1b	3	Invader weeds and plants
Phytolacca octandra	Forest inkberry	1b	NL	NL
Pyracantha coccinea	Scarlet firethorn	1b	NL	NL
Robinia pseudacacia	Black locust	1b	2	NL
Solanum elaeagnifolium	Silver-leaf bitter apple	1b	1	NL
Solanum mauritianum	Bugweed	1b	1	Invader weeds and plants
Solanum sisymbriifolium	Dense-thorned bitter apple	1b	1	Invader weeds and plants
Tamarix ramosissima	Pink tamarix	1b	3	NL
Verbena bonariensis	Purple top/ Tall verbena	1b	NL	NL
Verbena brasiliensis	Brazilian verbena	1b	NL	NL
Agave sisalana	Sisal	2	2	Invader weeds and plants
Acacia mearnsii	Black wattle	2	2	Invader weeds and plants

Species	Common Name	NEMBA Category	CARA Category	MNCA Category
Pinus patula	Patula pine	2	2	Invader weeds and plants
Populus x canescens	Grey poplar	2	2	NL
Acacia baileyana	Bailey's wattle	3	3	NL
Acer buergerianum	Chinese maple	3	NL	NL
Acer negundo	Box elder	3	NL	NL
Fraxinus angustifolia	Narrow -leaved ash	3	NL	NL
Morus alba	White mulberry	3	3	NL
Phytolacca dioica	Belhambra	3	3	NL
Abelia grandiflora	Glossy abelia	NL	NL	NL
Acanthus mollis	Bear's breeches	NL	NL	NL
Agave americana	American agave	NL	NL	Invader weeds and plants
Alternanthera pungens	Khaki weed	NL	NL	NL
Bidens pilosa	Common blackjack	NL	NL	Invader weeds and plants
Bidens bipinnata	Spanish blackjack	NL	NL	NL
Cedris deodara	Deodar cedar	NL	NL	NL
Celtis sinensis	Chinese nettle tree	NL	NL	NL
Chenopodium album	White goosefoot	NL	NL	NL
Cupressus sempervirens	Mediterranean cypress	NL	NL	NL
Erigeron (=Conyza) bonariensis	Flax-leaf fleabane	NL	NL	NL
Eriobotrya japonica	Loquat	NL	NL	NL
Euonymus japonicus	Box-leaf euonymus	NL	NL	NL
Hedera canariensis	Canarian ivy	NL	NL	NL
Lagerstroemia indica	Pride of India	NL	NL	NL
Malva parviflora	Cheeseweed	NL	NL	NL
Oenothera rosea	Rosy evening primrose	NL	NL	NL
Pennisetum clandestinum	Kikuyu	NL	NL	NL
Phoenix canariensis	Canary Island date palm	NL	NL	NL
Plantago lanceolata	Buckhorm plantain	NL	NL	NL
Platanus occidentalis	American sycamore	NL	NL	NL
Populus simonii	Simon poplar	NL	NL	NL
Portulaca oleracea	Garden purslane	NL	NL	NL
Prunus persica	Peach	NL	NL	NL
Richardia brasiliensis	Brasilian clover	NL	NL	NL
Quercus robur	Common oak	NL	NL	NL
Quercus ruber	English oak	NL	NL	NL
Salix babylonica	Weeping willow	NL	2	NL
Sonchus oleraceus	Common sow thistle	NL	NL	NL
Tagetes minuta	Tall khaki weed	NL	NL	NL
Ulmus parviflora	Chinese elm	NL	NL	NL
Ulmus minor	European field elm	NL	NL	NL

4 Control Strategy

The control of AIPs should use methods that are appropriate for the species concerned and for the area where the species occurs. Often, a combination of control methods is the most appropriate way to ensure effective control. In general, four control methods exist:

- physical control (uprooting, felling, cutting, ring barking), or
- chemical control (treatment with registered herbicides), or
- biological control (using biological control agents), or
- integrated control (combination of control methods).

Ongoing control is required to achieve long-term goals of eradication and prevent the recurrence of AIPs in areas where control was previously implemented. Repetitive follow-up actions will therefore be mandatory until the required control has been achieved.

As far as possible, AIPs must be removed prior to seed production (typically occurring in early summer). Chemical control through the application of herbicides should only take place during the growing season to ensure efficacy.

The following control strategy is proposed:

4.1 Prevention

Measures to prevent the introduction of new AIPs into the study area and from spreading from the property to neighbouring properties, potentially including:

- No new AIPs are to be planted or introduced into the development area.
- Construction areas must be rehabilitated immediately following construction in each area, including re-vegetating disturbed areas, to ensure the establishment of viable indigenous plant populations, and preventing AIPs from colonising disturbed areas;
- NEMBA Category 1b species should be prioritised for control, due to the known invasive success of these species.

4.2 Early Detection and Rapid Response

- The Development Footprint areas must be surveyed by the Contractor's EO to detect any new or emerging AIPs (weekly in construction phase, and until rehabilitation of construction areas has proven successful, quarterly in operational phase).
- Emerging or new AIPs detected must be addressed with urgency. These plants must be eradicated before they can produce seed (or off-spring, or start growing vegetatively, depending on the species), as it will be more challenging and costly to eradicate them later on.
- The on-site EO must update the species list by recording all AIPs locations on a map of the development area. The Map must be updated as control is implemented in an area, and as new AIPs are detected in an area.

4.3 Monitoring and Control

The following phases are required in the AIP control programme:

- **Initial Control Phase**: with the aim of eradicating, or drastically reducing the existing AIP population;
- **Follow-up Control Phase**: with the aim to deplete the seed bank (specific tactics for seed bank management can be employed, including control of coppice regrowth, root suckers and seedlings).
- **Maintenance Phase**: During this phase, AIP's are no longer considered a problem. It is important to monitor the situation of infestation during the growing season of the plants to avoid re-infestation and to keep the control cost at a minimum. Potential seed source for re-infestation and causative agent for reintroduction should also be identified and monitored.

4.4 Prioritisation

It is recommended that the EPC (or their EO) compile a detailed plan of the development area at the onset of construction, and record the alien invasive species on the development area. From this plan, species with higher categorisation should be prioritised for control.

The areas where new AIPs are detected (expected to be the areas disturbed by construction) must be prioritised for prevention of AIPs, but where AIPs are detected, the higher-categorised (NEMBA Category 1) should be prioritised for control.

4.5 Rehabilitation and Restoration

Clearing of AIP infestations may leave the soil surface exposed and vulnerable to soil erosion, and re-colonisation of an area by AIPs. Soil stabilisation and revegetation and establishment of vegetation cover will be required, following mechanical control of AIPs.

It is recommended that bare areas remaining after AIP clearance, be seeded with an indigenous grass species mixture, comprising species of the Eastern Highveld Grassland vegetation type.

4.6 Disposal of plant material

- All plant material removed should be taken to an area isolated from surrounding natural areas with a bunded surface, from where it should be taken to a registered garden refuse centre or landfill site.
- All plant material should be covered with a tarpaulin during transportation by road to prevent any blow-off from the vehicle.
- It is not recommended that any species be chipped and used as mulch, as there may be seeds present within the mulch that will spread to areas beyond the present AIP communities (unless it can be confirmed that no seeds are present).
- Wood from large trees could be made available to the public or surrounding communities for firewood.

APPENDIX 4: CHANCE FIND PROCEDURE

CHANCE FIND PROCEDURE

Hendrina North Wind Energy Facility; Hendrina North Grid Infrastructure; Hendrina South Wind Energy Facility; Hendrina South Grid Infrastructure

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1. Introduction

Cultural heritage can represent irreplaceable sources of life and inspiration and should be safeguarded. Although there are always cultural heritage studies conducted in the Project and its area of influence, there is always potential for new discoveries to be made, especially during excavation activities. Finds can include fossils, archaeological, paleontological or sacred sites as well as more modern graves.

Heritage resources are protected in terms of the Heritage Resources Act (Act No 25 OF 1999). The Act usually sets out the overarching administrative processes for protecting and preserving cultural heritage and management by the Developer. Successful implementation requires everyone being alert to the possibility of finds, applying the specified measures and notifying immediate Site Supervisor, Environmental Officer, Environmental Control Officer (ECO) that should in turn inform relevant Authorities as appropriate.

2. Objectives

This Procedure aims to protect and preserve any cultural heritage discovery from potential adverse impacts associated with the construction and operation activities of the proposed Project.

3. Responsibilities

3.1 Developer

Developer shall:

- Ensure correct implementation of chance find procedure upon any chance finds or suspected discoveries.

3.2 Contractor

The Contractor shall:

- Oversee and provide resources for the implementation of this procedure;
- Co-ordinate the chance find with the Archaeologist / other Heritage Specialist.
- Inform relevant Authorities as appropriate in case of find; and
- Obtain any necessary permits if required

4. Training

Awareness training should be conducted by the EPC Environmental Officer (EO) for all Employees. The training should include, as a minimum, the following:

- Identifying potential features of heritage significance;
- Procedures for dealing with heritage resources discovered on site;

- Applicable Legislation pertaining to the protection of heritage resources; and
- The importance of protecting heritage resources.

Photographs of similar fossil plants must be provided to the EPC to assist in recognizing the fossil plants in the shales and mudstones (see Appendix i hereto)

5. Procedure

5.1 Archaeological Heritage and Palaeontological Discoveries during Works

Any archaeological or heritage site discoveries during works should be reported to immediate Supervisor, EO and/ECO and treated as an incident. Following the incident and within two hours the Contractor EO must notify Developer in writing. Work at the affected area should cease immediately, the area should be demarcated until further instructions by relevant Specialist and /or relevant Authorities. The EPC Contractor or other person discovering a potentially significant site or artefact should initiate the following actions:

5.1.1 Stop Work

- Inform the immediate Supervisor, EO, ECO and Developer;
- Stop work in the immediate area and take digital photographs to record the find; and
- Install temporary site protection measures (e.g. delineate a 'no-go' area using warning tape, stakes and signage / deploy worker and give instructions to prevent access or further disturbance) and take all reasonable steps to avoid any further disturbance or damage from excavation, vibration, plant or machinery.

5.1.2 Reporting

- Inform all relevant Employees of the chance find and whether access to work area or along the right-of-way is being restricted;
- EPC EO to consult with an Archaeologist / Palaeontologist Specialist, providing photographic records for a preliminary assessment.
- The specialist shall be responsible for evaluating whether the chance find needs to be classified as cultural heritage, significant fossil find, or deposition etc and if so, whether it is isolated or part of a larger site or feature;
- The specialist will be required to highlight the way forward
- EPC will notify the relevant Authorities:
- Section 38(4)c(i) of the National Heritage Resources Act – If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule.
- Section 38(4)c(ii) of the National Heritage Resources Act – If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Ngqabutho Madida 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule;

- Should any fossils or artefact need to be removed from the site a SAHRA permit must be obtained by the EPC.
- Annual reports must be submitted to SAHRA as required by the relevant permits.

5.1.3 General Mitigation / Treatment Strategies

- Artefacts/fossils are to be left in place for recording by the specialist/archaeologist. It is important they are not disturbed or moved as there setting is as important as the artefact/fossil; if materials are to be collected they should be placed in bags and labelled by the Specialist /Archaeologist and forwarded to the Authorities in a manner that ensures the integrity of the 'chain of custody';
- Project personnel are not permitted to take or keep artefacts as personal possessions as that is a criminal offence;
- Any damage, accidental or otherwise, should be investigated by the EPC Contractor detailing corrective actions, with digital images, maps and plans showing any locations that are no-go, limited access or present risks of further chance finds;
- Stakeholder engagement may be needed with affected communities to determine the correct mitigation actions or, if applicable, suitable compensation (e.g. reburial costs). Site treatment scenarios may include:
    - Preservation in place through avoidance or re-routing or specialized construction techniques, and/or
    - Rescue excavations to remove, record and relocate in advance of further construction work if avoidance is not possible.
- If the chance find is an isolated artefact/site or is not classed as cultural heritage, the Site Supervisor should approve the removal of site protection measures and activity can resume only with consultation and approval of the local Authorities;
- While required treatment is ongoing, EPC Contractor should coordinate with the relevant Employees keeping them informed as to status and schedule of investigations / actions, and informing them when activities may resume;

6. Monitoring

Monitoring should be conducted as required to assess control success, to gauge the effectiveness of prevention plans. The Contractor should monitor their activities to prevent the damaging of heritage resources. Monitoring for heritage resources should be integrated into EO and ECO monitoring Programme.

Appendix i: Photographs of Vryheid Formation Fossils

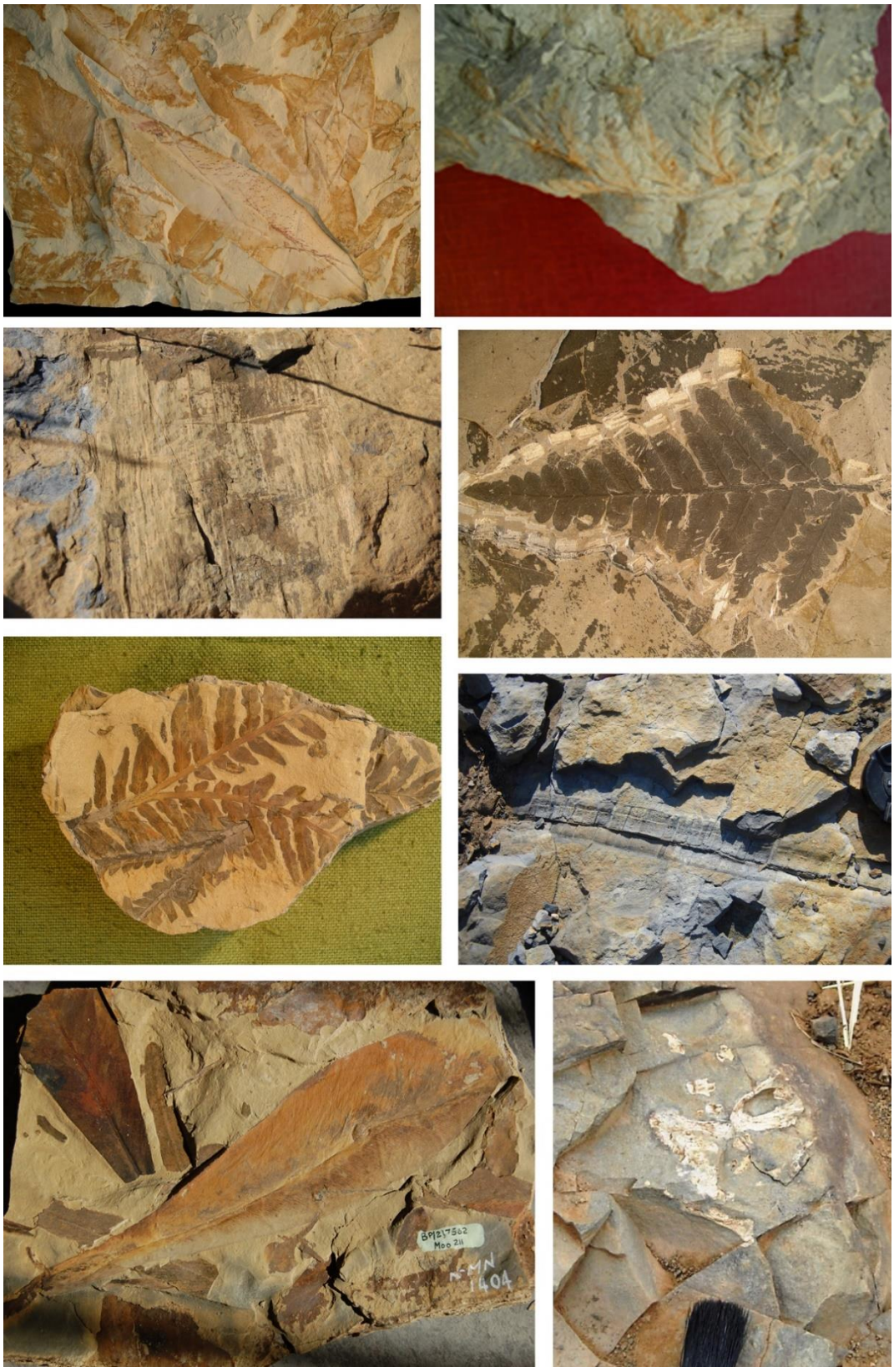

Figure 1: *Glossopteris* flora from the Vryheid Formation. These are leaf impressions. Note, bottom right figure is an example of Permian fossil bones but very rarely found in this area *(Source: Bamford, M. 2022)*.

APPENDIX 5: EAP CURRICULUM VITAE

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CURRICULUM VITAE: MICHELLE VENTER

PROFESSIONAL PROFILE

Key Experience includes:

- Environmental Auditing
- Water Use License Auditing
- Basic Assessments
- Scoping Reports
- Environmental Impact Assessments
- Environmental Management Programmes
- Rehabilitation and Closure reports
- Water Use License Applications and IWWMP compilation, IWWMP Annual Updates
- Monitoring (dust, water and noise) and Compliance
- GIS Mapwork
- Public Participation Process

YEARS EXPERIENCE

10 years

QUALIFICATIONS

BSc Honours in Geography, University of South Africa, 2014

BSc Environmental Management & Zoology, University of South Africa, 2010

PROFESSIONAL MEMBERSHIPS & AFFILIATIONS

South African Council for Natural Scientific Professions (SACNASP): Certificated Natural Scientist- Reg. No. 114447

Registered EAP (EAPASA): 2019/456

Society of South African Geographers (SSAG): 27/19

COURSES, WORKSHOPS & SEMINARS

An Introduction on How to Map and Groundtruth Wetlands, Western Cape Wetlands Forum, 2020

Introductory EIA Report Writing, IAIASA, 2020

IWRM, NWA, and Water Use Authorisations: Focusing on WULA's and IWWMP's, Carin Bosman Sustainble Solutions, 2018

NWA: Workshop on Section 21(c) and (i) Water Use Activities, Department of Water Affairs and Sanitation, 2017

SANBI GIS Training, SANBI, 2017

South African Carbon Tax: Lessons to Learn from Australia, Warburton Gunn Attorneys, 2013

EMPLOYEMENT HISTORY

Cabanga Environmental: 2016- current

Position Held: **Environmental Assessment Practitioner and Public Participation Officer**

Phanda Risk Firm: 2014- 2016 (2 years)

Last Position Held: **Environmental Control Officer**

CS Environmental Services: 2010- 2014 (4 years)

Last Position Held: **Junior Environmental Consultant**

PROJECT EXPERIENCE: DEVELOPMENT

Khusile Power Station: Ogies, Mpumalanga: Environmental awareness training material compilation during the construction of the power station.

Polokwane High Court: Polokwane, Limpopo: Internal environmental compliance and Environmental Management Plan report for the construction of the Polokwane High Court. General Environmental Control Officer duties.

South32, Enslin Crossing, Ogies, Mpumalanga: Environmental Management Plan report for the construction of a road crossing.

PROJECT EXPERIECE: MINING

Steenkampskraal Monazite Mine (Pty) Ltd: Steenkampskraal, Western Cape. Intergrated Water and Waste Management Programme and Rehabilitation Strategy and Implementation Programme for an existing mine that intend on being recomissioned.

Witkop Fluorpsar (Pty) Ltd, Kanakies, Northern Cape: Scoping Report, Management Plan report, Environmental Impact Assessment and Environmental Management Plan report for activities associated with the mining of gypsum. Full Public Participation Process under NEMA and EIA Regulations and for a mining right application and a Rehabilitation Plan

Witkop Fluorpsar (Pty) Ltd, Verdoorstkolk, Northern Cape: Co-author of Basic Assessment and Management Plan report for activities associated with the prospecting of gypsum. Full Public Participation Process under NEMA and EIA Regulations and for a prospecting right application.

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Mhloli Mining and Exploration (Pty) Ltd: Rietbult, Limpopo. Basic Assessment and Management Plan report for activities associated with the prospecting of gold. Full Public Participation Process under NEMA and EIA Regulations and for a prospecting right application.

Afrisam (Pty) Ltd, Ulco, Northern Cape: Water Use License Audit; Atmospheric Emission License Audit; and Environmental Management Plan report.

Corobrik (Pty) Ltd, Olifantsfontein, Driefontein, Rietvlei, and Springs: Water Use License Audit; Water Use Audit; partial application of National Water Use Licenses and Alien invasive plant identification.

Droogvallei Rail Siding Company (Pty) Ltd, Carolina, Mpumalanga: Environmental monthly inspections and reporting, monthly water sampling (surface and ground water) and dust fall out monitoring, Environmental Compliance Audit; Annual IWWMP update and IWUL Audit.

Eyethu Coal (Pty) Ltd: Leeuwpoort, Inyanda, Blesboklaagte, and Blackhll Siding - Closure and Rehabilitation Reports.

Tegeta Exploration and Resources (Pty) Ltd, Brakfontein Colliery, Delmas, Mpumalanga: Environmental monthly inspections and reporting; monthly water sampling (surface and ground water); and Environmental Compliance Audit.

Pan African Resources, Evander Gold Mines, Evander, Mpumalanga: Full Public Participation Process under NEMA and EIA Regulations for a Mining Right Applicaton.

Mmakau Coal (Pty) Ltd, Schurvekop Mine, Bethal, Mpumalanga: Full Public Participation Process under NEMA and EIA Regulations for a Mining Right Application and noise monitoring of baseline levels for EIA/EMPr.

Shiva Uranium (Pty) Ltd, Gold and Uranium Operations, Mpumalanga: Environmental Compliance Audit.

Pan Africa Resources PLC: Barberton Mines (Pty) Ltd – Fairview Mine: Full Public Participation Process under NEMA Regulations for a Mining Right Application.

Future Coal (Pty) Ltd, Chelmsford Mine, Newcastle, Kwa-Zulu Natal: Full Public Participation Process under NEMA and EIA Regulations for an EMPr amendment.

Thutha Amalahle (Pty) Ltd: Water Use License Application and Intergrated Water and Waste Management Programme. Full Public Participation Process under the NWA.

G&W Base and Industrial Minerals (Pty) Ltd, Koppies Bentonite Mine, Free State: GN704 Compliance Audit.

Uitkomst Colliery (Pty) Ltd, Wykoms Siding, Newcastle, Kwa-Zulu Natal: Environmental compliance inspection

PROJECT EXPERIENCE: FACTORIES

DB Thermal, a division of DBT Technologies (Pty) Ltd, Nigel, Gauteng: Water Use Audit, creation and upkeep of environmental management system; internal environmental audits; and environmental awareness training material compliation.

Sedibeng Brewery (Pty) Ltd, Meyerton, Gauteng: Closing of ISO14001 external audit findings; creation and upkeep of environmental management system; and Water Use Audit.

REVIEWS:

Minerano Resources (Pty) Ltd, Millo, Freestate: Review of Basic Assessment Report for a prospecting right application.

Minerano Resources (Pty) Ltd, Du Preez Leger, Freestate: Review of Basic Assessment Report for a prospecting right application.

Minerano Resources (Pty) Ltd, Rebelkop, Freestate: Review of Basic Assessment Report for a prospecting right application.

Minerano Resources (Pty) Ltd, Vermeulenskraal, Freestate: Review of Basic Assessment Report for a prospecting right application.

Minerano Resources (Pty) Ltd, Klipbankfontein, Northern Cape: Review of Basic Assessment Report for a prospecting right application.

Minerano Resources (Pty) Ltd, Vaalbank, North West: Review of Basic Assessment Report for a prospecting right application.

Minerano Resources (Pty) Ltd, Rhenosterdrift, North West: Review of Basic Assessment Report for a prospecting right application.

PROFICIENCIES

Proficient in Microsoft Office Suite (Excel, Word, Outlook etc.)

Proficient with SANBI BGIS

Proficient with Google Earth

Proficient with Global Mapper

Proficient with Surfer

Proficient in QGIS