

Impofu West Wind Farm and Associated Infrastructure, Oyster Bay in the Eastern Cape

Environmental Management Programme

Red Cap Impofu West (Pty) Ltd

Reference: 500571

Revision: 5

2023-05-17

aurecon

Bringing ideas to life

Updating of the Authorised EMPr

Changes have been made to the authorised Draft Environmental Management Programme (EMPr). The first draft was dated 15 April 2019 and updated in June 2020 by Aurecon. A second amendment to the EMPr was made in November 2022 as part of an Amendment Application process, by CEN Integrated Environmental Management Unit.

The Draft EMPr was updated in March 2023 to incorporate the most recent changes to the Site Plan and recommendations from the specialists' site walk-through and micro-siting exercise. Updates have were also made to the specific Management Plans that were initially provided with the EMPr at the Environmental Impact Assessment phase of the project. These updates are in red text in this document.

The updated EMPr was submitted to registered Interested and Affected Parties for a 30 day review period, including the DFFE as the competent authority, as required by the Environmental Authorisation. No comments were received from any other stakeholders that require changes to the EMPr. Enel Green Power (EGP) (who will be developing the Wind Farm) provided specific comments related to the most recent project information, and these are included in this updated EMPr in blue text. Please note that the changes are not regarded as substantive, and do not require a change to any of the specialist micro-siting reports or the Site Layout Plan that was included in the Draft EMPr Changes/additions to the March 2023 EMPr are highlighted in red text in this document.

.

Project Details

Document prepared by:

Aurecon South Africa (Pty) Ltd
Reg No 1977/003711/07
Aurecon Centre
1 Century City Drive
Waterford Precinct
Century City
Cape Town 7441
PO Box 494
Cape Town 8000
South Africa

T +27 21 526 9400
F +27 21 526 9500
E capetown@aurecongroup.com
W aurecongroup.com
T +27 21 526 9400
F +27 21 526 9500
E capetown@aurecongroup.com
W aurecongroup.com

A person using Aurecon documents or data accepts the risk of:

a) Using the documents or data in electronic form without requesting and checking them for accuracy against the original hard copy version.

b) Using the documents or data for any purpose not agreed to in writing by Aurecon.

Document control						aurecon
Report title		Impofu West Wind Farm and Associated Infrastructure, Oyster Bay in the Eastern Cape: Environmental Management Programme				
Document code		12134	**Project number**		500571	
File path		\\aurecon.info\shares\ZACPT\Projects\Projects\500571 Impofu Wind Farms\5 DEL DES\15 WF Amend\5 EMPr				
Client		Red Cap Impofu West (Pty) Ltd				
Client contact		Lance Blaine	**Client reference**		Impofu	
Rev	**Date**	**Revision details/status**	**Author**	**Reviewer**	**Verifier** (if required)	**Approver**
1	2019-04-15	Draft EMPr	Claire Blanche		Zoe Palmer	Andries vd Merwe
2	2020-04-20	Draft EMPr	Claire Blanche		Kirsten Jones	Stephan van den Berg
3	2022-11-08	Draft EMPr	Claire Blanche		Amended by Belinda Clark (CEN)	
4	2023-03-10	Updated Draft EMPr for Public Participation	Claire Blanche		Amended by Belinda Clark (CEN)	
5	2023-05-17	Updated and Final EMPr after Public Participation	Claire Blanche		Amended by Belinda Clark (CEN)	
Current revision		**5**				

Abbreviations

BFDs	Bird Flight Diverters
CLO	Community Liaison Officer
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DEA&DP	Department of Environmental Affairs and Development Planning
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECPHRA	Eastern Cape Provincial Heritage Resources Agency
ECO	Environmental Control Officer
EGP	Enel Green Power
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EIRF	Environmental Incident Report File
EMPr	Environmental Management Programme
ESO	Environmental Site Officer
EO	Environmental Officer
HV	High Voltage
MSDS	Material Safety Data Sheets
NEMA	National Environmental Management Act (Act 107 of 1998)
NEM:BA	National Environmental Management: Biodiversity Act (Act 10 of 2004)
NHRA	National Heritage Resources Act (Act 25 of 1999)
NMBM	Nelson Mandela Bay Metropolitan
NWA	National Water Act (Act 36 of 1998)
OHSA	Occupational Health and Safety Act (No. 85 of 1998)
SAHRA	South African Heritage Resources Authority

Units of Measurement

ha	Hectares
km	kilometres
Km/h	Kilometre per hour
kV	Kilovolt
m	metres
Mm	Millimetre
MW	Megawatts

Definitions and Terminology

All staff - The entire workforce and project team appointed by the Developer to implement the project. Sub-contractors, service or product providers / suppliers, artisans and workers employed by the Contractor, Consulting Engineers or Environmental Consultants, and persons visiting or making deliveries to the site.

Alien species – (a) A species (plant or animal) 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.

Auditing – A systematic, documented, periodic and objective evaluation of how well the environmental management programme is performing with the aim of helping to safeguard the environment by facilitating management control of which would include meeting regulatory requirements.

Commence – The start of any physical activity, including site preparation and any other activity on site furtherance of a listed activity or specified activity, but does not include any activity required for the purposes of an investigation or feasibility study as long as such investigation or feasibility study does not constitute a listed activity or specified activity.

Contaminated water – Water contaminated by the Contractor's activities such as with hazardous substances, hydrocarbons, paints, solvents and runoff from plant, workshop or personnel wash areas but excludes water containing cement/ concrete or silt.

Contractor's camp - In the context of this document refers to the location and layout of any storage containers, fuel storage areas and protection bunds, material lay-down areas, hazardous chemical storage facilities, wash bays, workshops and plant service and maintenance areas, oil separators and grease traps, first aid facilities, training facilities, central waste storage areas, and any other facilities associated with the Contractor's camp (as may be applicable).

Corrective action – Reactive response required to address an environmental problem that is in conflict with the requirements of the EMPr. The need for corrective action may be determined through monitoring, audits or management review.

Development Sites – Sites approved for development where construction activities specific to this project have taken, are taking or will take place and that will have an impact on the environment.

Disciplinary action - In the context of this document refers to financial penalties, time penalties, legal action, dismissal and/or any other action taken against the culprit responsible for an incident of non-compliance with the Environmental Management Programme. The disciplinary action will be determined according to the nature of the non-compliance or crime.

Dust – Any material composed of particles small enough to pass through a 1 mm screen and large enough to settle by virtue of their weight into the sampling container from the ambient air.

Environmental Authorisation - The authorisation of listed activities in terms of Regulations pursuant to the National Environmental Management Act, No. 107 of 1998, as amended, and issued by the National Department of Environmental Affairs.

Environmental Impact Assessment - Is a process that evaluates the environmental and socio-economic characteristics of proposed projects and the consequences of the project on the environment and the people that live in the area affected by the project activities. Where negative impacts are likely to result from the project, measures can be recommended to avoid or lessen these impacts to a level where the impacts are considered environmentally and socially acceptable. Where positive impacts are likely to result from the project, measures can be recommended to increase these impacts. The EIA process also provides interested and affected parties (I&APs) with an opportunity to comment on the project and to be kept informed about decisions that may affect them or the environment.

Environmental Incident - An accident or unexpected occurrence related to the project, including (but not limited to) runaway fires, pollution events and spills, unplanned explosions, major emissions or erosion events, or bank collapse leading to serious or potentially serious negative environmental impacts.

Environmental Incident Report File – A file provided for the recording of all environmental incidents and includes a Complaint Register for the recording of general public concerns.

Environmental Management Programme – An environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented; and that the positive benefits of the project are enhanced.

Erosion – The loss of soil through the action of water, wind, ice or other agents, including the subsidence of soil.

Heritage Resource - Any place or object of heritage significance i.e. of archaeological, palaeontological, cultural, aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

Interested & Affected Parties (I&APs) - Any individual or group of individuals concerned with, interested in, or affected by the project and its consequences, including (but not restricted to) the local community and general public, government and local authorities, stakeholders, landowners, tribal authorities and public interest groups.

Invasive vegetation - An undesirable alien or indigenous plant growth which shall include, but not be limited to, all declared alien invader species as set out in the regulations pursuant to the National Environmental Management: Biodiversity Act, No. 10 of 2006. Other vegetation deemed to be invasive shall be those plant species that show the potential to occupy in numbers any area within the defined construction site, and which are declared to be undesirable and are generally habitat transformers, germinating rapidly in response to disturbances and capable of out-competing desired indigenous species.

Laydown area – Area/s (as agreed to by the affected landowner/s) in close proximity to the development site/s that is/are utilised for the stockpiling of materials, or the storage of vehicles, equipment and plant.

Method Statement – A written submission setting out the plant, materials, labour and method the Contractor proposes using to carry out an activity, identified by the relevant specification or by the Project manager/Client/ECO when requesting the Method Statement, in such detail that the Project Manager/Client/ECO is enabled to assess whether the Contractor's proposal is in accordance with the Specifications/EMPr and/or will produce results in accordance with the Specifications/EMPr.

Mitigation – Measures designed to avoid, reduce or remedy adverse impacts.

Monitoring – The repetitive and continued observation, measurement and evaluation of environmental criteria to follow changes over a period of time and to assess the efficiency of control measures.

No-Go Area - Highly sensitive areas and their buffer zones (informed by the environmental assessment and specialist walkthrough exercise) within the construction footprint identified as areas that shall be excluded from any construction activity or general access by the construction team.

Pollution – Any change in the environment caused by (a) substances, (b) radioactive or other waves; or (c) noise, odours, dust or heat; emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or wellbeing or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future.

Reasonable – Unless the context indicates otherwise, reasonable in the opinion of the relevant environmental authority or the ECO.

Ripping – The action of loosening of the soil to a depth of 300 mm, parallel to the contours and not more than 300mm apart.

Scarifying – Loosening the soil in areas which have become hard and compacted and which need to be loosened in order to facilitate revegetation.

Subsoil – The soil horizons between the topsoil horizon and the underlying parent rock.

Topsoil – The upper soil profile irrespective of the fertility appearance, structure, agriculture potential, fertility and composition of the soil, usually containing organic material and which is colour specific.

Waste – Any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all wastes as defined in Schedule 3 of the National Environmental Management: Waste Act (No. 59 of 2008). There are two main types of waste as follows:

> **General waste** means waste that does not pose an immediate hazard or threat to health or to the environment, and includes-
>
> (a) domestic waste;
> (b) building and demolition waste;
> (c) business waste; and
> (d) inert waste;
>
> **Hazardous waste** means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment;

Watercourse – (a) A river or spring, (b) a natural channel in which water flows regularly or intermittently, (c) a wetland, pan, lake or dam into which, or from which, water flows.

This page was left blank intentionally

Table of Contents

SECTION A: CONTEXT AND IMPACT SUMMARY 1
1 OVERVIEW 3
1.1 Introduction 3
1.2 Structure of this document 3
1.3 Future improvements and inclusions 5
1.4 Legal Requirements of the EMPr 7
National Environmental Management Act, 1998 (Act No. 107 of 1998) 7
Content requirements 7
1.5 Expertise of the Environmental Assessment Practitioner 9
2 CONTEXT 10
2.1 Project description 10
Project location 10
Wind Farm components 10
2.2 Summary of specific impacts identified 20
SECTION B: ENVIRONMENTAL MANAGEMENT PROGRAMME 26
3 IMPLEMENTATION OF THE EMPR 28
3.1 Roles and responsibilities 28
Proponent 28
Environmental Control Officer (ECO) 28
Engineer and Contract Manager 29
Contractor 29
Environmental Site Officer (ESO) / Environmental Officer (EO) 31
Community Liaison Officer (CLO) 31
3.2 Compliance monitoring 32
ECO schedule 32
Disciplinary action, penalties and fines 32
3.3 Environmental Incident Report File 33
3.4 Complaints Register 35
3.5 Method Statements 35
Required Method Statements 35
Additional Method Statements (on request) 36
Content 36
3.6 Environmental awareness and staff induction 38
3.7 Temporary site closure 39
3.8 Record keeping 39
4 PRE-CONSTRUCTION PHASE 40
4.1 Legal Compliance 40
EMPr inclusion 40
Permits, licenses, and registrations 40
Right to land and access acquisition 43
4.2 Detailed design phase considerations 44
Environmental sensitivities for pre-construction 44
Management plans 48
Tender considerations 50
5 CONSTRUCTION PHASE 51
5.1 Code of Conduct 51
Personal conduct 51
Environmental care 52
5.2 Specialist requirements 53
Environmental sensitivities for construction 53

5.3 General requirements 57
No-Go Areas *57*
Emergency preparedness *57*
Contractor's camp and laydown areas *58*
Ablution facilities *60*
Protection of public infrastructure and services *61*
Heritage resource protection *61*
Habitat resource protection *63*
Vegetation clearance *63*
Hazardous substances and hydrocarbon management *64*
Cement and batching plants *67*
Material and stockpile management *68*
Vehicle/plant and equipment management *70*
Spoil and trench management *71*
Blasting and hotworks *72*
Waste management *72*
Stormwater and sediment management *74*
5.4 Site access and haul routes 75
Private properties *75*
Fencing and gates *76*
Access road management *77*
Traffic management *79*
5.5 Site reinstatement, landscaping and closure 79
Removal of construction infrastructure *79*
Reinstatement *80*
Revegetation *81*
6 OPERATION PHASE 83
6.1 Distribution of electricity 83
Environmental sensitivities for operation *83*
Maintenance of Infrastructure *86*
7 DECOMMISSIONING PHASE 87
7.1 Life-cycle conclusion 87
Environmental sensitivities for decommissioning *87*
Removal of infrastructure *88*

Appendices

Appendix 1: Curriculum Vitae of EAP who amended the EMPr to this current version
Appendix 2: Environmental sensitivities and No-Go Areas
Appendix 3: Draft Method Statements
Appendix 4: Example of Environmental Training and Awareness Course Content
Appendix 5: Updated Management Plans
Appendix 6: Public Participation Report

Figures

Figure 1: Location of the Impofu West Wind Farm 6
Figure 2: Amended Impofu West Wind Farm affected properties (as approved in Amendment #2). 13
Figure 3: Map showing No-Go areas for 'Buildings' in the approved Impofu West Wind Farm. 14
Figure 4: Map showing No-Go areas for 'Roads and Cables' in the approved Impofu West Wind Farm. 15
Figure 5: Map showing No-Go areas for 'Turbines' in the approved Impofu West Wind Farm 16

Figure 6: Final Site Layout Plan for construction – 'No-Go' layers for Buildings at the Impofu West Wind Farm 17
Figure 7: Final Site Layout Plan for construction – 'No-Go' layers for Roads and Cables at the Impofu West Wind Farm. 18
Figure 8: Final Site Layout Plan for construction – 'No-Go' layers for Wind Turbines at the Impofu West Wind Farm 19

Tables

Table 1-1: Appendix 4 of EIA Regulation of GN R982 (as amendments) listing requirements of an EMPr 8
Table 1-2: Key authors of the EMPr 9
Table 2-1: Summary of proposed project components and associated infrastructure for Construction 10
Table 2-2: Summary of activities associated with Impofu West Wind Farm 20
Table 2-3: Summary of identified impacts for the Impofu West Wind Farm and associated infrastructure 21
Table 3-1: Guide to fine determination 33

This page is intentionally blank

SECTION A:
CONTEXT AND IMPACT SUMMARY

This page is intentionally blank

1 OVERVIEW

1.1 INTRODUCTION

This life-cycle Environmental Management Programme (EMPr) has been prepared for the Impofu West Wind Farm and associated infrastructure, near Oyster Bay in the Eastern Cape (refer to Figure 1). The wind turbines on the Impofu West Wind Farm will generate electricity that will be fed into the national electricity grid. Additional ancillary infrastructure will include underground and above-ground cabling between project components, onsite substation/s, foundations to support turbine towers, hardstands to support cranes at each turbine, service and access roads, and permanent operations/maintenance buildings, office and workshop areas.

The wind farm project was the subject of an Environmental Impact Assessment (EIA) process that was undertaken in terms of the National Environmental Management Act (107 of 1998) (NEMA) Environmental Impact Assessment (EIA) Regulations GN R982 of 2014 (as amended) and submitted to the Department of Environmental Affairs (DEA) as an application for Environmental Authorisation (EA). The project was also subject to a subsequent Application for Amendment in terms of the EIA Regulations to change the scope that relates to larger turbines and associated layout changes. A second amendment was undertaken to shift the wind farm boundaries, and the project described herein includes the associated change that relates to both amendments.

Red Cap Impofu West (Pty) Ltd (or its successor in title), is the Proponent and holder of the EA.

Details of the Holder of the Environmental Authorisation:

- Red Cap Impofu West (Pty) Ltd: Mr Lance Blaine
- Tel No: 021 790 1392
- Postal/Physical Address: Unit 2B, Mainstream Centre, Main Road, Hout Bay, Cape Town, 7806

Enel Green Power (EGP) will be responsible for the construction of the proposed wind farm and associated infrastructure.

This EMPr collates the various legal requirements, specific and general mitigations as well as management measures derived from the impact assessment process, together with other relevant standards and best practice, into a document to guide the Proponent and associated parties through responsible and lawful implementation of the proposed project in the most practical manner. The EMPr was updated to incorporate additional mitigation measures provided by relevant specialists based on the site walk-through and micro-siting process used to develop the final site layout plan. Specific management plans were also updated. These plans and reports were sent to Interested and Affected Parties for comment in March 2023. No comments have been received that require any changes to the reports and Final Site Layout Plan. The wind farm developer (EGP) provided specific comments related to the most recent project information which are included in blue text in this Final EMPr.

1.2 STRUCTURE OF THIS DOCUMENT

This EMPr aims to ensure that appropriate environmental management is applied throughout the project life-cycle, from planning and design, through construction, to operation and potential decommissioning. This EMPr is thus intended for use by all role players in the development of the proposed project, but most importantly will form part of the contract documentation for all Contracts pertaining to the development construction and operation of the project.

This document is presented as two sections:

- ***Section A: Context & Impact Summary*** provides an introductory chapter that discusses the structure of this document, as well as how to accommodate future improvements or inclusions to the EMPr, given that it is not a static document. The first chapter also provides the legal context and requirements for an EMPr. The second chapter provides the context, including a project description and a summary of the impacts identified during the environmental investigations.

- ***Section B: Environmental Management Programme*** provides the third chapter on the implementation of the EMPr, which describes the various role players and their responsibilities in terms of this EMPr, as well as the requirements for compliance monitoring, the Environmental Incident Report File, the Complaints Register, the Method Statements, and the staff induction and environmental training. This chapter also discusses requirements for temporary site closure and record keeping. The forth chapter sets out the requirements for the Pre-Construction Phase including the permits, licenses and registrations required to remain legally compliant, and the right to land and access acquisition. This chapter also provides the detailed design phase considerations including environmental sensitivities and tender considerations. The fifth, sixth and seventh chapters set out the requirements for the construction phase, operational phase and decommissioning phase of the project respectively.

1.3 FUTURE IMPROVEMENTS AND INCLUSIONS

This EMPr is not a static document and should remain flexible to changes in project planning and implementation. This document should be seen in an iterative context allowing for amendments throughout the life-cycle of the project and allowing for adjustments as new information is made available. The intention is that improvements and inclusions can be added as the project progresses and the need arises.

The competent authority, DFFE, shall be notified of any *significant* amendments or deviations in accordance with section 35 of NEMA. Such notification should be submitted with a motivation for such amendments and DFFE given the opportunity to comment and review conditions of the EA. Significant amendments or deviations may necessitate an amendment of the EA which is subject to a predefined set of procedures and involves a public participation process.

Note that this EMPr has been updated in accordance with the Conditions of the Environmental Authorisation issued by the DFFE for the project. The EA required that the EMPr be updated once detailed designs are available, and a final site layout has been produced. This document has been submitted to all registered Interested and Affected Parties (I&APs) for a 30-day review period, and will thereafter by updated and submitted to the DFFE for review and final approval.

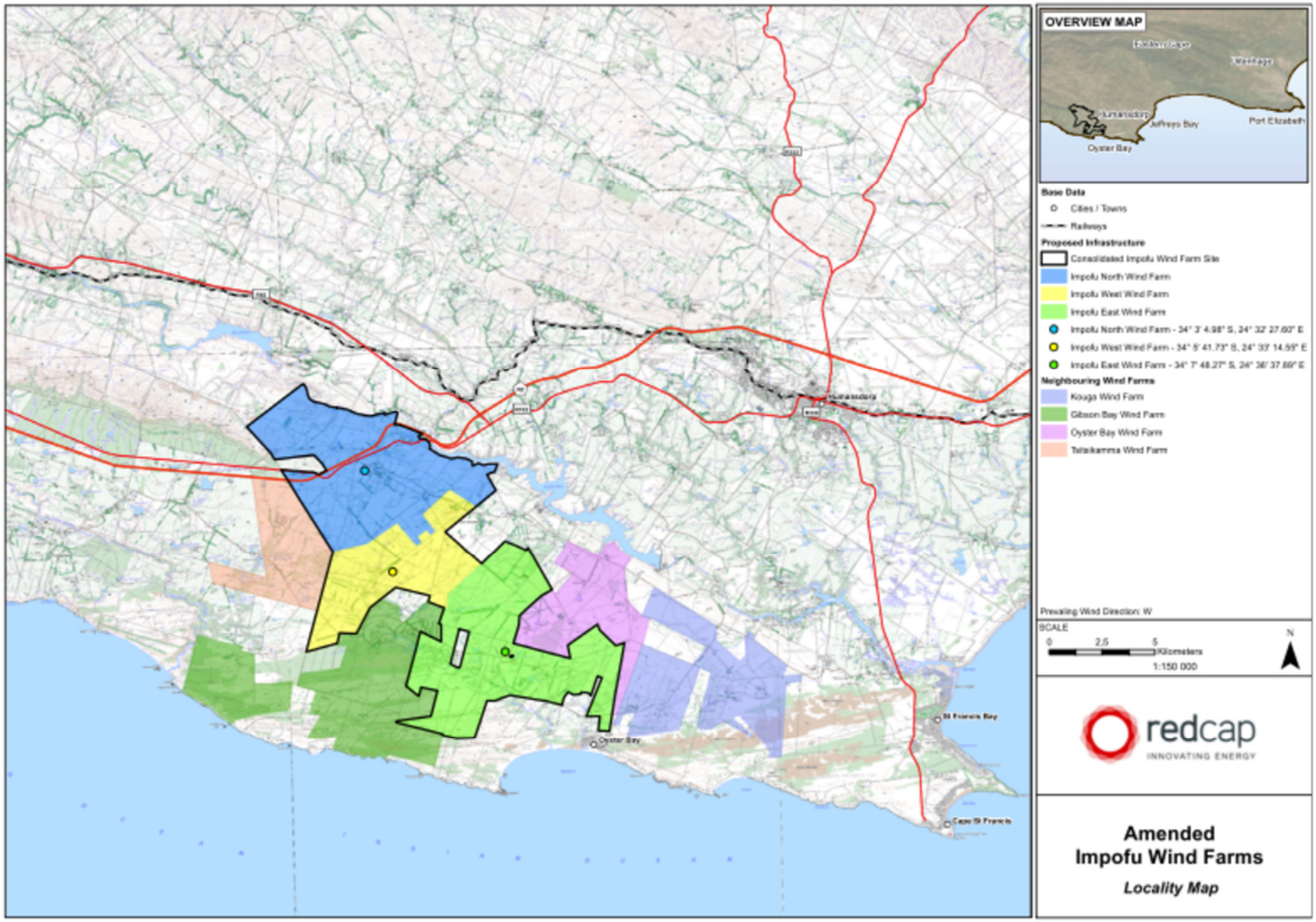


Figure 1: Location of the Impofu West Wind Farm

1.4 LEGAL REQUIREMENTS OF THE EMPR

National Environmental Management Act, 1998 (Act No. 107 of 1998)

In terms of the EIA Regulations (GN R982 of 4 December 2014, as amended) pursuant to the National Environmental Management Act (No. 107 of 1998) (NEMA), the proposed project triggers Activity 11 (i), 12 (ii), 19, 24 (ii), 28 (ii) and 56 (ii) of GN R983, as amended, Activity 1 (b) of GN 984 and Activity 4(a)(i), 18 (a)(i)(iii)(kk) of GN R985, as amended. As the proposed project triggers listed activities in terms of Regulation 984, as amended, it was necessary to submit a Scoping Report and Environmental Impact Report (EIR) for Environmental Authorisation (EA) to the DEA. Section 23 of the EIA Regulations requires that an EMPr be submitted as part of the EIR. The project was also subject to a subsequent Application for Amendment in terms of the EIA Regulations in 2020 and another amendment in 2022. The project described herein includes the scope changes associated with both amendments.

Content requirements

The contents of the EMPr must meet the requirements outlined in section 24N (2) and (3) of NEMA and Appendix 4 of the EIA Regulations '*Content of environmental management programme (EMPr)*'. The EMPr must address the potential environmental and socio-economic impacts of the proposed activity on the environment throughout the project life-cycle including an assessment of the effectiveness of monitoring and management arrangements after implementation. Table 1-1 lists the requirements of an EMPr as stipulated by Appendix 4 GN R982, as amended, and the means by which these requirements have been addressed in this document.

This document meets the EMPr requirements as legislated by the NEMA Regulations as well as falling in line with the 2013 Western Cape Government: Department of Environmental Affairs and Development Planning (DEA&DP)[1] guideline document for Environmental Management Programmes/ Plans and the 2004 Integrated Environmental Management Information Series 12 (Environmental Management Plans) written by the DEA.

[1] This guideline has been used as a best practice tool since it is the most recent guideline on EMPs/EMPrs.

Table 1-1: Appendix 4 of EIA Regulation of GN R982 (as amendments) listing requirements of an EMPr

NEMA requirements for EMPrs		aurecon
#	**Content as required by NEMA EIA Regulations Appendix 4**	**See**
1(a)	(i) details of the EAP who prepared the EMPr; and	Section 1.5
	(ii) details of the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	Section 1.5
1(b)	a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Section 2.1
1(c)	a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitives of the preferred site, indicating any areas that should be avoided, including buffers;	Figure 1 Figure 2 Appendix 2
1(d)	a description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including -	Section 4, 5 & 6 Statement above Tables
	(i) planning and design;	Section 4
	(ii) pre-construction activities;	Section 4
	(iii) construction activities;	Section 5
	(iv) rehabilitation of the environment after construction and where applicable post closure;	Section 5 & 6
	(v) where relevant, operation activities;	Section 6
1(e)	a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d)	Section 4, 5 & 6
1(f)	a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable, include actions to -	Section 4, 5 & 6 All Tables
	(i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;	Section 4, 5 & 6 All Tables
	(ii) comply with any prescribed environmental management standards or practices;	Section 4, 5 & 6 All Tables
	(iii) comply with any applicable provisions of the Act regarding closure, where applicable; and	Section 3.7 Section 5.5 Section 7
	(iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;	N/A
1(g)	the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 4, 5 & 6 Column 5 in all Tables
1(h)	the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f)	Section 4, 5 & 6 Column 5 in all Tables
1(i)	an indication of the persons who will be responsible for the implementation of the impact management actions;	Section 4, 5 & 6 Column 3 in all Tables
1(j)	the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Section 4, 5 & 6 Column 4 in all Tables
1(k)	the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 3.2
1(l)	a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Section 3.2 Section 3.3 Section 3.4
1(m)	an environmental awareness plan describing the manner in which -	Section 3.6
	(i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and	Section 3.6
	(ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Section 3.6
1(n)	any specific information that may be required by the competent authority.	A Generic EMPr for Substations is provided for the substation that forms part of the Impofu West Wind Farm.

1.5 EXPERTISE OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

Aurecon South Africa (Pty) Ltd was been appointed by Red Cap to undertake the EIA process and the development of the EMPr. The *curriculum vitae* of the environmental assessment practitioners (EAPs) who compiled this report are included in Appendix 1. The key authors of this report are listed in the Table below. Note that the second amendment and the updates in this EMPr were done by Belinda Clark of CEN IEM Unit.

Table 1-2: Key authors of the EMPr

Claire Blanché	**Qualification**	**Years of Experience**	**Professional Affiliations**
	BSc (*Hons*) MEnvDev	16	Inaugural member of the Environmental Assessment Practitioners Association of South Africa (EAPASA), and International Association for Impact Assessment South Africa (IAIAsa),
	Claire is an Environmental Manager and technical advisor in Aurecon's Environmental and Planning Services with significant experience in the supervision, hands-on management of environmental impact assessments and compilation of Environmental Management Programmes. Claire has carried out a variety of environmental assessments and written several Environmental Management Programmes for a range of public and private sector projects. Claire has project management experience in EIAs, EMPrs, other environmental regulatory and planning processes and associated consultation processes.		
Kirsten Jones	**Qualification**	**Years of Experience**	**Professional Affiliations**
	MSc (Environmental Science)	12	Professional Natural Scientist with the South African Council for Natural Scientific Professions (SACNASP), International Association for Impact Assessment South Africa (IAIAsa), and International Association for Public Participation (IAP2)
	Kirsten is a Senior Environmental Scientist in Aurecon's Environmental and Planning Services, with extensive experience in Environmental Authorisation and Permitting Processes in South Africa, the United Kingdom, Namibia, Malawi and Nigeria, with focus on Basic Assessment, Scoping, Environmental Impact Assessment, Environmental Management Programmes and Public Participation Process on various renewable energy, mining and natural resource management projects.		
Belinda Clark (Updates to the EMPr at detailed design stage)	**Qualification**	**Years of Experience**	**Professional Affiliations**
	PhD (Environmental Science)	18	EAPASA Registration No. 2019/1336
	Belinda is a Senior Environmental Scientist at CEN IEM Unit, with extensive experience in Environmental Authorisation and Permitting Processes in South Africa, including Basic Assessment, Scoping, Environmental Impact Assessment, Environmental Management Programmes and Public Participation Processes on various development types including renewable energy and infrastructure development.		

2 CONTEXT

2.1 PROJECT DESCRIPTION

Project location

The proposed Impofu West Wind Farm is located approximately 24 km south-west of Humansdorp, and 14 km north-west of Oyster Bay, in the Sarah Baartman District Municipality in the Eastern Cape as taken from the centre point of the site. The project site area falls within the jurisdiction of the Kouga Local Municipality within this District. The site is bordered immediately to the west by the existing Tsitsikamma Community Wind Farm.

The Impofu West Wind Farm site comprises 11 adjoining farm portions (Figure 2). The site is centered on 34°5'28" South latitude and 24°32'53" East longitude (as taken from the centre point of the site) and can be reached directly from the DR01765, the MN50032, DR01774 and DR01764.

Wind Farm components

A wind farm requires a number of key components to facilitate the generation of electricity at a large scale, this includes wind turbines, powerlines and substation facilities to collect the generated electricity and distribute it to other users. The approved layout of the wind farm has been informed by the site sensitivities and No-Go Areas as identified by the specialists during the EIA (2019) and revised during the subsequent Amendment Processes in 2020 and 2022 (Appendix 2). The updated and Final Site Layout Plan included in this updated EMPr is informed by the specialists' walkthrough and micro-siting exercise. The table below (Table 2-1) provides a summary of the proposed project components and associated infrastructure.

Table 2-1: Summary of proposed project components and associated infrastructure for Construction

Component	Description / Dimensions
Facility area	The Impofu West Wind Farm cumulatively measures ~ 2530 ha in extent.
Export capacity	Up to 168 MW[2]
Proposed technology	Wind Energy – onshore horizontal access turbines.
Hub height from ground level	Hub height of 120 m, rotor diameter of 163 m (81.5 m blade / radius) therefore the maximum tip height will reach ~ 202m. A minimum ground clearance (i.e. lower tip height) of 38.5 m has been applied.
Area occupied by substations (including operation and maintenance buildings and areas)	The Substation yard will house Operation and Maintenance (O&M) buildings, Substation building and a High Voltage Gantry, and will be approximately 11,250 m^2 in extent (150 m x 75 m)
Area occupied by permanent hardstand areas	19 turbines each with the permanent hardstand area of 35 x 60 m (2 100 m^2) Resulting in ~ 4 ha permanent
Length of internal roads	Roads: ± 18.7
Overhead lines	33 kV, 500 m long

[2] Please note that this is the maximum capacity as per the approved Amendment No 1 and 2 issued for the Impofu West Wind Farm. However, with the number of Turbines in the Final Site Layout Plan and the available capacity of the Eskom network, it is more realistic to expect an export capacity of 111 MW.

Component	Description / Dimensions
Type and height of fencing	Any existing fences that are disturbed will be repaired or replaced with something similar to the original. Temporary fencing may be erected around the construction site offices and laydown areas, for security, health and safety reasons. Permanent security fencing will be installed around the substation area to prevent unauthorised access. Fencing may be up to ~ 3 m in height.

Wind turbines

The site infrastructure includes 19 wind turbines with a hub height of 120 m, and a rotor diameter of 163 m. The turbines will have a maximum upper tip height of 202 m, and a minimum lower tip height (ground clearance) of 38.5 m.

Transmission and distribution

Each turbine will be connected to the substation by medium voltage (33kV) cabling. Where feasible, these cables will be laid underground in trenches, generally running alongside new or proposed internal roads. Where burying of cables is not possible due to technical, geological, environmental or topographical constraints, then overhead powerlines will be erected.

Energy produced by the turbines will be transmitted via medium voltage (~33 kV or lower) cables to the on-site substation. The substation facility will cover an area of approximately 11,250 m^2 (approximately 150 m x 75 m). The substation area would house buildings or areas for control, operation, workshop and storage.

Additional infrastructure

Access from the N2 would be from either Exit 632 (Palmietvlei off ramp onto DR01776), or the Exit 647 (Kareedouw off ramp onto TR04403). The site can be accessed from DR01774, DR01765 and MN50032 and DR01764.

Internal access and service roads will be required to access the wind farm area as well as each turbine site. Where possible, existing roads and cattle walkways have been proposed to be upgraded to avoid additional clearance of natural or agricultural land cover. New roads will be established where needed. The internal gravel roads will be approximately 6 m wide with potential side drains along the side and of a specification to accommodate the abnormal trucks that will deliver the turbine components. In exceptional circumstances short sections of the roads may be surfaced with bitumen or concrete if they are excessively steep.

A security gate/s and associated guard house/s may be placed at the entrance/s to the wind farm site. This is aimed at preventing unauthorised vehicular access to the facility. No fencing will be used around individual turbines themselves and existing fencing will remain around the perimeter of the properties. Fencing up to 3 m high will be erected around the onsite substation and the operations and maintenance complex for security and safety reasons during the operational phase. The temporary construction camp will also be fenced and should be kept secure for the duration of the construction period. Additional construction phase fencing will be brought on where needed in consultation with landowners.

The Final Site Plan includes all structures and infrastructure specified in the Environmental Authorisation, and is overlain on the 'No-Go' layer. Broader scale environmental sensitivities such as Critical Biodiversity Areas, Ecological Support Areas, Aquatic Areas etc. are incorporated in the terrestrial and aquatic ecologist No-Go layers. Specialists have confirmed that the Final Plan is acceptable and no changes are required to avoid sensitive areas.

Maps showing the approved Impofu Wind Farm layout (as per Amendment #2) with No-Go layers for buildings, roads and cables, and wind turbines are shown in Figure 3 to Figure 5. Maps showing the Final Site Layout Plan for construction with No-Go layers for buildings, roads and cables, and wind turbines are shown in Figure 6 to Figure 8.

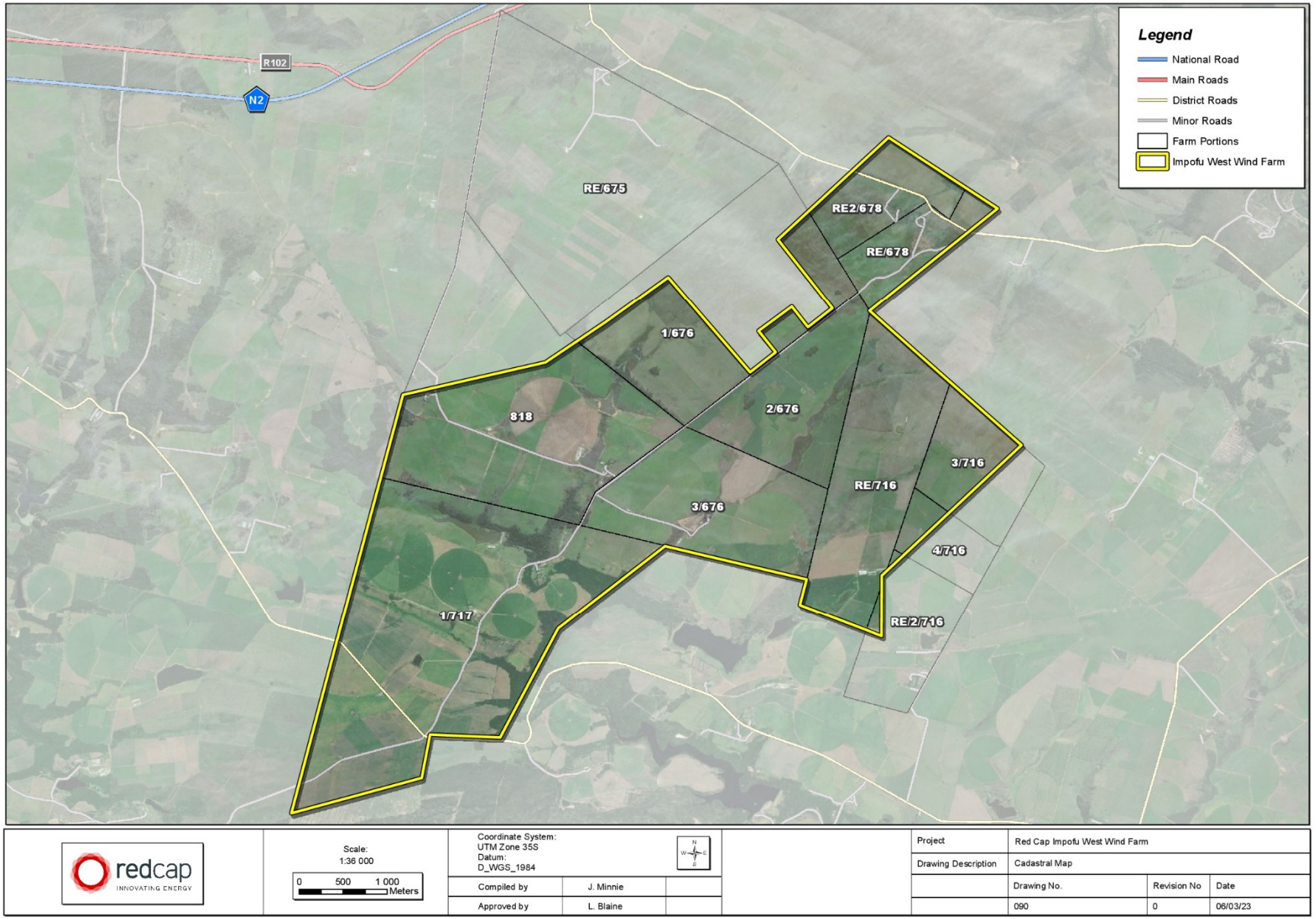


Figure 2: Amended Impofu West Wind Farm affected properties (as approved in Amendment #2).

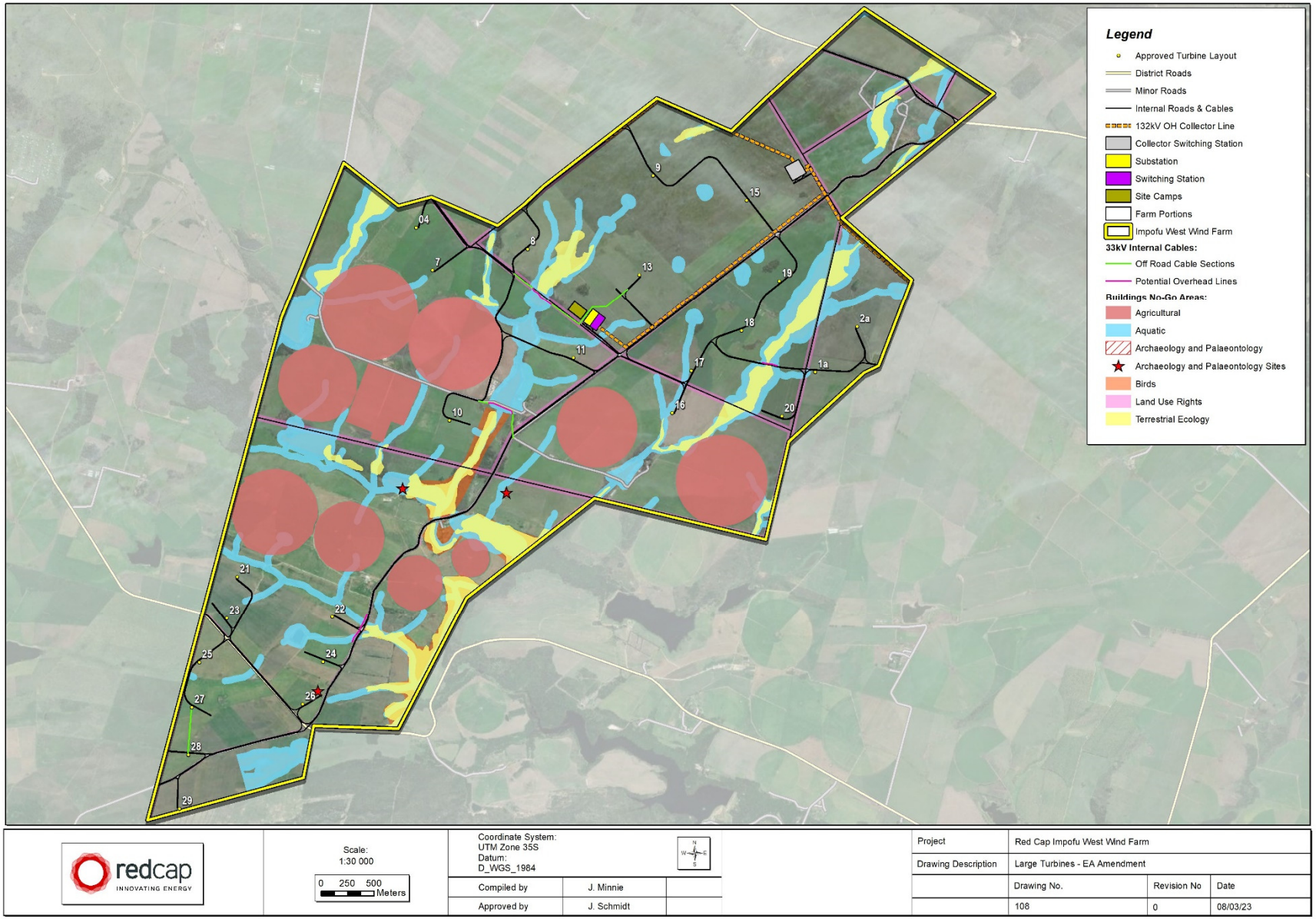


Figure 3: Map showing No-Go areas for 'Buildings' in the approved Impofu West Wind Farm.

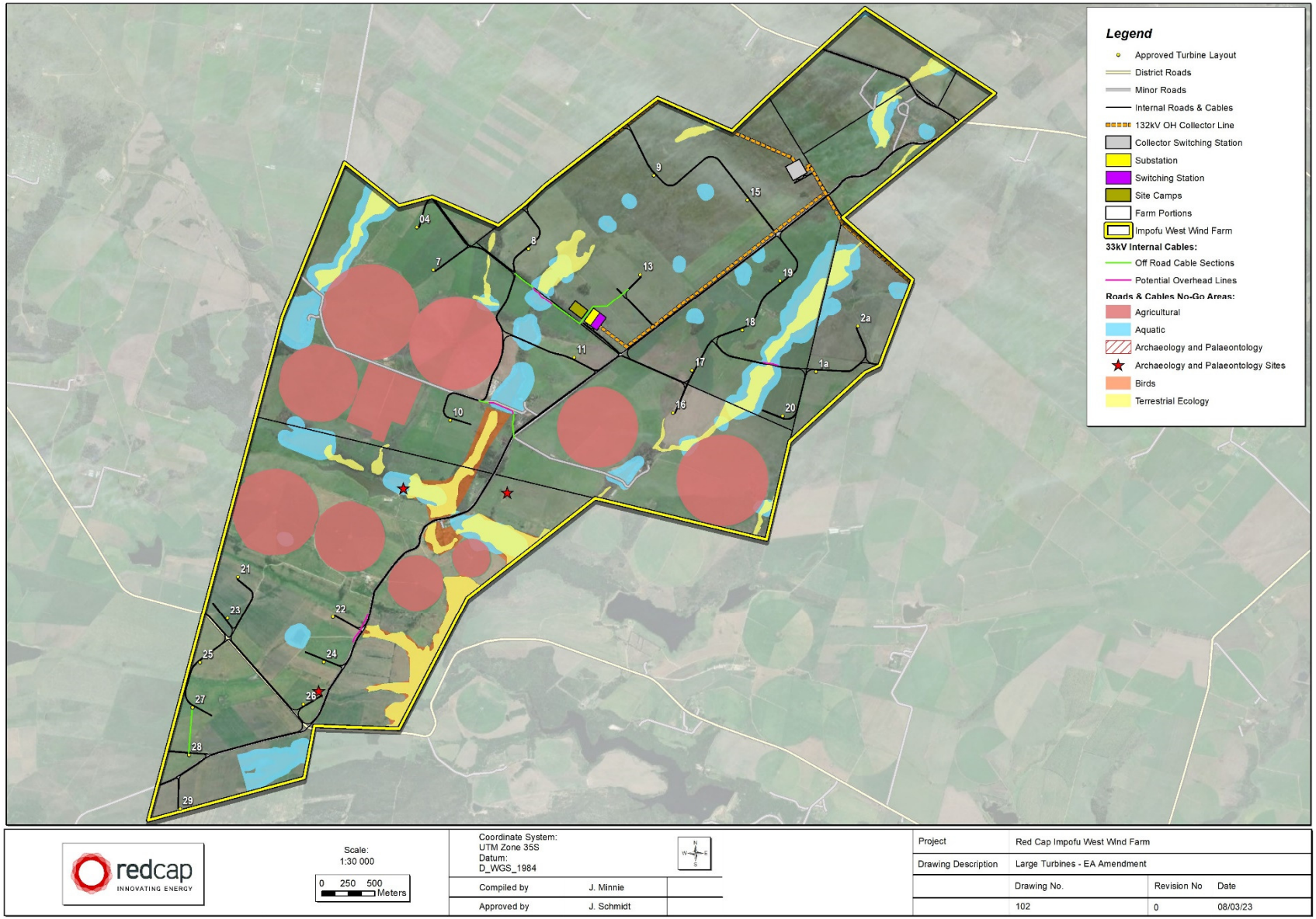


Figure 4: Map showing No-Go areas for 'Roads and Cables' in the approved Impofu West Wind Farm.

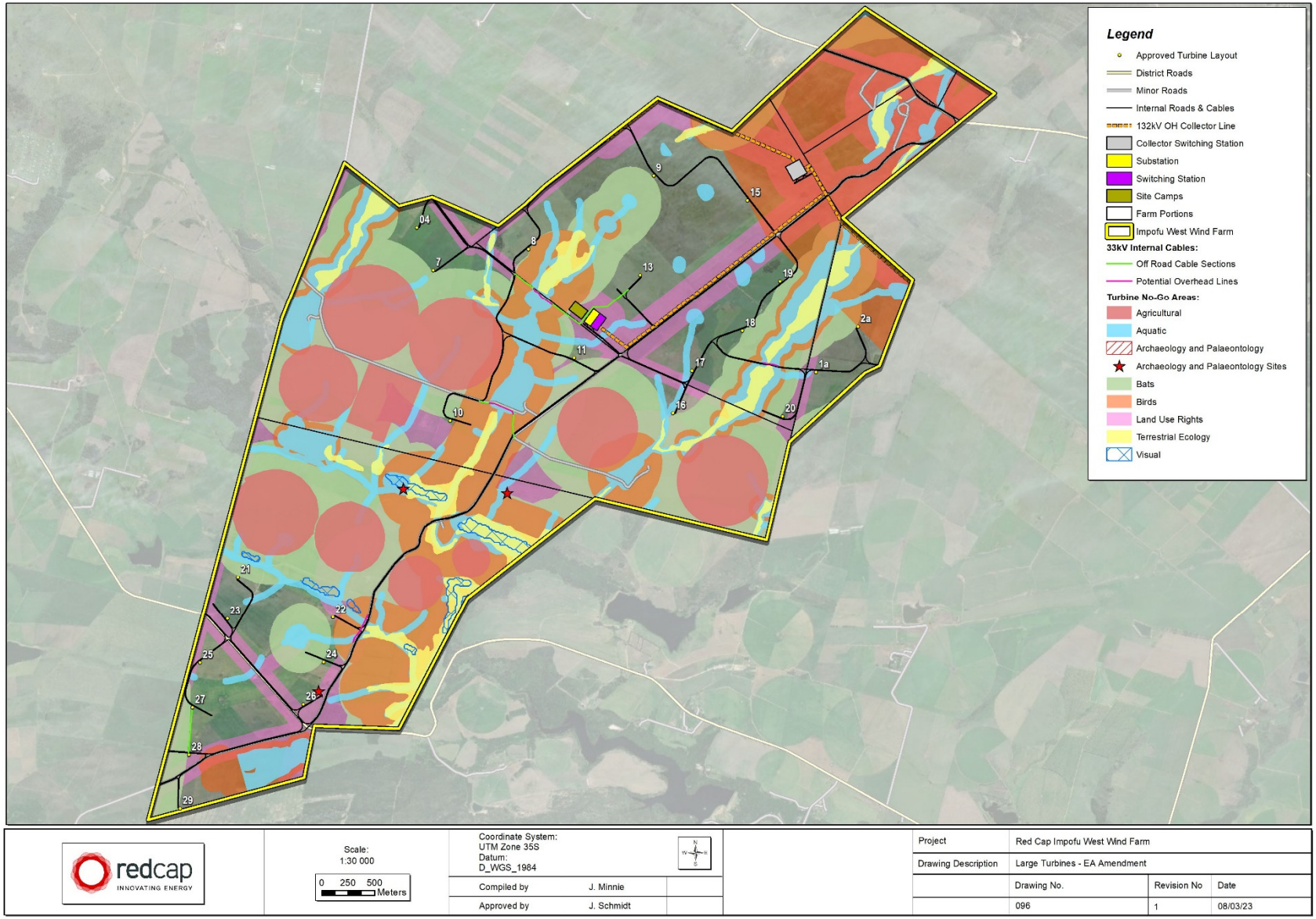


Figure 5: Map showing No-Go areas for 'Turbines' in the approved Impofu West Wind Farm.

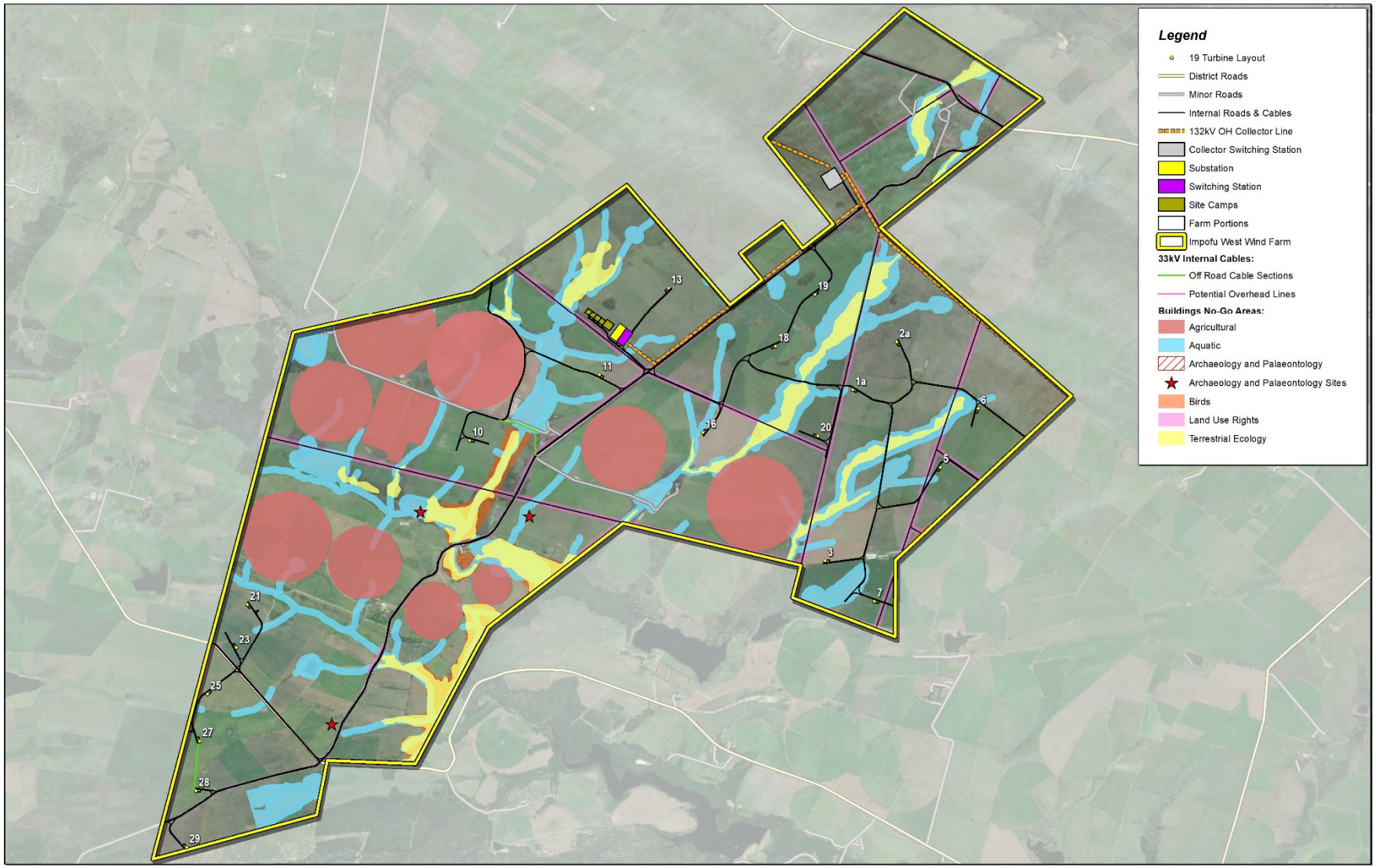


Figure 6: Final Site Layout Plan for construction – 'No-Go' layers for Buildings at the Impofu West Wind Farm.

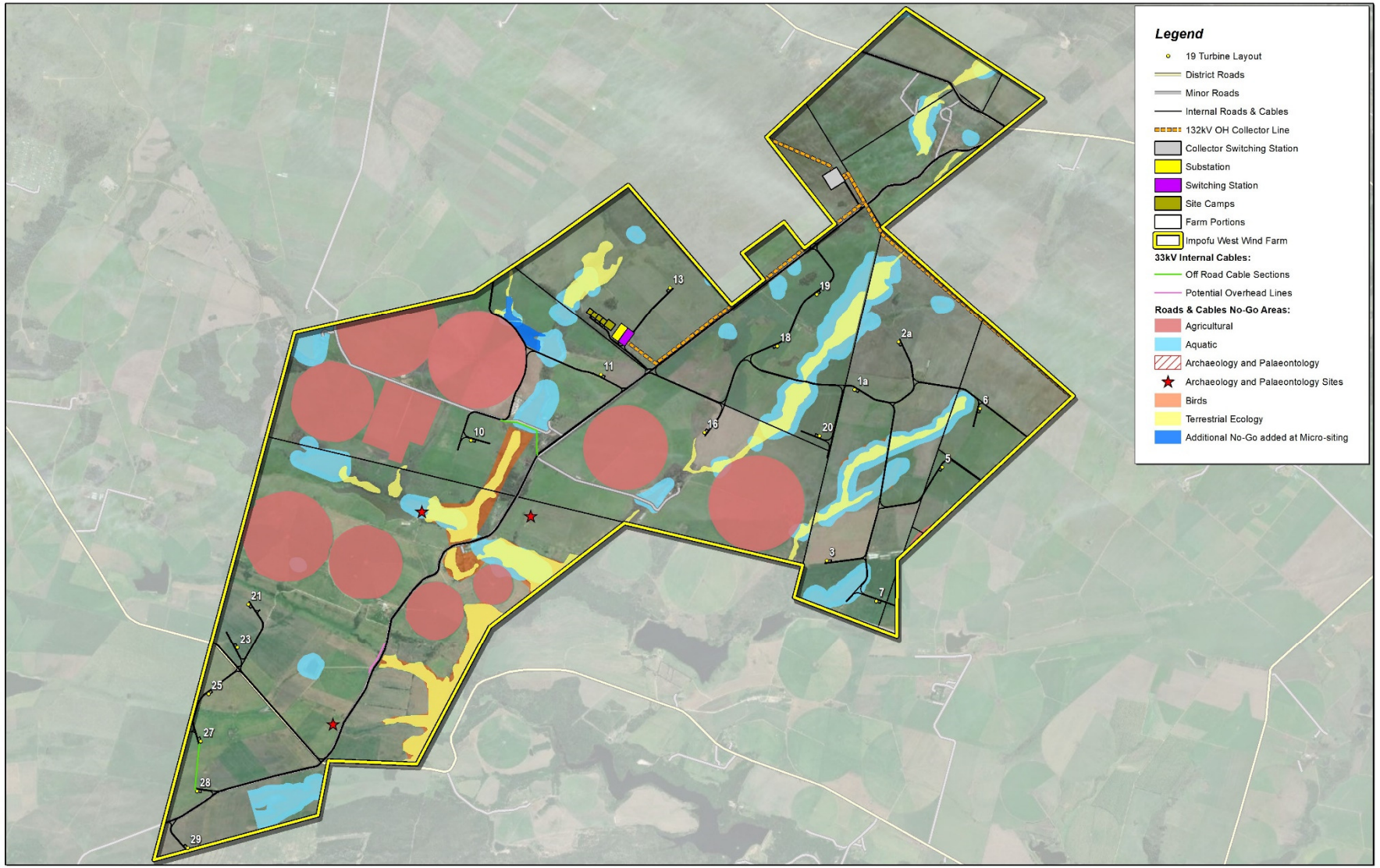


Figure 7: Final Site Layout Plan for construction – 'No-Go' layers for Roads and Cables at the Impofu West Wind Farm.

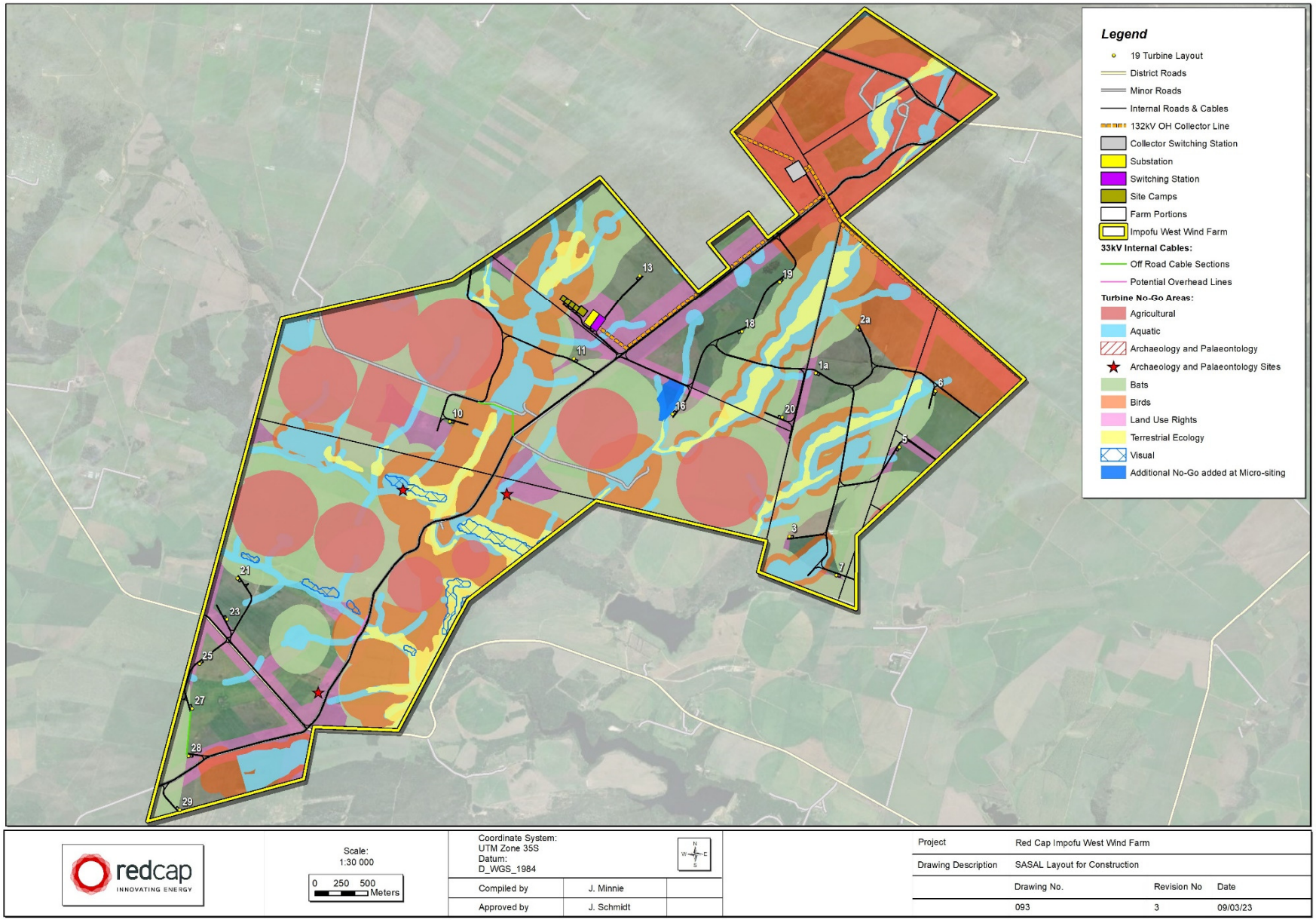


Figure 8: Final Site Layout Plan for construction – 'No-Go' layers for Wind Turbines at the Impofu West Wind Farm.

2.2 SUMMARY OF SPECIFIC IMPACTS IDENTIFIED

The EIR for the Impofu West Wind Farm and Associated Infrastructure (Aurecon, 2019– Draft Version) and subsequent Amendment Report (Aurecon, 2020) that informed this EMPr assessed a range of potential impacts (negative and positive) that may occur as a result of the construction, operation and decommissioning activities of the wind farm and associated infrastructure[3]. A summary of activities associated with the Impofu West Wind Farm is provided in Table 2-2.

Table 2-2: Summary of activities associated with Impofu West Wind Farm

Pre-construction

- The site layout will be confirmed on site through a micro-siting process
- The construction footprint boundaries will be demarcated and No-Go areas will be identified
- Site clearance
- Resourcing materials to the site
- Site establishment, including establishing the construction camp

Construction

- Construction of internal access roads
- Turbine construction pads (crane hardstands)
- Construction of foundations for each turbine
- Assembling the turbines
- Construction of on-site substation
- Connections to on-site substation (i.e. underground cables and overhead lines)
- Phased rehabilitation

Operation

- Phased site rehabilitation from construction phase (all disturbed areas)
- Areas unaffacted by turbines and wind farm infrastructure retained for its intended land use
- Generation of electricity
- Operation and maintenance of infrastructure
- Post-construction monitoring of bats and avifauna

Decomissioning

- Generation of electricity ceases
- Disconnection of the wind farm from electricity network
- Turbine components are disassembled and recycled or disposed of
- Infrastructure that will no longer be used (buildings, roads etc) will be removed
- Site rehabilitation
- Note: at the end of the anticipated lifespan of the Impofu West Wind Farm (20 years) the wind farm may not be decommissioned and may instead be upgraded / refurbished in order to continue producing electricity (subject to the necessary approvals and agreement with the land owners).

The potential impacts associated with these activities were assessed by the EAP and relevant specialists' and were assigned with an anticipated impact rating (significance) for both pre and post mitigation. The significance ratings are summarized according to aspect and project phase in Table 2-3 below.

[3] The second amendment to the EA was merely to shift the position of Wind Farm boundaries, and did not result in any changes to the footprint of structures, nor the mitigation provided by specialists and the EIR for roads, infrastructure and temporary construction disturbance areas. Specialists therefore confirmed in writing that Amendment #2 did not trigger any additional impacts nor change the significance of impacts assessed during the EIR and first Amendment.

Table 2-3: Summary of identified impacts for the Impofu West Wind Farm and associated infrastructure

Environmental aspect	Impact	Pre-mitigation	Post-mitigation
Construction			
Terrestrial ecology	Loss of vegetation and plant SCC	Moderate (-)	Minor (-)
	Direct and indirect impacts on fauna	Minor (-)	Minor (-)
Aquatic ecology	Loss of aquatic species of special concern	Minor (-)	Negligible (-)
	Loss of remaining wetlands with high sensitivity	Minor (-)	Negligible (-)
	Loss of riparian systems and watercourses	Minor (-)	Negligible (-)
	Impact on localised water quality	Minor (-)	Negligible (-)
Bats	Destruction of foraging habitat by clearing vegetation	Negligible (-)	Negligible (-)
Avifauna	Destruction of bird habitat	Moderate (-)	*Low to Moderate (-)
	Disturbance of birds	Negligible (-)	Negligible (-)
Agriculture	Loss of agricultural land use	Minor (-)	Minor (-)
	Discontinuation of farming activities	Negligible (-)	N/A
	Interference with farming operations	Negligible (-)	Negligible (-)
	Degradation to natural agricultural resource base	Negligible (-)	Negligible (-)
	Depletion of potential agricultural water resources	Negligible (-)	N/A
	Increased financial security for farmers	Moderate (+)	N/A
	Improvements to shared infrastructure	Minor (+)	Minor (+)
	Improved farm security	Negligible (+)	N/A
Socio-economic	Temporary stimulation of the national and local economy	Moderate (+)	Moderate (+)
	Temporary increase of new employment opportunities in the national and local economies	Moderate (+)	Moderate (+)
	Contribution to skills development in the country and local economy	Minor (+)	Moderate (+)
	Temporary increase in household earnings	Minor (+)	Minor (+)
	Temporary increase in government revenue	Minor (+)	Minor (+)
	Impact on property and land value in the immediately affected area	Negligible (+)	Negligible (+)
	Changes to the sense of place	Minor (-)	Minor (-)
	Temporary increase in social disruptions associated with the influx of people	Minor (-)	Negligible (-)

Environmental aspect	Impact	Pre-mitigation	Post-mitigation
	Impact on economic and social infrastructure	Minor (-)	Negligible (-)
Archaeology	Impacts on pre-colonial landscape along 5 km wide coastal strip	Moderate (-)	Negligible (-)
	Impact on surrounds of quarry with in situ ESA and MSA stone artefacts	Major (-)	Negligible (-)
Noise	Construction noise	Minor (-)	Minor (-)
Visual	Visual intrusion on the rural landscape and scenic resources	Moderate (-)	Minor (-)
Traffic	Deterioration of road condition due to increased traffic volumes	Minor (-)	Minor (+)
	Incidents due to increased traffic volumes	Minor (-)	Negligible (-)
	Delivery of concrete	Moderate (-)	Minor (-)
Operation			
Terrestrial Ecology	Impacts on fauna	Moderate (-)	Minor (-)
	Impacts on CBAs	Moderate (-)	Minor (+)
Aquatic ecology	Impact on aquatic systems through increase in surface water runoff	Minor (-)	Negligible (-)
Bats	Bat mortalities due to moving turbine blades	Moderate (-)	Minor (-)
	Bat mortalities due to light attraction	Moderate (-)	Negligible (-)
Avifauna	Disturbance of birds	Minor (-)	Minor (-)
	Displacement of birds	Negligible (-)	Negligible (-)
	Bird fatality through collision with turbine blades	Moderate (-)	Moderate (-)
	Bird collision and electrocution on overhead power lines	Minor (-)	Negligible (-)
Agriculture	Loss of agricultural land use	Minor (-)	Minor (-)
	Discontinuation of farming activities	Negligible (-)	N/A
	Interference with farming operations	Negligible (-)	Negligible (-)
	Degradation to natural agricultural resource base	Negligible (-)	Negligible (-)
	Depletion of potential agricultural water resources	Negligible (-)	N/A
	Increased financial security for farmers	Moderate (+)	N/A
	Improvements to shared infrastructure	Minor (+)	Minor (+)
	Improved farm security	Negligible (+)	N/A

Environmental aspect	Impact	Pre-mitigation	Post-mitigation
Socio-economic	Sustainable increase in production and GDP nationally and locally	Moderate (+)	Moderate (+)
	Creation of sustainable employment positions nationally and locally	Moderate (+)	Moderate (+)
	Skills development of permanently employed workers	Moderate (+)	Moderate (+)
	Improved standard of living for benefiting households	Minor (+)	Minor (+)
	Sustainable increase in national and local government revenue	Moderate (+)	Moderate (+)
	Provision of electricity for future development	Moderate (+)	Moderate (+)
	Local economic and social development benefits derived from operations	Moderate (+)	Moderate (+)
	Improvement of the livelihoods of the households dependent on the local agricultural sector	Moderate (+)	Moderate (+)
	Negative changes to the sense of place	Negligible (-)	Negligible (-)
Noise	Operational noise	Negligible (-)	Negligible (-)
Shadow flicker	Shadow flicker	Minor (-)	Negligible (-)
Visual	Visual intrusion of the wind turbines on the rural landscape, settlements, scenic resources and overall sense of place	*Major – moderate (-)	Major moderate (-)
	Visual intrusion of related infrastructure on the rural farming landscape	Moderate (-)	Minor (-)
	Visual intrusion of lights at night on dark skies	Moderate (-)	Moderate (-)
	Visual intrusion of remaining structures and access roads on the rural landscape	Moderate (-)	Minor (-)
Traffic	Deterioration of road condition due to increased traffic volumes	Minor (-)	Minor (+)
	Incidents due to increased traffic volumes	Minor (-)	Negligible (-)
Decommissioning			
Terrestrial ecology	Alien plant invasion following decommissioning	Minor (-)	Minor (-)
	Faunal impacts due to decommissioning.	Minor (-)	Minor (-)
Aquatic ecology	Loss of aquatic species of special concern	Minor (-)	Negligible (-)
	Loss of riparian systems and watercourses	Minor (-)	Negligible (-)
	Impact on localised water quality	Minor (-)	Negligible (-)
Avifauna	Disturbance of birds	Negligible (-)	Negligible (-)

Environmental aspect	Impact	Pre-mitigation	Post-mitigation
Agriculture	Loss of agricultural land use	Minor (-)	Minor (-)
	Discontinuation of farming activities	Negligible (-)	N/A
	Interference with farming operations	Negligible (-)	Negligible (-)
	Degradation to natural agricultural resource base	Negligible (-)	Negligible (-)
	Depletion of potential agricultural water resources	Negligible (-)	N/A
	Increased financial security for farmers	Moderate (+)	N/A
	Improvements to shared infrastructure	Minor (+)	Minor (+)
	Improved farm security	Negligible (+)	N/A
Socio-economic	Temporary stimulation of the national and local economy	Moderate (+)	Moderate (+)
	Temporary increase of new employment opportunities in the national and local economies	Moderate (+)	Moderate (+)
	Temporary increase in household earnings	Minor (+)	Minor (+)
	Temporary increase in government revenue	Minor (+)	Minor (+)
	Changes to the sense of place	Minor (-)	Minor (-)
	Temporary increase in social disruptions associated with the influx of people	Minor (-)	Negligible (-)
	Impact on economic and social infrastructure	Minor (-)	Negligible (-)
Noise	Decommissioning noise	Minor (-)	Minor (-)
Visual	Visual intrusion of remaining infrastructure on the rural landscape	Moderate (-)	Minor (-)

This page is intentionally blank

SECTION B:
ENVIRONMENTAL MANAGEMENT PROGRAMME

This page is intentionally blank

3 IMPLEMENTATION OF THE EMPR

3.1 ROLES AND RESPONSIBILITIES

Several role-players are required to participate actively in the implementation of the EMPr with different roles and responsibilities assigned to each. This section sets out these roles and responsibilities.

Proponent

The 'Proponent' refers to the holder of the Environmental Authorisation. The Proponent (or its successor in title) shall take overall responsibility for the project. The Proponent will be responsible for the operation and maintenance of the infrastructure, as well as decommissioning should the need to decommission the infrastructure ever arise.

The role of the Proponent (pertaining to environmental matters) will include:

- Assuming overall responsibility for the administration and implementation of the EMPr.
- Ensuring that other role players fulfil their obligations in terms of this EMPr.
- Appointing suitably qualified Professionals to fulfil the roles and responsibilities described in the EMPr; namely:
  - An agent of the Proponent to administer the Contract (e.g. suitably qualified and experienced Project Manager or Engineer to act as the Contract Manager).
  - An Independent Environmental Control Officer (ECO) to monitor compliance with the approved EMPr and conditions of the EA (relevant to the construction activities) for the duration of the construction phase.
  - An independent Community Liaison Officer (CLO) who is a member of one of the local communities in the vicinity of the wind farm to facilitate community relations for the duration of the construction phase.
- Ensuring all the necessary approvals, permits, authorisations and requirements set by the relevant National and Provincial Departments, and the Local Authority have been obtained, and are complied with prior to any site activities being undertaken.

Environmental Control Officer (ECO)

The 'ECO' refers to the independent party responsible for the environmental monitoring and auditing activities required by the EMPr for the construction activities. The ECO shall be appointed by the Proponent, and the designation shall be reserved for a suitably qualified (National Diploma/Degree in Natural Science or an equivalent qualification), independent environmental manager. The ECO shall have adequate environmental knowledge and experience to understand the detailed environmental issues associated with this project and is to be well-versed in the contents of the EMPr and any of its associated reports.

The role of the ECO will include:

- Liaison with the Contract Manager, Contractor (including the Environmental Site Officer or ESO) and DFFE, as required.
- Routine monitoring of the Contractor's activities for compliance with the various environmental requirements contained in the EMPr, including:
  - Undertaking compliance inspections and audits at defined intervals as per the ECO Schedule in Section 0 and the requirements of the conditions of the EA.
  - Preparing reports on the findings of the inspections and audits, as well as on any emergency or unforeseen situations in which the expertise of the ECO has been consulted.
  - Making reports available to the Contract Manager and the Contractor as per the ECO Schedule in Section 0 and to DFFE on request.
- Reviewing of the Contractor's Method Statements (from an environmental perspective) required in terms of this EMPr, prior to the proposed activities taking place.
- Monitoring the requisite remedial action undertaken by the Contractor following an environmental incident, event or finding of non-compliance, and capturing proof of such in the subsequent inspection audit.

- Reviewing the Contractor's register of public complaints and confirming that all public comments or issues have been appropriately reported and addressed, including that proof of such action has been retained.
- Providing ad-hoc environmental advice, including opinion on environmental legal requirements, to the Proponent and the Contractor regarding issues that may arise during the Contract.
- Reviewing and updating the EMPr as and where necessary.

Engineer and Contract Manager

The term "Engineer" in the context of the EMPr refers to the company or companies so named in the Contract Data, whose function it is to administer the Contract as an agent to the Proponent. The term "Engineer" may also refer to "Employer's Agent" or "Project Manager" depending on the construction contract.

The natural person nominated by the Engineer, who shall observe the execution of the Works, examine and test materials and workmanship, and deliver and receive communications to/from the Contractor is the Contract Manager. The term "Contract Manager" may also refer to "Employer's Agent Representative" or "Supervisor" depending on the construction contract.

The role of the Contract Manager (pertaining to environmental matters) will include:

- Acting as an agent to the Proponent on matters relating to the environment, and compliance with the EMPr.
- Receiving reports from the ECO and reporting to the Proponent, as well as ensuring issues raised in the reports are addressed by the responsible parties.
- Approving, in consultation with the ECO, the Contractor's Method Statements required in terms of this EMPr.
- Ensuring that the Contractor is well-versed in the contents of this EMPr.
- Ensuring the Contractor is aware that their conduct must be proactive and effective in implementation and management of environmental protection measures.
- Ensuring the Contractor is aware of their responsibilities in terms of this EMPr, including (but not limited to):
  - Approving the Environmental Site Officer (ESO) nominated by the Contractor to oversee the implementation of this EMPr.
  - Ensuring that the Contractor is aware that a register of public complaints shall be maintained, that all public comments or issues shall be appropriately reported and addressed, and that proof of such shall be maintained for compliance purposes.
  - Instructing the Contractor to cease work, if so required by DFFE, the ECO or EMPr, and issuing fines or disciplinary action to the responsible parties in the event of non-compliance of the EMPr in accordance with Section 0, as necessary.
  - Supporting the ECO in their role and responsibilities by ensuring the Contractor undertakes the requisite remedial action in the event of non-compliance.

Contractor

The term 'Contractor' in the context of the EMPr refers to the main appointed Contractor responsible for any site activities, or portion of the site activities required for the construction phase of the project. The Contractor shall be responsible for ensuring the day-to-day implementation of the EMPr during the construction activities, and shall therefore be well-versed in the relevant sections of this document. The Contractor shall conduct activities in a manner that will cause the least possible disturbance to the existing amenities, whether natural or man-made, in accordance with all the currently applicable statutory requirements as specified in the EMPr. Disturbance or disruption of the daily lives of local communities shall be avoided wherever possible.

The role of the Contractor (pertaining to environmental matters) will include:

- Liaison with the Contract Manager, ECO and DEA as required.
- Assuming the responsibility for the administration and implementation of sections of the EMPr relevant to the Contract.
- Nominating a suitable member of staff to fulfil the role of ESO and providing the details of this person to the Contract Manager for approval.
- Ensuring all work areas and site activities pertaining to the Contract conducted in an environmentally sensitive manner and in accordance with the relevant sections of the EMPr.

- Providing Environmental Awareness Training, Staff Induction Training and Emergency Response Procedures to all staff, ensuring that they are adequately informed of the requirements of the EMPr pertaining to their site role, and that they clearly understand the written Code of Conduct.
- Ensuring that any sub-contractors, suppliers or visitors to the site understand the relevant sections of the EMPr pertaining to their role on-site.
- Supplying method statements required in terms of this EMPr (either specified, or for any activities that are proposed as variations to the standard construction practices detailed or referred to in the Contract Documents, or for any activities requiring special attention as specified in this EMPr and/or requested by the ECO or Competent Authority).
- Liaising closely with the ECO on any environmental management issues, environmental incidents or events, or emergencies impacting the environment.
- Addressing the findings of the ECO inspections, as well reacting to any instructions issued by the Contract Manager with respect to non-compliance with the EMPr, emergency or unforeseen situations, or complaints/issues raised by the public.
- Providing an Environmental Incident Report File and a Complaints Register.

EPC Contractor and Service Providers/ Subcontractors

The EPC Contractor is responsible for the overall execution of the activities envisioned in the construction phase including the implementation and compliance with recommendations and conditions of the EMPr. It is important that EPC contractor is fully aware of the responsibilities in terms of the relevant environmental legislation and the contents of this EMPr. The EPC contractor is responsible for informing employees and sub-contractors of their environmental obligations in terms of the environmental specifications, and for ensuring that employees are adequately experienced and properly trained in order to execute the works in a manner that will minimise environmental impacts.

The contractor's obligations in this regard include the following:

- Ensure implementation and compliance with the EMPr at all times during construction activities.
- Responsible for the implementation of corrective actions enforced by the ECO//ESO/EO for non-conformances recorded within a reasonable period of time. The Method Statement must indicate the turn-around time for closing out the non-conformances.
- Ensuring that a report is tabled at each site meeting, which will document all incidents that have occurred during the period before the site meeting.
- Employees must be provided with a basic understanding of the key environmental features of the construction site and the surrounding environment by the ESO/EO.
- A copy of the EMPr must be easily accessible to all on-site staff members.
- Employees must be familiar with the requirements of this EMPr and the environmental specifications as they apply to the construction of the proposed facility.
- Prior to commencing any site works, all employees and sub-contractors must have attended an environmental awareness training course which must provide staff with an appreciation of the project's environmental requirements, and how they are to be implemented. The training is to be conducted by the ESO/EO.
- Staff will be informed of environmental issues as deemed necessary by the ECO//ESO/EO.

All contractors (including sub-contractors and staff) and service providers are ultimately responsible for:

- Ensuring adherence to the Environmental Management Reports and Project Licenses.
- Ensuring that Method Statements are submitted to the Site Manager and ECO for approval/acceptance before any work is undertaken.
- Any lack of adherence to the above will be considered as non-compliance to the specifications of the EMPr(s).
- Ensuring that any instructions issued by the Site Manager on the advice of the ECO/ ESO/EO are adhered to.
- Ensuring that a register is kept in the site office, which lists all transgressions issued by the ECO/ ESO/EO Environmental Representative.
- Ensuring that a register of all public complaints is maintained.
- Ensuring that all employees, including those of sub-contractors receive training before the commencement of construction in order that they can constructively contribute towards the successful implementation of the EMPr (i.e. ensure their staff are appropriately trained as to the environmental obligations)

Environmental Site Officer (ESO) / Environmental Officer (EO)

The 'ESO[4]' refers to the nominated staff member of the Contractor who will fulfil the role of the Contractor's environmental representative to monitor, review and verify compliance with the EMPr. The ESO shall liaise closely with the Contract Manager and the ECO and shall ensure that the works on site are conducted in an environmentally responsible manner and in compliance with the requirements of the EMPr.

The role of the ESO will include:

- Liaison between the Contractor and ECO on matters relating to the environmental considerations on site.
- Assisting with the compilation of environmental components of Method Statements on behalf of the Contractor.
- Being appointed to the site throughout the duration of the construction phase.
- Undertaking daily inspections of the various work areas to ensure all activities are being undertaken in accordance with the EMPr.
- Maintaining all site documentation and records pertaining to the EMPr and environmental matters and approvals.
- Providing a regular and routine account on environmental matters for the ECO, including any environmental incidents, events or accidents, and reporting on any entries in the Environmental Incident Report File or Complaints Register. This account may take the form of a written report or checklist or similar, or meeting with the ECO.
- Overseeing that corrective action is implemented within the stipulated timeframes where non-compliances are registered.
- Responding to and reporting on environmental accidents, incidents and events immediately, and overseeing all works requiring remediation are undertaken in accordance with the ECO or Contract Manager's instructions.
- Ensure that there is communication with the Client's ECO or EO regarding the monitoring of the site.
- Ensure that any non-compliance or remedial measures that need to be applied are reported and closed out according to EMPr.
- Managing daily checklists, and weekly reports.
- Compilation of regular (usually weekly) Monitoring Reports.

Community Liaison Officer (CLO)

The "CLO" refers to an independent Community Liaison Officer who ideally is a member of one of the local communities in the vicinity of the wind farm.

The role of the CLO will include:

- Facilitation of community relations for the duration of the construction phase.
- Providing recommendations for, and facilitation the notification or information dissemination methods for issues such as any planned service disruptions or nuisance disturbances.
- Liaise with the complainants to address any issues.
- Act as the liaison person between the project company and the local community including municipalities;
- The organogram of Stakeholder Relations Manager (SRM) team must be provided indicating how the site will be covered by specific persons, the areas, and their roles;
- Disseminate communication regarding local procurement and recruitment during the construction period.
- Establish a Project Steering Committee (PSC) composed of various parties (i.e., Municipal delegated people, traditional Council, Business forum, Transport Association, Community Leaders and Labour Forum etc.).

[4] Also referred to as Environmental Officer (EO) in some instances.

3.2 COMPLIANCE MONITORING

ECO schedule

Routine compliance inspections and reports:

The Contractor shall allow the ECO (and any officials from DFFE, should the need arise) access to the site for the purposes of compliance monitoring. The ECO shall undertake routine monitoring of the Contractor's activities for compliance with the various environmental requirements contained in the EMPr; including but not limited to:

- Undertaking routine compliance inspections:
  - On a ~~weekly~~ monthly[5] basis for all development sites, or at the defined intervals as provided in the conditions of the EA if these are more frequent.
  - Documenting the findings of each of the inspections. This may take the form of a diary entries, a checklist, a report or similar, but should include dated photographic evidence of any identified issues (where possible). Any findings of non-compliance must be clearly communicated to the Contractor, together with timeframes for the implementation of remedial action and close out.
- Preparing a monthly report:
  - Summarising the findings of the routine compliance inspections undertaken as well as progress on any remedial action that was required during the month in question. In the event of non-compliance, the report might include:
    - Relevant/ supporting documentation or evidence of the non-compliance (e.g. minutes of any meetings held to discuss the non-compliance, email/written correspondence on the matter, dated photographic evidence).
    - Remedial action required to remedy non-compliance or prevent repeat occurrences, including responsible persons and deadlines for such action.
    - Dates of eventual compliance or close-out by the Contractor on previous non-compliance findings.
- Making reports available to the Contract Manager and the Contractor, and to DFFE on request.
- Attending or submitting the monthly report to a minimum of one monthly progress meeting with the project team, which shall include the Contract Manager, the Contractor and the ESO (or representatives).

Environmental emergencies, incidents or events:

Should there be any environmental emergencies or incidents, then the ECO may also elect to inspect the site in the event of these. The ECO shall ensure that any entries in the Environmental Incident Report File and Complaints Register are tabled at the monthly progress meeting and appropriately addressed.

Disciplinary action, penalties and fines

Where a transgression occurs due to negligence, or due to disregard for the requirements of the EMPr, or due to ignoring remedial instruction from the ECO, Contract Manager or relevant Authority, then this is unacceptable, and could result in a disciplinary action (e.g. a time penalty or a monetary fine, withholding payment certificates if in accordance with the terms of Contract, or even legal action). The terms of Contract shall include mechanisms for disciplinary action (such as the issuing penalties and fines), and the recovery of any monies due (including for any remedial costs where these were born by a third party).

The level of non-compliance is ultimately to the discretion of the ECO, Contract Manager and the Authorities, but a guide to determining this level in the event of negligence or disregard, and the associated minimum monetary fine is provided in Table 3-1 below (the table does not include for penalties or other mechanisms of disciplinary action, which could be implemented in addition to the monetary fine). Record shall be kept of any penalties or monetary fines issued for environmental transgressions (refer Section 3.8).

Activities that are directly endangering the environment or are resulting in a significant and detrimental breach of any Environmental Authorisation or EMPr condition may be stopped by the Contract Manager in consultation

[5] The contractors will have a full time ESO / EO on site for the duration of construction who will be responsible for daily site inspections. Therefore an ECO is only required to do monthly site inspections and audits. The ECO will also be available on an ad hoc basis to assist with any immediate issues, should these arise, between monthly inspections.

with the ECO until such breach is rectified. Regulatory authorities such as the DFFE and Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) also have the right to stop activities in consultation with the Engineer, Contract Manager and ECO.

In all instances where costs are incurred in rectifying a breach of the EMPr, enforcing the provisions of the EMPr, or in taking remedial or preventative action to safeguard the environmental integrity, the costs will be recovered jointly or severally from the Proponent and/or the Contractor. Note must be taken in this respect of Section 28 of NEMA which places a duty of care for environmental protection on "every person who causes, has caused or may cause significant pollution or degradation of the environment".

Table 3-1: Guide to fine determination[6]

Level of Non-Compliance	Description	Minimum Fine
Minor non-compliance (>3 repeated offences)	A non-conformance with the EMPr that has the potential to result in minor environmental or social consequence	R 2,000.00
Moderate non-compliance (>2 repeated offences)	A non-conformance with the EMPr that results in minor environmental or social consequence, or has the potential to result in major environmental or social consequence	R 5,000.00
Major non-compliance (1st offence)	A non-conformance with the EMPr that results in major environmental or social consequence	R 10,000.00

**These fines will be escalated by CPI every 12 months from commencement date of contract.*

3.3 ENVIRONMENTAL INCIDENT REPORT FILE

The Contractor shall keep an Environmental Incident Report File (EIRF) on site to document any environmental incidents, emergencies or accidents occurring as a result of the construction activities, and any resulting action taken to remedy the harm, and/or prevent repeat occurrences:

- The EIRF shall have numbered pages. Any missing pages must be accounted for by the Contractor.
- Entries made shall be tabled during monthly site meetings.
- The EIRF shall be made available to the Contract Manager, the ECO, the Proponent, and/or any authority at any time if requested.

The EIRF is to make provision for the documentation of:

- The exact nature of the environmental incident.
- The management team or contractor responsible for the activity.
- The timing and duration of the event.
- Witnesses to the event.
- The exact response action applied, including a list of those notified of the problem.

The Contractor shall ensure that the environmental incidents and resulting action are recorded in the EIRF, and that these are brought to the attention of the ECO as soon as practically possible. The procedure for dealing with an environmental incident shall include that:

- The EIRF is to be filled in by the ESO in the event of an environmental incident or emergency.
- The ESO is to immediately inform the Contractor and ECO and of any environmental emergency for a decision on remedial action.
- The ECO is to document any incidents / emergencies in the monthly compliance report, together with the remedial action taken, as described in the EIRF.
- The ECO shall monitor that the necessary procedures and responses are followed by the Contractor to close out any entries in the EIRF within the specified timeframe.

[6] The fine determination must be read along with the contract agreement with the client.

- Once an incident or emergency has been adequately addressed to the satisfaction of the ECO, the ESO is to close out the entry in the EIRF.

3.4 COMPLAINTS REGISTER

The Contractor shall keep a Complaints Register on site to allow the general public to document any comments on or complaints regarding the activities of the site:

- The Complaints Register shall have numbered pages. Any missing pages must be accounted for by the Contractor.
- Entries made shall be tabled during monthly site meetings.
- The Complaint Register shall be made available to the Contract Manager, the ECO, the Proponent, and/or any authority at any time if requested.

The Complaints Register shall include a section for the documentation of the action taken to address the complaint. The procedure for dealing with public complaints shall include that:

- All complaints shall be investigated, and a response shall be given to the complainant within 28 calendar days.
- The ESO shall document the action taken to investigate, and address (if required) the complaint, as well as the response given (including timeframes).
- The ECO shall monitor that the complaints have been responded to.
- The ECO shall ensure that any public issues have been brought to the attention of the relevant authorities by the Contractor if so required, and appropriately addressed.

3.5 METHOD STATEMENTS

An environmental Method Statement is a written submission by the Contractor to the Contract Manager, to the satisfaction of the ECO, in response to a condition of approval and/or a requirement of the EMPr, or a request by the ECO or Contract Manager. The Method Statement describes the plant, materials, labour and method that the Contractor proposes to use to carry out an activity, in such detail that the Contract Manager and ECO are able to assess whether the Contractor's proposal is in accordance with the Scope of Work and/or will produce results in accordance with the EMPr.

Method Statements are required in terms of this EMPr (either specified below, or for any activities that are proposed as variations to the standard construction practices detailed or referred to in the Contract Documents, or for any activities requiring special attention as specified in this EMPr and/or requested by the ECO or Contracts Manager as well as any requirements of permits or licenses such as a Water Use License).

The Contractor shall not commence any activity until the Method Statement in respect thereof has been approved and shall, except in the case of emergency activities, allow a period of one week for consideration of the Method Statement by the Contract Manager and ECO. Changes may be requested if the proposal does not comply with the specification or if, in the reasonable opinion of the Contract Manager and/or ECO, the proposal may result in, or carries a greater than reasonable risk of, damage to the environment in excess of that permitted by the EMPr:

- Approval of the Method Statement shall not absolve the Contractor from any of his obligations or responsibilities in terms of the Contract.
- Approved Method Statements shall be readily available on the site and shall be communicated to all relevant personnel. The Contractor shall carry out the works in accordance with the approved Method Statement.
- Any proposed changes to the original approved environmental Method Statements require the submission of amended Method Statements for approval, and these amendments require the signatures of the Contractor, the ECO and the Contract's Manager.

Required Method Statements

The following required Method Statements (as relevant and if not already required in terms of the Contract) are to be provided within 14 calendar days of commencement of Contract:

- **Emergency preparedness** – which shall address procedures and equipment for medical emergencies, runaway fires, environmental incidents, site evacuation and staff assembly.
- **Site establishment** – which shall address Contractor's camp/s, lay-down or storage areas, site access and required infrastructure.
- **Ablution facilities** – which shall address washing facilities (including methods for managing grey water) and toilets (including the number of, location and method of securing portable/chemical toilets to the ground (if not trailer versions), the proposed service providers to remove and dispose of resultant waste and their service schedule).
- Hazardous Chemical Substances (as defined in the Regulations for Hazardous Chemical Substances in GN 179 (25 August 1995)), hydrocarbon substances (which includes all fuels and oils) or dangerous goods to be used – which shall address the storage, handling and disposal procedures of the materials.
- **Hydrocarbon spills** – which shall address the procedures, reporting and training required to address accidental spills.
- **Concrete mixing and batching plants** – which shall address locations, bunding, and cement-laden water management.
- **Waste Management** – which shall address the type of waste anticipated; the storage, handling, reuse, recycling and/or disposal procedures proposed, together with the facilities proposed to receive such waste.

The following required Method Statements (as relevant and if not already required in terms of the Contract) are to be provided within 14 calendar days prior to the programmed commencement date of the subject works or activity:

- No-Go area demarcation and access control within the approved development site/servitudes.
- Workshop and plant servicing.
- Vegetation clearing – including methods and areas for clearing and felling.
- Stockpile management – including proposed locations and erosion management.
- Access management – including proposed engagement with affected landowner/s, proposed routes, gates, and fencing, crossings, access control, existing services management.
- Working in watercourses or wetlands - access, crossings, dewatering activities.
- Heritage Resource protection within the development site.
- Traffic and Detour Management – lane closures, signalman, alternative routes, etc.

Additional Method Statements (on request)

Method statements may also be requested by the ECO or Contract Manager as the need arises. The Contractor shall submit any additional Method Statements that arise within such reasonable time as the ECO or Contract Manager shall specify.

Content

For each instance when it is required or requested that the Contractor submit a Method Statement to the satisfaction of the ECO, the format shall clearly indicate the following:

Who: Nominated representative and their assigned responsibilities (in relevant instances).

What: A brief description of the activity to be undertaken (and in relevant instances, the proposed variation from or deviation to the Contract Documentation, or this EMPr).

How: A detailed description of the work, methods, materials, or process proposed (and in relevant instances any reinstatement/rehabilitation requirements).

Where: A description/sketch map of the locality of work or layout proposed.

When: The sequencing of actions with due commencement dates and completion date estimates.

The Contractor (and, where relevant, any sub-contractors) must also sign the Method Statement, thereby indicating that the work will be carried out according to the methodology contained in the approved Method Statement. An example of a Method Statement form can be found in Appendix 3.

Draft Method Statements have been prepared, and are attached as Appendices. These will need to be finalised prior to construction commencing, and signed off by the ECO and ESO.

3.6 ENVIRONMENTAL AWARENESS AND STAFF INDUCTION

The Contractor shall ensure that all staff receive site environmental awareness and staff induction training in appropriate languages, as well as any refresher courses, pertaining to their role on the project, including that:

- All personnel (including sub-contractors) shall receive induction training on the Code of Conduct and project specific environmental awareness relating to the conditions of the EA and EMPr prior to commencing with any site activities.
- All personnel shall receive induction training on the emergency procedures to be followed in the event of an emergency (e.g. staff assembly and site evacuation, medical emergencies, the locations and basic use of fire extinguishers, first aid kits and spills kits, and the use of safety equipment (where relevant)).
- Relevant staff (including sub-contractors) shall receive induction training on landowner considerations, including access and transport routes on each property, gate management, communication expectations, etc.
- Relevant staff (including sub-contractors) shall receive induction training by a professional and suitably experienced archaeologist to ensure that all persons working on the wind farm site are familiar with the types of heritage resources that may be exposed during construction and the necessary steps to follow in the event that archaeological resources are unearthed.
- All personnel (including sub-contractors) shall receive regular toolbox talks and refresher courses on the induction material, and project specific environmental awareness for the duration of the contract, including "lessons learnt" to prevent recurring issues.

The Contractor shall:

- Allow sufficient sessions for the training with no more than 20 personnel attending each course.
- Ensure that all new staff must receive environmental awareness and staff induction training.
- Erect and maintain information posters at the Contractor's camp.
- Retain attendance registers on completion of any training (all attendees must sign these registers), and this shall be made available on request by the ECO or relevant authority.

Training and inductions shall include the following (as relevant):

- Material to ensure that all personnel understand their roles and responsibilities and the implications of non-compliance with the EMPr.
- Material to address, but not be limited to, basic environmental awareness, prevention of water, soil, and air pollution, prevention of soil erosion and sedimentation, water saving practices, basic principles of materials handling and storage, fire risks, emergency preparedness and incident responses, spill response provisions, social responsibility (including HIV/AIDS and TB awareness), administrative and reporting procedures.

An example of an Environmental Awareness and Induction Training Course is included in Appendix 4.

3.7 TEMPORARY SITE CLOSURE

If the site is closed for a period exceeding one week during the construction or decommissioning phase, the Contractor, in consultation with the ECO shall carry out the following checklist procedure.

- Hazardous materials stores
  - Outlet secure/locked
  - Bund empty (where applicable)
  - Fire extinguishers serviced and accessible
  - Emergency and responsible personnel contact details displayed on site
  - Adequate ventilation in hazardous substance stores
- Safety
  - All trenches and manholes secured and closed
  - Fencing and barriers in place
  - Material packs (e.g. pile of pipes) secured
  - Access gates locked and secured
- Erosion
  - Wind and dust mitigation in place
  - Slopes and stockpiles at stable angle
  - Open soil re-vegetated or stabilised
- Water contamination and pollution
  - Cement and hazardous materials stores secured
  - Toilets empty and secured
  - Refuse bins empty and secured
  - Drip trays empty and secured (where possible)
  - Structures vulnerable to high winds secured
  - Drip trays are empty and secure.

3.8 RECORD KEEPING

All records and documents relating to the implementation of this EMPr shall be retained, shall be easily retrievable for the duration of the Contract, and shall be filed by the Contractor for a minimum of 12 months after cessation of activities. These records and documents must be made available to the Contract Manager, ECO and/or relevant authority upon request.

These records and documents shall include (but shall not be limited to) the most recent versions of:

- The Environmental Authorisation.
- Permits, licenses and registrations.
- The EMPr and any associated management plans.
- EIRF and Complaints Register.
- Approved Method Statements.
- Staff induction and environmental training material and attendance registers.
- Checklists for temporary site closure.
- Monthly compliance reports prepared by the ECO.
- Certificates of disposal.
- Disciplinary action (including time penalties or monetary fines) for environmental transgressions.
- Independent Environmental Audits.

4 PRE-CONSTRUCTION PHASE

4.1 LEGAL COMPLIANCE

EMPr inclusion

These measures will ensure the EMPr forms part of the contract documents, its requirements advise the design phase and that the relevant appointments are made:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
4.1.1.1	This EMPr is an extension of the conditions of the Environmental Authorisation and is binding on all parties involved in this project.	Proponent	Duration of project	DFFE
4.1.1.2	This EMPr is to form part of the contract documentation for tender such that the Contractor/s is/are aware of its conditions and associated pricing implications.	Engineer	Tender Process	Proponent
4.1.1.3	This EMPr has been updated based on detailed designs and the Final Site Layout Plan. This was informed by the specialist walk-through and micro-siting process that was used to provide environmental requirements with regards to pylon locations, routing options, access choices and mitigation / management options.	Engineer	Detailed Design Phase	EAP
4.1.1.4	The appointments associated with the project team required to implement this EMPr shall be made prior to any activities (that may require their attention) being undertaken.	Proponent	Prior to commencement	DFFE

Permits, licenses, and registrations

These measures will ensure that activities are executed in accordance with the law and requirements of the relevant authority:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
4.1.2.1	Should any permits, licenses or registrations be required then the Proponent shall ensure that these are applied for by a relevant specialist/professional, and that these are obtained prior to such activities commencing. Typical activities include (but are not restricted to): • The rescue, relocation or destruction of certain protected plants. • The disturbance, damage, destruction or alteration of known heritage resources. • Any water uses as listed in Section 21 of the National Water Act (No. 36 of 1998). • Proposed quarries, borrowpits, or sand mining operations. • The subdivision, rezoning or registration of a servitude.	Proponent to engage with relevant specialist	Prior to commencement of activity requiring permission	Relevant Competent Authority

4.1.2.2	**Permits to rescue, transport, translocate or destroy protected plants in terms of NEM:BA**			
4.1.2.3	Protected plant species may require a permit to be issued by the DEDEAT in terms of the National Environmental Management: Biodiversity Act (No. 10 of 2004) and the East Cape Nature and Environment Conservation Ordinance (1974) before they may be disturbed, rescued, transported, translocated or destroyed. While micro-siting has attempted to avoid SCCs as far as possible, there are still some areas where permits will be required. These will be applied for ahead of construction commencing. Refer to the list of Protected plant species in the Terrestrial Ecology micro-siting report. Species that will not translocate well should be destroyed, but those that have a good chance of surviving (e.g. bulbs) should be relocated.	Proponent to engage with relevant specialist	Prior to commencement of activity requiring permission	DEDEAT
4.1.2.4	Where protected trees species listed under the National Forest Act cannot be avoided or where clearance of forest is required, then the relevant permits shall be obtained from the Department of Agriculture, Forestry and Fisheries (DAFF). Based on micro-siting, no forest will be affected by the development. However, there is a *Sideroxylon inerme* (White Milkwood) tree which is protected under the NFA. The *S. inerme* tree at the Klipdrift River bridge crossing must be avoided	Proponent to engage with relevant specialist	Prior to commencement of activity requiring permission	DAFF
4.1.2.5	**Permits to damage or destroy heritage resources in terms of the NHRA**			
4.1.2.6	If it is not possible to avoid the archaeological sites, or mitigation is found to be more feasible than in-situ conservation, a permit in terms of Section 35 of the National Heritage Resources Act (No 25 of 1999) (NHRA) and Chapter IV of the NHRA Regulations must be applied for by a professional archaeologist prior to construction. Mitigation of the archaeological sites may only occur if permitted by the South African Heritage Resources Agency (SAHRA) or the Eastern Cape Provincial Heritage Resources Agency (ECPHRA). The archaeologist's micro-siting report has confirmed that there are no sensitive archaeological sites that are affected by the Final Site Plan. Should archaeological evidence be found a Chance Find procedure should be followed.	Proponent to engage with Archaeologist	Prior to commencement of activity requiring permission	SAHRA or ECPHRA
4.1.2.7	**Water Use Licenses (or permissible uses) in terms of the NWA**			
4.1.2.8	Section 21 of the National Water Act (No. 36 of 1998) recognises water uses that are to be licensed (unless these are existing lawful uses, permissible in terms of Schedule 1, or permissible in terms of a General Authorisation) before they may commence. An integrated Water Use License Application will be required for the following water uses listed in Section 21: a, b, c, g and i. General Authorisations were issued to Red Cap Impofu West for water uses listed under Section 21: a, c, i & g.	Proponent to engage with Aquatic Specialist	This application will only be submitted if the project is awarded preferred bidder status in terms of the REIPPPP.	DWS
4.1.2.9	**License/permits for Mining in terms of the MPRDA**			
4.1.2.10	Mining activities such as sand mining, borrow pits and quarries may require permits or licenses from the Department of Mineral Resources in terms of the Mineral and Petroleum Resources Development Act (No. 28 of 2002) before they may commence.	Proponent to engage with Environmental Consultant	Prior to commencement of activity requiring permission	DMR

Right to land and access acquisition

These measures will ensure good relationships with landowners and occupiers of land:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
4.1.2.11	All land negotiations for the development sites are to be resolved prior to layout designs being finalised.	Proponent	Detailed Design	Relevant Competent Authority
4.1.2.12	Written consent is to be obtained for the use (access or occupation) of private land outside of the approved development sites.	Proponent	Prior to any activities commencing on the land in question.	Relevant Competent Authority

4.2 DETAILED DESIGN PHASE CONSIDERATIONS

Environmental sensitivities for pre-construction

These measures will ensure that the requirements of the specialists pertaining to specific environmental sensitivities will be integrated into the design phase:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
4.2.1.1	The design site layout[7] (the turbine positions, the servitudes, the locations of the power line infrastructure, buildings and access roads (temporary or permanent)) is to accommodate: • The sensitive areas and associated buffer requirements identified by the Specialists in the Environmental Impact Assessment Process. • Any landowner requirements that are already known. Relevant specialists have done a site walkthrough using the plan provided at detailed design phase. The No-Go layer was updated to incorporate additional sensitive areas identified in this micro-siting process. The Final Site Layout Plan has been developed based on these, and specialists have confirmed that the Final Plan is acceptable.	Engineer	Detailed design	DFFE
4.2.1.2	The expertise of a Terrestrial Ecologist, an Aquatic Ecologist, an Archaeologist and an Avifaunal Specialist are to be enlisted to conduct a post-authorisation walkthrough with the design engineers as a micrositing exercise. Detailed designs have been done, and specialists have done a walkthrough of the site to check the position of structures and infrastructure. Micro-siting reports have been produced and the Final Site Plan has been developed. Specialists have confirmed that the Final Site Plan is acceptable. Additional mitigation measures provided by specialists in the micrositing process are included in this updated EMPr, where relevant.	Proponent to engage with relevant specialist	Detailed design	DFFE
4.2.1.3	Final adjustments to the layout shall be made once the specialist micrositing recommendations from the walkthrough process have been provided. Any No-Go Areas (areas that shall be excluded from any construction activity or general access by the construction team) within the development sites or servitudes shall be clearly indicated on maps and included with the micrositing reports or attached to this EMPr. A Plan was developed at detailed design stage and provided to specialists to do a walkthrough. The ecological specialist noted the following issues: • An access road and infrastructure between Turbines 11 and Turbines 5A and 7 crossed a wetland that was identified in the micro-siting process. The road has been re-aligned to run south of the wetland.	Engineer	Detailed design	DFFE

[7] The site layout submitted for Environmental Authorisation already accommodates the sensitive sites, buffer requirements and known landowner requirements.

	• The hardstand at Turbine 16 was positioned within a wetland that was identified in the micro-siting process. The hardstand has been shifted to be outside the wetland The plan was amended to avoid these features. No other issues were identified by specialists. All specialists have confirmed that the Final Site Layout Plan is acceptable.			
	Terrestrial Ecology			
4.2.1.4	The Terrestrial Ecologist shall undertake a pre-construction walkthrough to further refine the layout and reduce impacts on the Species of Conservation Concern through micrositing of the turbines and access roads. Walkthrough done and the location of Protected plant species have been indicated. Permit applications have been submitted where structures / infrastructure co-incide with SCCs. The specialist indicated that the *Sideroxylon inerme* tree at the Klipdrift River bridge must be avoided when the road is upgraded.	Terrestrial Ecologist	Detailed Design	DFFE
4.2.1.5	Identified areas of high fauna importance at the design stage (as achieved in the current layout) are to be avoided. The avifaunal and bat specialists have provided micrositing reports and updated management plans based on the Final Site Plan. No changes to the Site Layout Plan are required. The avifaunal specialist has provided additional mitigation measures and has updated the Monitoring Plan. The bat specialist has updated the Bat Mitigation Plan.	Engineer	Detailed design	DFFE
4.2.1.6	The design of roads and other infrastructure is to consider faunal impacts and allow fauna to pass through or underneath these features wherever possible.	Engineer	Detailed design	DFFE
4.2.1.7	The electrical fencing shall be designed to have a 20 cm gap off the ground. This is to reduce impact to tortoises that can become stuck against such fences and be electrocuted to death.	Engineer	Detailed design	DFFE
	Aquatic Ecology			
4.2.1.8	The Aquatic Ecologist shall undertake a final pre-construction walkthrough as part of a plant search and rescue plan, with the appropriate permits in place. The Aquatic Ecologist has done a walkthrough of the site. No additional mitigation measures have been provided. The current mitigation measures are re-iterated.	Aquatic Ecologist	Pre-construction	DFFE
4.2.1.9	The Aquatic Ecologist shall undertake the post-authorisation walkthrough to assist in developing a wetland rehabilitation and monitoring plan, and potentially updating a stormwater management plan. The Wetland Rehabilitation and Monitoring Plan and Updated Stormwater Management Plan have been developed and are attached as Appendices.	Aquatic Ecologist	Detailed Design	DFFE
4.2.1.10	Where any road crossings will be upgraded, detailed design should take cognisance of the following: • All pipe culverts shall be removed and replaced with suitably sized box culverts, where road levels are raised. • If any of the delineated wetlands occur within 50 m of the existing crossings, then a detailed	Engineer & Aquatic Ecologist	Detailed Design	DFFE

	monitoring plan must be developed.			
4.2.1.11	Effective stormwater management must include effective stabilisation (e.g. gabions and Reno mattresses) and the re-vegetation of any disturbed riverbanks. Refer to the attached Stormwater Management Plan.			
	Bats			
4.2.1.12	Detailed design shall prescribe: • Lights with low sensitivity motion sensors, that can switch off automatically when no persons are nearby, to prevent the creation of regular insect gathering pools that would attract bats. • Aviation lights should remain as required by aviation regulations. • Floodlights should be down-hooded and where possible, lights with a colour (lighting temperature) that attract less insects should be used. • The storm water drainage plan must avoid creating of artificial ponds/open water sources or wetlands in turbine zones (less than 290 m from any turbine base), as these will increase insect activity and therefore bat activity in the area.	Engineer	Detailed design	DFFE
	Avifauna			
4.2.1.13	The turbine layout shall avoid sensitive bird habitats such as wetlands and dams (this mitigation measure was adopted at screening phase and implemented in the initial turbine layout). Micro-siting confirms that the Final Site Plan avoids these areas, and that the pylon designs are acceptable.	Engineer	Detailed design	DFFE
4.2.1.14	An avifaunal walkthrough shall be conducted to: • Confirm final turbine layout, • Identify any new sensitive species breeding sites, • Identify any sensitivities that may arise between environmental authorisation and the construction phase. Avifaunal micro-siting report was done, and confirms that the Final Site Layout is acceptable. The Bird Monitoring Plan has been updated. Additional operational phase mitigation measures have been provided.	Avifauna Specialist	Pre-construction	DFFE
4.2.1.15	Monitoring of breeding status of Martial Eagles shall be conducted in all breeding seasons prior to and during construction. An updated Monitoring Plan has been provided in the Avifaunal Micro-Siting Report.	Avifauna Specialist	Pre-construction & construction	DFFE
4.2.1.16	Pylons or poles shall be designed according to Eskom approved bird friendly designs to ensure that perching large birds cannot be electrocuted. The final pylon type will be the standard Eskom “Intermediate self-supporting DDT 7611” and “Guyed Angle Strain structure DDT 7645”. These are both safe designs for large eagles as the clearances are sufficient. The Avifaunal micro-siting report confirmed that the pylon design, and current grid connection power line alignment is acceptable from a bird electrocution perspective.	Engineer	Design Phase	DFFE

4.2.1.17	Overhead conductors or earth wires shall be designed to be fitted with an Eskom approved anti bird collision line marking device to make cables more visible to birds in flight and reduce the likelihood of collisions. The Avifaunal micro-siting report confirmed that the current internal grid connection power line alignment for the Wind Farm is acceptable in terms of bird collisions.	Engineer	Design Phase	DFFE
4.2.1.18	Provision for a mitigation contingency budget for the operational phase should be made for the potential avifaunal impacts that may arise during operation. The Avifaunal specialist updated the mitigation measure to include - it is likely given the current state of knowledge in SA, that an Observer Led Shutdown On Demand programme would be the preferred mitigation measure if required	Proponent	Design Phase Operation	DFFE
	Agriculture			
4.2.1.19	Detailed design shall prescribe cattle grids where necessary to mitigate risks of gates being left open.	Engineer	Design Phase	DFFE
	Archaeology			
4.2.1.20	Before the potential three sections of 33kV overhead line are constructed, a final micro-siting walkthrough shall be undertaken to ensure that any unforeseen impacts due to this line are mitigated. The archaeological specialist has inspected the Final Site Plan and issued a micro-siting report confirming that no new / additional sensitive areas were identified, and the original No-Go Areas map remains. The Final Site Plan avoids the sensitive heritage areas identified in the EIA and Amendment Application.	Archaeologist	Pre-construction	DFFE
	Visual			
4.2.1.21	Where substations are to be located near main roads or district roads, and where highly visible from these roads, then the design is to include screening such as earth berms or landscaping (tree or hedge planting).	Engineer	Design Phase	DFFE
4.2.1.22	Design consideration for lighting choices on turbines and facilities include: • Navigation lights to be kept to the minimum allowed by the Civil Aviation Authority. • Security and area lighting at substations and Operation and Maintenance buildings to be fitted with reflectors to minimize light spillage. • Low-level lights to be used in preference to lamp standards.	Engineer	Design Phase	DFFE
4.2.1.23	Design considerations for signage/billboards include: • External signage to be kept to a minimum and billboard type signs avoided.	Engineer	Design Phase	DFFE
	Traffic			
4.2.1.24	The Traffic Management Plan needs to be updated to: • Clearly define route to site for specific vehicles needed to transport equipment and materials; and • Schedule delivery to avoid local congestion. The Traffic Management Plan has been updated and is attached in the Appendices.	Traffic Engineer	Design Phase	DFFE
	Socio-Economic			

4.2.1.25	The Proponent shall engage with local authorities and business organisations to investigate the possibility of procuring construction materials, goods and products from local suppliers where feasible. To be addressed ahead of construction commencing.	Contractor	Design Phase	TBC
4.2.1.26	Organise local community meetings to advise the local labour force about the project that is planned to be established and the jobs that can potentially be applied for. To be addressed ahead of construction commencing	Contractor	Pre-construction Phase	TBC
4.2.1.27	Establish a local skills desk (in Humansdorp) to determine the potential skills that could be sourced in the area. To be addressed ahead of construction commencing	Contractor	Pre-construction Phase	TBC
4.2.1.28	Engage with relevant local authorities (and provincial if necessary) and inform them of the development as well as discuss with them their ability to meet the additional demands on social and basic services created by the in-migration of workers. To be addressed ahead of construction commencing	Proponent	Design Phase	TBC

Management plans

These measures will ensure that the specific specialist requirements resulting from the micrositing exercise will be captured:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
4.2.1.29	The following Management Plans are included as Appendix 5 of this report: • Plant Rescue and Protection Plan • Listed Invasive Alien Plant Species Management Plan • Avifauna and Bat Monitoring and Management Plan • Revegetation and Habitat Rehabilitation Plan • Open Space Management Plan – *this is relevant to management of Wind Farm activities so as not to impact on open space areas beyond the footprint of the Wind Farm (for example erosion, poaching etc.). An Open Space Management plan is provided in the Appendices.* • Traffic Management Plan • Stormwater Management Plan • A Fire Management Plan • An Erosion Management Plan *These Management Plans have been updated where required, based on the Final Site Plan and micro-siting exercise.*	Proponent to engage with relevant specialists	Pre-construction and Construction Phase	DFFE
4.2.1.30	The following Management Plans are to be developed and finalised post-authorisation:	Proponent to engage with	Pre-construction and Construction	DFFE

	• Transportation Management Plan[8] • Wetland Rehabilitation and Monitoring Plan[9] *Management Plans developed and attached in the Appendices.*	relevant specialists	Phase	

[8] ~~At this point in time, it is not feasible to develop a Transportation Management Plan as the specific details required to develop it are not yet available.~~ The contractor for the transport of components will only be appointed should the project proceed to construction. As such, each contractor has their own set of requirements for transport and in particular the technical considerations around road conditions and turbine specifications at the time of construction will need to be considered and addressed. As actual construction of this project remains uncertain and if it goes ahead it may only in 5 years' time, the TMP can only be produced if and when the technical considerations have been finalised prior to the construction. The Transport Management Plan will however comply with the relevant requirements as specified in the Traffic Impact Assessment that forms part of the suite of specialist studies for this project.

[9] The Wetland Rehabilitation and Monitoring Plan can only be finalised once the relevant specialist has undertaken the post-authorisation site walkdown.

Tender considerations

These measures will ensure that the specialist requirements for tender are included:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
4.2.3.1	The approved construction footprint shall be issued as a formal drawing, that would require a request for revision with substantial motivation should a larger or amended construction footprint be required.	Engineer	Tender preparation	DFFE
4.2.3.2	The recruitment selection process shall seek to promote gender equality.	Engineer	Tender preparation	DFFE
4.2.3.3	The terms of Contract shall include mechanisms for disciplinary action for environmental transgressions (such as the issuing penalties and fines), and the recovery of any monies due (including for any remedial costs where these were born by a third party).	Engineer	Tender preparation	DFFE
4.2.3.4	The terms of Contract shall include for the liabilities in terms property damage or fire-fighting costs of runaway fire proven to be caused by a member of the Contractor's team or construction activities.	Engineer	Tender preparation	N/A

5 CONSTRUCTION PHASE

5.1 CODE OF CONDUCT

Personal conduct

These measures will ensure that the personal conduct of all staff is environmentally and socially considerate:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
5.1.1.1	The Code of Conduct and the conditions of the EMPr apply to all staff involved in the project, including (but not limited to) the Engineer and Contract Manager, Contractor(s) and staff (including Sub Contractors and staff), EAPs, Environmental Specialists, and other service / product providers (including the survey teams, material delivery teams, geotechnical or other specialist teams).	Proponent	Project life cycle	DFFE
5.1.1.2	All staff must wear the appropriate safety gear, utilize the appropriate safety equipment, and adhere to the appropriate safety laws & standards (including the Occupational Health and Safety Act, Act No 85 of 1993 (OHSA).	Contractor	Construction phase	ECO/ESO/EO- as per Schedule
5.1.1.2	Teams working outside of the development sites (including the contractor's camp/s) or requiring access to private properties are to carry identification on their persons that includes their name and company of employ, with reference to the project. Similarly, such information should be displayed on vehicle dashboards / exteriors.	Contractor	Construction phase	ECO/ESO/EO - as per Schedule
5.1.1.4	No firearms or weapons of any description are to be allowed on site, unless required by security personnel.	Contractor	Construction phase	ECO/ESO/EO - as per Schedule
5.1.1.5	Private property access is only permitted on previous agreement with the affected landowner or will be considered trespassing.	Contractor	Construction phase	ECO/ESO/EO - as per Schedule
5.1.1.6	No swimming, bathing, or washing activities may occur in any water source / body on or adjacent to the development sites other than those supplied specifically for such use.	Contractor	Construction phase	ECO/ESO/EO - as per Schedule
5.1.1.7	Ablution activities may only occur in designated facilities.	Contractor	Construction phase	ECO/ESO/EO - as per Schedule
5.1.1.8	All staff are to make use of the facilities provided for them, as opposed to ad-hoc alternatives, (e.g. fires for cooking, use of the surrounding areas / bush as a toilet).	Contractor	Construction phase	ECO/ESO/EO - as per Schedule
5.1.1.9	Unauthorised access inside No-Go areas is prohibited.	Contractor	Construction phase	ECO/ESO/EO - as per Schedule

5.1.1.10	All staff involved in the project shall adhere to the rules set by the Proponent, in line with the specified laws and regulations	Contractor	Construction phase	ECO/ESO/EO - as per Schedule

Environmental care

These measures will ensure that all staff exercise environmental care:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
	Biodiversity Care			
5.1.2.1	Any unauthorised disturbance or damage to open space areas or flora and fauna outside of the development sites (including the contractor's camp/s) is prohibited and may be subject to reinstatement or rehabilitation to the culprit's cost.	Contractor	Construction phase	ECO/ESO/EO - as per Schedule
5.1.2.2	Hunting or snaring any animal (mammal, reptile, amphibian, bird, insect or fish) is prohibited. Capturing any animal is prohibited, unless on instruction from the ECO where the animal is at risk from the development activities. No animal may be wilfully harmed unless it threatens the life of a person, or the person is in imminent danger.	Contractor	Construction phase	ECO/ESO/EO - as per Schedule
5.1.2.3	Collecting, cutting, clearing, burning or otherwise disturbing plant material not designated for clearing or rescue is prohibited.	Contractor	Construction phase	ECO/ESO/EO - as per Schedule
5.1.2.4	Any person found to be deliberately or negligently polluting any part of the development sites (including the contractor's camp/s), or adjacent areas will face disciplinary action.	Contractor	Construction phase	ECO/ESO/EO - as per Schedule
5.1.2.5	The unauthorised abstraction / use of water from any water sources / bodies on the site is prohibited.	Contractor	Construction phase	ECO/ESO/EO - as per Schedule
5.1.2.6	The use of any natural water sources (e.g. springs, streams, open water bodies) for the purposes of bathing, or the washing of machinery, equipment or clothes is prohibited.	Contractor	Construction phase	ECO/ESO/EO - as per Schedule
5.1.2.7	The harvesting of firewood or any other natural resources from the development site (including the contractor's camp/s) or adjacent areas is prohibited.	Contractor	Construction phase	ECO/ESO/EO - as per Schedule
5.1.2.8	The removal of boulders, rocks, pebbles, gravel, sand or any other material not designated for removal is prohibited.	Contractor	Construction phase	ECO/ESO/EO - as per Schedule
	Heritage Care			
5.1.2.9	Any persons found to be deliberately or negligently defacing, damaging, painting or marking natural features such as rock formations (with the exception of approved marking exercises during rescue operations) will face disciplinary action, and restoration or compensation as determined by the heritage authority may apply.	Contractor	Construction phase	ECO/ESO/EO - as per Schedule

5.1.2.10	Any persons found to be deliberately or negligently defacing, damaging, destroying or altering a heritage resource as depicted in the sensitivity maps will be subject to disciplinary action, and restoration or compensation as determined by the heritage authority may apply.	Contractor	Construction phase	ECO/ESO/EO - as per Schedule

5.2 SPECIALIST REQUIREMENTS

Environmental sensitivities for construction

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
	Terrestrial Ecology			
5.2.1.1	A search and rescue operation for reptiles and other vulnerable species shall be conducted before areas of intact vegetation are cleared.	Terrestrial Ecologist	Pre-clearing	ECO/ESO/EO – as per schedule
5.2.1.2	All vehicles accessing the site should adhere to low speed limits (40km/h max) to avoid collision with susceptible species such as snakes and tortoises.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.2.1.3	No excavated holes or trenches shall be left open for extended periods as fauna may fall in and become trapped.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.2.1.4	Protected Plant species that have a good chance of successful translocation must be relocated during a search-and-rescue exercise. Permits must be obtained from the DEDEAT before this is done.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
	Aquatic Ecology			
5.2.1.5	All alien plant re-growth, which is currently high within the greater region shall be monitored and should it occur, these plants should be eradicated within the project footprint and especially in areas near the proposed water crossings. The scale of the operation does however not warrant the use of a Landscape Architect and / or Landscape Contractor	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.2.1.6	Where any road crossings will be upgraded, construction shall take cognisance of the following: • River levels, regardless of the current state of the river / watercourse shall be reinstated thus preventing any impoundments from being formed. The related designs must be assessed by an aquatic specialist during a post-authorisation walkdown, prior to commencement of the construction phase. • Approach road embankments especially where large cut and fill areas will be required shall be rehabilitated during the construction process, to minimise erosion. • Suitable stormwater management systems shall be installed and monitored during the first few months of use. Any erosion / sedimentation must be prevented.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule

5.2.1.7	The appropriate permits from DEDEAT and DAFF shall be obtained prior to disturbing/removing any protected plants.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.2.1.8	Mechanical plant and bowsers shall not be refuelled or serviced within or directly adjacent to any channel.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.2.1.9	All construction camps, lay down areas, batching plants or areas and any stores shall be more than 50 m from any demarcated watercourses.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.2.1.10	Emergency plans shall include for spillages onto road surfaces and water courses.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.2.1.11	All construction materials including fuels and oil should be stored in demarcated areas that are contained within berms / bunds to avoid spread of any contamination. Washing and cleaning of equipment should also be done in berms or bunds, in order to trap any cement and prevent excessive soil erosion.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.2.1.12	No stockpiling should take place within a watercourse.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.2.1.13	Vegetation clearing should occur in a phased manner in accordance with the construction programme to minimise erosion and/or run-off.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.2.1.14	All cleared areas must be re-vegetated after construction has been completed	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
	Bats			
5.2.1.15	Rehabilitate cleared vegetation where possible at areas such as temporary laydown areas.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
	Avifauna			
5.2.1.16	Monitoring of breeding status of Martial Eagles shall be conducted in all breeding seasons prior to and during construction.	Avifauna Specialist	Pre-construction & Construction Phases	DFFE
5.2.1.17	Overhead conductors or earth wires shall be fitted with an Eskom approved anti bird collision line marking device, as per design, to make cables more visible to birds in flight and reduce the likelihood of collisions.	Contractor	Construction Phase	DFFE
5.2.1.18	Removal of alien trees in the area could make a significant contribution to improving this environment. Consideration should be given to such removal during construction where possible. This is not compulsory but voluntary and would make a meaningful difference to the receiving environment	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
	Palaeontology			
5.2.1.19	The recording and sampling of significant fossil discoveries shall be undertaken by a professional palaeontologist, and any potential fossil finds shall be safeguarded and reported to ECPHRA.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
	Archaeology			

5.2.1.20	The Stone Age quarry site at IE8 (34°8'59" S and 24°39'36" E) is avoided by the layout of the project, but as it is in close proximity to development it shall be made a No-Go Areas, and shall be protected from damage during the construction phase of the project: • The site shall be enclosed with a temporary fence for the construction phase of development. Fencing should be a temporary standard 4 strand 1.2 m cattle fence. • Large clear 'No-Go Area' signs shall be attached from the top strand of the fence at intervals of every 15 m. These measures must be in place prior to the construction phase of the wind farm development. The temporary fencing erected around the No-Go Area IE8 ((34°8'59" S and 24°39'36" E) shall be removed after construction. It is recommended that no signage or fencing is used during the operational phase as this may attract unwanted attention and possible damage to the archaeological resource.	Contractor	Prior to construction commencing	ECO/ESO/EO – as per schedule
5.2.1.21	A suitably qualified and accredited professional archaeologist shall be appointed to undertake archaeological monitoring during the construction phase, including the fencing of any No-Go areas prior to construction.	Proponent	Construction Phase	DFFE/ECPHRA
5.2.1.22	The contractor must supply the appointed archaeologist with the construction programme at least 4 weeks before construction starts to ensure the monitoring can be properly planned.	Contractor	Pre-construction Phase	ECO/ESO/EO – as per schedule
5.2.1.23	It is recommended that archaeological monitoring be undertaken by a suitably qualified and accredited professional archaeologist during the construction phase for any construction that takes place in the area south of the white dashed line as indicated in Appendix 2.	Archaeologist	Construction Phase	ECO/ESO/EO – as per schedule
	Noise & Shadow Flicker			
5.2.1.24	A proactive warning system shall be established to inform affected community members of the planned construction activities with an estimation of the commencement date and duration of each activity.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
	Visual			
5.2.1.25	Construction camps and storage/stockpile areas to be located in unobtrusive positions in the landscape, away from main roads, farmsteads and scenic areas, or alternatively screening measures utilised, as implemented in the current layout.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.2.1.25	Construction camps to be clearly delineated and limited in size to only that which is essential.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
	Traffic			
5.2.1.26	Create local WhatsApp Groups: • Post notices of road conditions and propose alternatives. Notify users of expected deliveries and propose alternative routes.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.2.1.27	Proponent to contribute to the maintenance of the public roads in the area during construction phases of the development.	Proponent	Construction Phase	DFFE

5.2.1.8	Upgrade unpaved roads to suitable condition for proposed construction vehicles.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.2.1.29	Post relevant road signage along affected routes.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.2.1.30	Provide advance driver training to key personnel, including truck drivers.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
	Socio-Economic			
5.2.1.31	The Proponent shall encourage the main contractors to increase the local procurement practices and promote the employment of people from local communities, as far as feasible, to maximise the benefits to the local economies.	Proponent	Construction Phase	TBC
5.2.1.32	Recruit local labour as far as feasible.	Contractor	Construction Phase	TBC
5.2.1.33	Employment of labour-intensive methods in construction where feasible.	Contractor	Construction Phase	TBC
5.2.1.34	Sub-contract to local construction companies particularly SMME's and BBBEE compliant and women-owned enterprises where possible.	Contractor	Construction Phase	TBC
5.2.1.35	Use local suppliers where feasible and arrange with the local SMME's to provide transport, catering and other services to the construction crews.	Contractor	Construction Phase	TBC
5.2.1.36	Facilitate knowledge and skills transfer between foreign technical experts and South African professionals during the pre-construction and construction phases.	Contractor	Construction Phase	TBC
5.2.1.37	Set up apprenticeship programmes to build onto existing skill levels or develop new skills amongst construction workers especially those from local communities.	Contractor	Construction Phase	TBC
5.2.1.38	Ensure a community liaison officer is active in the nearby towns and ensure adherence to strict labour recruitment practices that would reduce the desire of potential job seekers to loiter around the properties in the hope of finding temporary employment.	Contractor	Construction Phase	TBC
5.2.1.39	An HIV/AIDS/TB awareness programme for all construction workers shall be implemented at the outset of the construction phase.	Contractor	Construction Phase	ECO/ESO/EO - as per schedule

5.3 GENERAL REQUIREMENTS

No-Go Areas

These measures will ensure that No-Go Areas will be protected:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
5.3.1.1	A temporary fence/barricade shall be erected and maintained around the perimeter (including any specified buffers) of No-Go areas.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.3.1.2	Development related activities inside No-Go areas shall be prohibited, and access restricted.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule

Emergency preparedness

These measures will ensure that staff are prepared for and able to respond to emergency situations (as best as possible) to reduce the risk of injury or incident:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
	Emergency procedures			
5.3.2.1	The procedures for dealing with an environmental incident or public complaint as described in Section 3.3 and Section 3.4 shall be communicated to relevant staff. Emergency preparedness shall form part of the Environmental Awareness and Induction Training (Section 3.6).	Contractor	Construction Phase	ECO/ESO/EO - as per schedule
5.3.2.2	The Contractor shall determine appropriate procedures in the event of an emergency (e.g. medical emergencies, runaway fires, environmental incidents, site evacuation and staff assembly), and shall submit a Method Statement to the Contract Manager and ECO for approval of the proposed procedures.	Contractor	Method Statement within 14 days of commencement date.	ECO/ESO/EO - as per schedule
5.3.2.3	The following contact details shall be clearly displayed at the contractor's camp near a telephone, and provided to relevant staff: • Emergency contact details for the local hospital, fire brigade, and police department. • A list of contact details for the ECO, Contract Manager and relevant authorities. • Contact details for the heritage authority (ECPHRA) (in the event that a heritage discovery is made).	Contractor	Construction Phase	ECO/ESO/EO - as per schedule
5.3.2.4	First Aid Kits are to be strategically placed at the site office / camp, laydown areas, and on site where required. All staff are to be made aware of their locations and purposes and trained in their basic use.	Contractor	Construction Phase	ECO/ESO/EO - as per schedule
5.3.2.5	Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances housed or used on site. Where possible and available, MSDSs should additionally include	Contractor	Construction Phase	ECO/ESO/EO - as per schedule

	information on ecological impacts and measures to minimise negative environmental impacts during accidental releases or escapes.			
5.3.2.6	Evacuation Plans shall: • Be appropriately displayed at the Contractor's camp/s showing evacuation routes and assembly points. • Be communicated to all staff as part of the Environmental Awareness and Induction Training. • Include for the contingency plans to evacuate severely injured staff to designated medical facilities.	Contractor	Construction Phase	ECO/ESO/EO - as per schedule
	Fire preparedness			
5.3.2.7	Fire extinguishers and fire-fighting equipment (in terms of the OHSA) are to be strategically placed at the site office / camp, laydown areas, and on site where required. All staff are to be made aware of their locations and purposes and trained in their basic use.	Contractor	Construction Phase	ECO/ESO/EO - as per schedule
5.3.2.8	Smoking shall not be permitted in those areas where it is a fire hazard. Such areas shall include fuel storage and refuelling areas, vegetation stockpile areas and any other areas where the vegetation (e.g. fynbos) or other materials are susceptible to the start and rapid spread of fire.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.2.9	A Fire Officer shall be nominated (the ESO may fulfil this role) to be responsible for developing immediate and appropriate actions in the event of a fire and shall ensure that employees are aware of the procedure to be followed. In the event of a fire, site staff shall first try to contain the fire without posing unnecessary risks to themselves. As soon as it looks as if the fire may get out of control, appropriate emergency personnel shall be dispatched.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

Contractor's camp and laydown areas

These measures will ensure that impacts to the environment and neighboring landuses are minimized during site establishment:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
5.3.3.1	The Contractor shall determine appropriate locations for the contractor's camp/s and laydown areas for the portion of work in progress and shall submit a Method Statement to the Contract Manager and ECO for approval of the proposed locations and layouts. • The location and layout shall be such that visual, dust and noise impacts on sensitive receptors such as adjacent residents / businesses / activities are minimized as far as possible. • These shall be located within the development sites, approved areas or authorised corridors wherever possible, and may not be situated on sensitive areas identified in the environmental assessment or specialist walkthrough exercise. • Wherever possible, these shall be located on previously disturbed areas.	Contractor	Method Statement 14 days prior commencement date.	Contract Manager & ECO/ESO/EO - as per schedule

5.3.3.2	The main contractor's camp layout shall make provision for (where applicable): • Access off the road network and visitor / staff parking facilities. • Site office facilities and a structure to shelter security staff. • Ablution facilities and a potable water source. • Designated cooking areas. • Hazardous material / chemical storage and fuel storage. • Equipment cleaning areas. • Waste storage and wastewater management. • Plant parking facilities and a vehicle refuelling/maintenance area/s. • Emergency equipment storage areas including fire extinguishers and first aid kits. • Laydown areas, batching plant and materials storage. • Security fencing.	Contractor	Construction Phase	Contract Manager & ECO - as per schedule
5.3.3.3	The facilities that require slabbed or bunded surfaces are to be designed to engineering standards of sufficient capacity.	Contractor	Construction Phase	Contract Manager & ECO/ESO/EO - as per schedule
5.3.3.4	The disturbance to topsoil shall be minimised, and compaction or removal of topsoil shall be restricted wherever possible (e.g. access routes and parking areas, and activity areas).	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.3.3.5	Any additional telephone lines, electricity lines, sewer and / or water supply networks are to be approved by the relevant authorities prior to installation if so required by law, even if temporary.	Contractor	Construction Phase	Contract Manager
5.3.3.6	Paved / hardened or dedicated (marked) pathways are to be provided between office facilities / security facilities, high pedestrian and vehicle traffic areas (such as parking areas) to reduce soil erosion.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.3.3.7	Should lights be installed at the contractor's camp for security purposes, then: • Any security lighting installed shall not cause a reasonably avoidable disturbance to other users of the surrounding area. • Lighting shall meet the requirements to mitigate impacts to bats as set out in the environmental sensitivities for pre-construction. • Lighting installed shall, as far as practically possible, be energy efficient and angled downwards. • Lighting shall be turned off when not in use or fitted with movement sensors (where lights only come on when required) or similar.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.3.3.8	Potable water shall be provided for drinking purposes at the main Contractor's camp. Should a potable water supply / container be provided, then: • It is to be animal and weather proof and sealed / fenced to prevent potential contamination / drowning.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule

5.3.3.9	All cooking shall be done in a designated area of the contractor's camp (preferably on well-maintained gas cookers) with fire extinguishers present.	Contractor	Construction Phase	ECO/ESO/EO – as per schedule
5.3.3.10	Temporary fencing shall be installed around the Contractor's camps and designated laydown areas (as required by Contract) with appropriate gates and signage to prevent unauthorised access by the public.	Contractor	Prior to activity commencing and ongoing for duration of activity	ECO/ESO/EO - as per schedule
5.3.3.11	The movement of construction workers on and off the site should be closely managed and monitored.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

Ablution facilities

These measures will ensure the appropriate maintenance and management of ablution facilities to prevent pollution of the environment, including ground and surface water:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
5.3.4.1	**The Contractor shall submit a Method Statement for Ablution Facilities, which shall address washing facilities (including methods for managing grey water) and toilets (including the number of, location and method of securing portable/chemical toilets to the ground (if not trailer versions), the proposed service providers and their service schedule).** • **A sufficient number of toilets shall be provided for the site staff at a ratio of not less than 1 toilet per 15 people.** • **Toilet facilities shall be located within the contractor's camp and at work areas remote from the camp.**	**Contractor**	**Method Statement 14 days prior to commencement date.**	**ECO/ESO/EO - as per schedule**
5.3.4.2	Should portable/chemical toilets be used then these shall be used and maintained in such a way that they do not cause water or other pollution: • No toilet facilities shall be located closer than 50 m to any water body • Toilets shall be adequately secured to the ground to prevent them from toppling due to wind or any other cause. • Adequate toilet paper, and hand sanitiser or soap shall be provided. • Toilets shall be serviced regularly (as per the service providers recommendations) and care shall be taken to ensure no spillage occurs when the toilets are cleaned or emptied and that the waste contents and grey water are properly stored before removal from site. • Certificates of service/disposal by appropriate service providers or at appropriately licensed facilities shall be retained for submission to the ECO. • Discharge of waste from toilets into the environment (e.g. burial of ablution waste from toilets) is strictly prohibited.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

5.3.4.3	Long drops are forbidden. Septic tank systems (if required) are to be designed by qualified professionals and built to specification and include any requirements of a Water Use Authorisation, if applicable.	Contractor	Construction Phase	ECO/ESO/EO - as per schedule
5.3.4.4	Any staff wash-up areas or bathing facilities are to drain into the municipal drainage system / septic tank system, or alternative arrangements are to be made for the collection and disposal of runoff from these areas at a suitable facility.	Contractor	Construction Phase	ECO/ESO/EO - as per schedule

Protection of public infrastructure and services

These measures will limit and consolidate the impacts of the construction activities on existing infrastructure and services:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
5.3.5.1	**Should there be plans to affect any public infrastructure, services or servitudes during the construction, then the Contractor shall contact the relevant service authorities to obtain agreement on proposed action.**	**Contractor**	**Prior to commencing proposed action**	**ECO/ESO/EO - prior to contractor commencing**
5.3.5.2	Any restrictions that are placed on the construction activities or choice of plant when working under or in close proximity to public infrastructure or service servitudes as set by the relevant service authorities shall be adhered to, and measures to protect such infrastructure and services shall be implemented.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.5.3	Should such public infrastructure or services be damaged in any way, the owner of the infrastructure or the custodian of the service shall be notified and the damage satisfactorily repaired.	Contractor	Within 24 hours of incident	ECO/ESO/EO - as per schedule
5.3.5.4	The Contractor shall notify affected parties (e.g. affected adjacent landowners, relevant service providers and/or the affected community) of any planned disruptions to water, electricity, road thoroughfare, or telecommunications.	Contractor	At least 24 hours in advance	ECO/ESO/EO - as per schedule
5.3.5.5	In the event of accidental disruptions, the Contractor shall endeavour to advise the affected parties of when the problem is likely to be resolved.	Contractor	As soon as practically possible	ECO/ESO/EO - as per schedule

Heritage resource protection

These measures will prevent impacts to objects of historical significance or heritage value:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
5.3.6.1	The Contractor shall ensure that the Proponent has obtained the requisite permits to destroy/remove any known heritage resources that cannot be conserved prior to any disturbance, damage, destruction, alteration or demolition activities being executed.	Contractor	Prior to commencement of activities	ECO/ESO/EO - as per schedule

	New Discoveries			
5.3.6.2	Should a new discovery of possible heritage significance (archaeological sites or remains e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, charcoal and ask concentration, fossils e.g. vertebrate bones and teeth, or petrified logs of fossil wood; or other categories of heritage resources) be made, then: • All works within the vicinity of any discovery of potential heritage significance shall cease immediately, and the area shall be cordoned off until the necessary remedial steps have been implemented and authorisation has been obtained to resume activities. • The ECO and the relevant heritage authority (SAHRA and/or ECPHRA) shall be notified immediately, and arrangements made for the discovery to be examined by an appropriate heritage specialist. The requisite actions emanating from the advice of the heritage authority and specialist shall then be implemented. • Develop a Chance Find Procedure Reasonable precautions shall be taken to prevent any person from removing or damaging any discovered fossils, coins, articles of value or antiquity, structures and other remains of archaeological/ palaeontological/ historical interest discovered within the site.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.6.3	**If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA/ECPHRA.**	**Proponent to engage relevant specialist**	**To be determined by relevant specialist**	**SAHRA/ECPHRA**
5.3.6.4	The palaeontologist concerned with any mitigation work will need a valid fossil collection permit from the ECPHRA and any material collected would have to be curated in an approved depository (e.g. museum or university collection). All palaeontological specialist work would have to conform to international best practice for palaeontological fieldwork and the study (e.g. data recording fossil collection and curation, final report) should adhere as far as possible to the minimum standards for Phase 2 palaeontological studies developed by SAHRA (2013).	Proponent to engage relevant specialist	To be determined by relevant specialist	ECPHRA
	Graves/Human Remains			
5.3.6.5	Should a new discovery of human remains/grave be made, then: • All works within the vicinity of the human remains/grave shall cease immediately, and the area shall be cordoned off until the necessary remedial steps have been implemented and authorisation has been obtained to resume activities. • The find may fall into the domain of SAHRA and would need to be reported to them, and will require inspection by a professional archaeologist to undertake mitigation, if needed. • The ECO and the Police shall be notified, and arrangements made for the discovery to be examined by an appropriate specialist. The requisite actions emanating from the advice of the Police and specialist shall then be implemented. • Graves and burial grounds are the property of the state and may require excavation and curation in an approved institution. Any work associated with the find will also be at the cost of the developer.	Contractor, & Proponent to engage with relevant specialist	Duration of construction	ECO/ESO/EO - as per schedule

5.3.6.6.	Any disturbance to a human burial older than 60 years will require a permit in terms of Section 36 (3)(a).	Proponent to engage relevant specialist	To be determined by relevant specialist	ECPHRA

Habitat resource protection

These measures will limit impacts on the natural habitats for fauna and flora:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
5.3.7.1	**Any animal (mammal, reptile, amphibian, bird, insect or fish) found to be trapped within the site or in distress as a result of the site activities shall be appropriately relocated to a suitable site under the guidance of the ECO, relevant specialist if required or relevant authorities.**	**Contractor**	**Duration of construction**	ECO/ESO/EO **- as per schedule**
5.3.7.2	Habitats and terrestrial or aquatic environments shall not be unnecessarily disturbed or damaged, unless as indicated in the approved development design. Any unauthorised disturbance or damage to habitats, or pollution of aquatic resources by anyone involved in the project shall be subject to reinstatement or rehabilitation to the culprit's cost.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.7.3	Care shall be exercised during all phases of the work to prevent sediment, debris or pollutants from entering any watercourses or waterbodies.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.7.4	Should any de-watering activities be required then a Method Statement shall be submitted to the ECO for approval prior to these activities occurring: • De-watering activities shall not impact negatively on any adjacent water resource. • Sediment and pollution control measures shall be implemented.	Contractor	Prior to commencing activity, if required	ECO/ESO/EO - prior to contractor commencing and thereafter as per schedule
5.3.7.5	Alien invasive plant species shall be controlled for the duration of the site activities, and for a stipulated period following rehabilitation. • Care must be taken to avoid the introduction of alien plant species to the site and surrounding areas. • Alien vegetation encroachment onto the site and from the site shall be controlled and prevented.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

Vegetation clearance

These measures will limit the extent of any environmental impacts and minimise unnecessary remediation:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring

5.3.8.1	**Indigenous vegetation on the approved construction site that does not interfere with the construction activities shall be left undisturbed.**	**Contractor**	**Duration of construction**	ECO/ESO/EO **- as per schedule**
5.3.8.2	Damage shall not be caused to sensitive environmental features outside of the demarcated construction areas, including marked and barricaded heritage resources, protected trees, structures and infrastructure.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.8.3	Site clearing shall not commence until any required recovery exercises aimed at rescuing and relocating protected plant species has been undertaken by the specialists on the area earmarked for clearing.	Contractor	Once recovery exercise complete	ECO/ESO/EO - as per schedule
5.3.8.4	Vegetation clearing shall be kept to that which is absolutely essential, within the footprints of the servitudes, laydown areas, Contractor's camp/s and access roads wherever possible.	Contractor	Construction to commence immediately after clearing	ECO/ESO/EO - as per schedule
5.3.8.5	Where possible, areas of phased construction shall be cleared, developed and rehabilitated prior to moving to the next. Soil should be exposed for the minimum time possible once cleared, such that the timing of clearance is coordinated with the onset of construction. This will prevent wind and water erosion.	Contractor	Construction to commence immediately after clearing	ECO/ESO/EO - as per schedule
5.3.8.6	Vegetation to be cleared along steep banks should only be removed at the onset of the construction of that area, or immediately prior to landscaping, to reduce soil erosion to the site.	Contractor	At onset of construction or rehabilitation	ECO/ESO/EO – as per schedule
5.3.8.7	The clearance of vegetation for a trace line during stringing activities shall be undertaken in accordance with Section 0.	Contractor	Duration of stringing	ECO/ESO/EO – as per schedule
5.3.8.8	Watercourses and drainage lines shall be kept free of felled trees or vegetation cuttings and debris. The integrity of riverbanks shall be maintained wherever possible by leaving the soil and roots undisturbed by clearing activities (i.e. trimming or slashing/cutting rather than total vegetation removal).	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.8.9	The disposal of vegetation by burying or burning is prohibited in terms of national legislation.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.8.10	Cleared vegetation that is not appropriate for shredding/mulching/chipping, and/or reuse on site shall be disposed of at licensed municipal garden refuse sites.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

Hazardous substances and hydrocarbon management

These measures will manage the risk of hydrocarbon leaks and spills as well as the associated risk of pollution:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
5.3.9.1	The Contractor shall submit a Method Statement to the Contract Manager and ECO detailing the Hazardous Chemical Substances (as defined in the Regulations for Hazardous Chemical Substances in GN 1179 (25 August 1995)), hydrocarbon substances or dangerous goods to be used, together with the storage, handling and disposal procedures of the materials.	Contractor	Method Statement 14 calendar days prior to commencement date.	ECO/ESO/EO – as per schedule

	Hazardous Chemical Substances and dangerous goods			
5.3.9.2	The relevant Material Safety Data Sheets (MSDSs) for all Hazardous Chemical Substances on site shall be readily available. Procedures detailed in the MSDSs shall be followed in the event of an emergency situation.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.9.3	If potentially Hazardous Chemical Substances are to be stored on site, then: • Hazardous Chemical Substances shall be stored in appropriate containers which are clearly labelled and sealed. • Hazardous Chemical Substance containers shall be situated on a smooth impermeable surface (concrete or 250 micrometre (µm) plastic (plastic must have a minimum of a 5 cm layer of sand on top to prevent damage and perishing)) within an earth bund. The impermeable lining shall extend to the crest of the bund and the volume inside the bund shall be 120% of the total capacity of all the storage tanks/bowsers (110% statutory requirement plus allowance for rainfall). • Access to Hazardous Chemical Substance storage areas shall be restricted, and the areas secured with requisite warning/safety signage conforming to the requirement of SANS 1186 on display. • Disposal of these substances shall be in accordance with Section 0. • Rainwater that collects in bunded areas shall be promptly removed and dealt with as water containing waste.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.9.4	All staff working with Hazardous Chemical Substances shall be trained in the safe use of the substance in accordance with the MSDS.	Contractor	Prior to use	ECO/ESO/EO – as per schedule
	Hydrocarbons			
5.3.9.5	All necessary approvals with respect to fuel storage and dispensing shall be obtained from the appropriate authorities.	Contractor	Prior to commencing	ECO/ESO/EO - prior to contractor commencing
5.3.9.6	Should fuel (petrol and diesel) be stored on-site, then fuel storage areas within the contractor's camp shall be identified and designated to this purpose: • The designated area shall be located in a portion of the site where it is unlikely to pose a significant risk in terms of water pollution or traffic safety. • Warning/safety signage conforming to the requirement of SANS 1186 shall be prominently displayed in and around the fuel storage area.	Contractor	Prior to site establishment	ECO/ESO/EO - prior to site establishment
5.3.9.7	Fuel storage management shall ensure limited risk to the environment: • All liquid fuels and oils shall be stored in tanks with lids, which are kept firmly shut and adequately secured. The capacity of the tank shall be clearly displayed, and the product contained within the tank clearly identified using the emergency information system detailed in SANS 0232 part 1. • Fuel storage tanks shall have a capacity not exceeding 50 000 litres and shall be kept on site only for as long as fuel is needed for construction activities, on completion of which they shall be	**Contractor**	**Duration of construction**	**ECO/ESO/EO - as per schedule**

	removed. • The fuel storage tanks will be within the site camp area which is of low environmental significance[10]. • Fuel shall be stored in drums or bowsers situated on a smooth impermeable surface (concrete or 250 micrometre (µm) plastic (plastic must have a minimum of a 5 cm layer of sand on top to prevent damage and perishing)) within an earth bund. The impermeable lining shall extend to the crest of the bund and the volume inside the bund shall be 120% of the total capacity of all the storage tanks/bowsers (110% statutory requirement plus allowance for rainfall). • Only empty externally clean drums may be stored on the bare ground. Empty and externally dirty tanks shall be sealed and stored on an area where the ground has been made impermeable. • There shall be adequate fire-fighting equipment at the fuel storage area. • Rainwater that collects in bunded areas shall be promptly removed and dealt with as water containing waste.			
5.3.9.8	Should regular refuelling on site be necessary, then provision shall be made for a dedicated refuelling station at the fuel storage area: • The impermeable, bunded fuel storage area shall also accommodate refuelling activities. • The proper dispensing equipment shall be used, and the drum shall not be tipped in order to dispense fuel. • The dispensing mechanism of the fuel storage drum shall be stored in a waterproof container when not in use. • A supply of absorbent material (e.g. Spill Sorb or Enretech #1 powder or equivalent) shall be readily available to absorb, break down and encapsulate minor hydrocarbon spillage. The quantity of such material shall be able to handle a minimum of 200 litres of hydrocarbon liquid spill per incident • There shall be adequate fire-fighting equipment at the refuelling area.	Contractor	Duration of construction	ECO - as per schedule
5.3.9.9	Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit shall be used and appropriate and adequate ground-protection such as drip trays used.	Contractor	Duration of construction	ECO - as per schedule
5.3.9.10	Pollutants, or water contaminated with any pollutants (e.g. detergent, cement, fuels and oils) shall be disposed of in accordance with Section 0.	Contractor	Duration of construction	ECO - as per schedule

[10] Fuel storage capacity may not exceed 30 000 litres when the storage area is outside an urban area within: 1) in a Protected Area identified in NEMPAA, 2) National Protected Area Expansion Strategy Focus areas, 3) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans, 4) Core areas in biosphere reserves, 5) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, 6) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined, 7) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined, 8) Within 500 metres of an estuarine functional zone, excluding areas falling behind the development setback line, 9) In an estuarine functional zone, excluding areas falling behind the development setback line, or 10) Within a watercourse. In these instances, approval will be required from the environmental authority in terms of the EIA Regulations

	Bitumen			
5.3.9.11	Bitumen drums/products, if stored on site, shall be stored with an appropriate base, bunding and sump.	Contractor	Duration of construction	ECO - as per schedule
5.3.9.12	Rainwater that collects in bunded areas shall be promptly removed and dealt with as water containing waste.	Contractor	Duration of construction	ECO - as per schedule
5.3.9.12	When heating bitumen products, the cognisance shall be taken of appropriate fire risk controls.	Contractor	Duration of construction	ECO - as per schedule
	Spills			
5.3.9.14	The Contractor shall submit a Method Statement to the Contract Manager and ECO for approval of the procedure for dealing with an accidental hydrocarbon spill: • Any single spill in excess of 200ℓ shall be reported to the Department of Water and Sanitation (DWS), and the Proponent. • The responsible operator shall have the required training to use the spill kit, or to contain the spill. • The activity causing the spill is to cease, and the spill is to be contained using a spill kit, sand berms, sandbags, sawdust, absorbent materials or similar. • Should any soil become contaminated by oil or fuel spills then the soil shall be removed. • Contaminated soil and material shall be stored in bags or sealed and labelled drums in the designated hazardous waste area of the site and disposed of in accordance with Section 0. • Any contaminated soil that cannot be removed is to be treated in situ as determined by the ECO.	Contractor	Method Statement 14 days prior to commencement date.	Contract Manager & ECO - as per schedule

Cement and batching plants

These measures will ensure the appropriate management of materials to reduce pollution to the environment:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
5.3.10.1	Concrete mixing shall be carried out on an impermeable hardened surface (e.g. boards, or a designated bunded area with an impermeable surface).	**Contractor**	**Duration of construction**	ECO/ESO/EO **- as per schedule**
5.3.10.2	Cement powder has a high pH, and spillage of cement powder and concrete slurry can affect soil and water pH. Spillage on permeable surfaces shall be prevented, and cement laden water/runoff shall be collected and disposed of as water containing waste.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.10.3	A washout facility utilising shall be provided for washing concrete mixing equipment, should cement mixing be required.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.10.4	Bagged cement shall be stored at an appropriate facility, and empty cement bags shall be soundly secured with adequate binding material should these be stored on site.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

5.3.10.5	Hardened concrete from the concrete mixer or washout facility shall be reused or disposed of as builder's rubble at an appropriately licensed spoil facility.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.10.6	Where 'readymix' concrete is used, delivery vehicle shall not wash chutes onsite, unless at a designated area where such water can be collected and disposed of as water containing waste. Similarly drum wash shall not be disposed of onsite unless into a contaminated water pond/facility. Any spillage from 'readymix' delivery shall be immediately collected and disposed of as builder's waste as per 5.2.10.5 above	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

Material and stockpile management

These measures will consolidate areas of impact, preserve stockpiled material and ensure the appropriate management of materials to reduce pollution to the environment:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
	Materials in transit			
5.3.11.1	Delivery drivers shall be informed of all delivery procedures and restrictions (including "no go" areas) and shall be supervised during offloading by someone with an adequate understanding of the relevant requirements of the EMPr.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.11.2	Materials in transit shall be appropriately secured to ensure safe passage between destinations: • Loads, including but not limited to, sand, stone chip, fine vegetation, refuse, paper and cement, shall have appropriate cover to prevent them spilling from the vehicle during transit. • The Contractor shall be responsible for any clean up resulting from the failure by employees or suppliers to properly secure transported materials.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.11.3	All manufactured and or imported materials shall, where reasonably possible, be stored within the contractor's camp and designated laydown areas and, where required, out of the rain.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
	Stockpile management			
5.3.11.4	Stockpiling areas shall be located close to the working area(s) to minimise disturbance to the environment and to avoid modification of drainage patterns. Method Statements are required for the location and method of protection of stockpiled materials stored outside of the contractor's camp or designated laydown areas, together with the proposed method of rehabilitating these areas.	Contractor	Method Statement 14 days prior to commencement of activity	ECO/ESO/EO – as per schedule
.3.11.5	Care shall be taken to ensure that the location of stockpiling areas will not cause damming of water or runoff, nor expose the stockpiled material to extreme erosive elements.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.11.6	Stockpiles shall not be placed in a manner that obstructs vehicle visibility or drivers' line of site, especially when working near traffic intersections and sharp corners.	Contractor	Duration of construction	ECO/ESO/EO – as per schedule
5.3.11.7	Stockpiled material (e.g. topsoil, soil, subsoil, and rocky material) shall be stable and well secured to avoid	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

	collapse and possible injury to site workers. Where required, appropriate precautions shall be taken to limit the erosion and compaction of stockpiles: • Stockpiled material shall not exceed 2 m in height (note: stockpiled topsoil shall be restricted to 1.5 m in height to prevent compaction). • Stockpiled material shall be placed to occupy the minimum width compatible with the natural angle of repose of the material (simple dimensions to be provided by the ECO), and measures shall be taken to prevent the material from being spread over too wide a surface. • The stockpiles and stockpile areas shall be carefully managed to prevent cross-contamination of stockpile material and to guard against "stockpile creep" (topsoil stockpiles shall be clearly demarcated & be distinguishable from other material stockpiles). • Stockpiled material shall be kept clear of weeds and alien invasive vegetation growth by regular weeding, or herbicides if permitted (restrictions on herbicide use for topsoil stockpiles is to the discretion of the ECO). • If the stockpiles start to erode significantly or cause dust problems, they shall be covered with suitable erosion protection materials (e.g. hessian or geo-fabric).			
5.3.11.8	Every effort shall be made to handle topsoil twice only: once to strip and stockpile, and once to replace, level, shape and scarify.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.11.9	Topsoil stripped from different sites of different soil types shall be stockpiled separately and clearly identified as such for return to area of origin, and every effort shall be made to prevent the mixing of topsoil from different sites of different soil types.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.11.10	Where practical, stockpiled topsoil shall not be left for more than two to four months before being used for rehabilitation, as longer storage will compromise its fertility. When topsoil must be stored for extended periods of time, topsoil stockpiles shall be protected from erosive forces using a suitable cover: • Stockpiled topsoil could be vegetated to reduce the potential for erosion and deterioration in soil quality. Appropriate ground cover could be planted on topsoil stockpiles to prevent surface damage, maintain active populations of beneficial soil microbes, prevent weed infestation and control erosion. • Where wind and water erosion are a particular problem, stockpiled topsoil could be covered in erosion protection materials (e.g. hessian or geo-fabric or similar). • Stockpiled topsoil shall not be covered with any material (e.g. plastic) that may kill seeds or cause it to compost.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.11.12	To ensure continued biological activity within topsoil stockpiles, stockpiled topsoil shall not exceed 1.5 m in height and shall not be compacted in any way.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

Vehicle/plant and equipment management

These measures will ensure that soil, surface water and groundwater contamination are minimized:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
5.3.12.1	All employees must be given the necessary safety ear protection gear when utilising noise-generating equipment or plant. In this regard, the employer is required by law to provide the necessary equipment (i.e. ear protection).	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.12.2	All plant shall be stored within the designated secure area of the contractor's camp, or a secure area equivalent approved by the ECO, when not in use.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.12.3	All vehicle / plant shall be maintained in good working order, shall adhere to the relevant lighting & noise requirements of the Road Traffic Act (93 of 1996) and SANS 1200A Clause 4.1, and vehicle service histories are to be kept up to date to reduce potential noise and air pollution from vehicle emissions: • All vehicles shall be equipped with an appropriate silencer on their exhaust systems. • Mechanical equipment with lower sound power levels shall be selected wherever possible. • Safety measures that generate noise, such as reverse gear alarms on large vehicles, shall be appropriately calibrated or adjusted to minimise noise. • Appropriate directional and intensity settings shall be applied on all hooters and sirens.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.12.4	Where possible and practical the maintenance of all vehicles and equipment shall take place in a designated bunded area of the contractor's camp on a sloping hardened surface with a suitable collection sump or suitable oil/water separator. • The vicinity of such areas shall be monitored for fuel and oil spills, and these shall be promptly addressed. • Rainwater that collects in bunded areas shall be promptly removed and dealt with as water containing waste in Section 0.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.12.5	All vehicles and plant shall be provided with a suitably sized service pan/drip tray to be used to effectively trap fuel leaks in the event of a breakdown. • Drip trays shall be provided for all plant including stationary plant (such as compressors) and for "parked" plant (such as scrapers, loaders or any vehicle).	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.12.6	Vehicles / plant shall not park along the roadside in such a way that they obscure visibility to road users or anyone wishing to leave or enter the contractor's camp or development sites.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

Spoil and trench management

These measures will facilitate appropriate management and use/disposal of spoil material to prevent environmental degradation and dumping:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
5.3.13.1	Inert spoil material (material obtained from site that cannot be engineered into the site design as fill or overburden) can be used in the rehabilitation process, either to aid in the final finishing of the site or in providing subsoil cover over which the stockpiled topsoil can be spread.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.13.2	To consolidate impacts, all spoil material intended for rehabilitation shall be stockpiled within the designated stockpile areas prior to its spoiling or use in rehabilitation.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.13.3	Any surplus inert spoil that cannot be used elsewhere on site, or for other third party (private/municipal/provincial) purposes, shall be permanently disposed of as builder's rubble at an appropriately licensed facility.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.13.4	All trenching activities are to comply with the relevant safety requirements, and unless otherwise stated by the Contract, shall have shoring if the excavations are greater than 1.2 m in depth.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.13.5	In the event of temporary site closure or shut down, trenches are to be secured to prevent unauthorised access.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.13.6	Open trenches, excavations and earthworks pose a hazard to both domestic livestock and wild animals: • Trenches shall be regularly inspected if they can be accessed by animals. • Domestic animals or livestock belonging to surrounding communities or landowners shall be kept away from the works, and in this regard appropriate stock-proof fencing may be required around excavations and earthworks.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

Blasting and hotworks

These measures will ensure that impact to the environment and neighbouring landuses are minimized through safe blasting and hotworks practices:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
5.3.14.1	**Should it be necessary to undertake blasting activities, then adjacent landowners, nearby sensitive receptors, site personnel and the relevant emergency services shall be notified of the location, planned timing and duration of such activities, with sufficient warning to secure livestock/pets.**	**Contractor**	**At least 24 hours prior to activity**	ECO/ESO/EO **- as per schedule**
5.3.14.2	Blasting activities are to be conducted in accordance with the Explosives Act No. 15 of 2003, the Minerals act, Act No. 50 of 1991 and Regulation 4 of the Explosives Regulations of the Occupational Health and Safety Act No. 85 of 1993). Emergency procedures are to be adhered to.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.14.3	Blasting activities shall be conducted by a suitably licensed blasting contractor.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.14.4	Prior to any blasting, the Contractor is to document the status of nearby structures, infrastructure or buildings through photographs or video footage.	Contractor	Prior to activity commencing	ECO/ESO/EO - as per schedule
5.3.14.5	All reasonable measures shall be implemented to reduce the noise impacts associated with drilling and blasting to neighbouring residents, landuses, services or infrastructure.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.14.6	Staff shall wear dust masks during and immediately after any blasting activities (on confirmation with relevant HSE officer).	Contractor	During and immediately after blasting	ECO/ESO/EO - as per schedule
5.3.14.7	The Contractor shall ensure that construction related activities that pose a potential fire risk (e.g. hotworks such as welding and grinding) are properly managed and are confined to areas where the risk of fires has been reduced: • Any activities that involve an open flame or pose a fire risk shall not occur without a fire extinguisher present. • Hotworks shall be avoided in high wind conditions, especially in the drier months.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

Waste management

These measures will minimise waste generation and prevent pollution of the environment:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
5.3.15.1	In terms of the National Environment Management: Air Quality Act, 39 of 2004, burning is not permitted as a disposal method.	Contractor	At any time	ECO/ESO/EO - as per schedule
5.3.15.2	The Contractor shall submit a Method Statement to the Contract Manager and ECO detailing the type of waste anticipated; the storage, handling, reuse, recycling and/or disposal procedures proposed, together	Contractor	Method Statement 14 days prior to	ECO/ESO/EO – as per schedule

	with the facilities proposed to receive such waste.		commencement date.	
5.3.15.3	All certificates of disposal or records of handover to appropriately licensed facilities shall be retained, together with records of tonnages per month, and these shall be made available for monthly progress reporting if so required by the ECO, Contract or Contract Manager.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.15.4	Designated facilities for builder's rubble, hazardous waste, and general waste as provided for in the Contractor's camp/s are to be used for the storage of the appropriate waste products that is weather proof and scavenger proof.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
	General Waste			
5.3.15.5	The quantities of general waste generated on-site shall be minimised wherever possible by reducing, reusing and/or recycling it. The nearest municipal/private recycling facilities are to be identified as possible options for receiving recyclable materials Separate receptacles for different types of recyclable/reusable materials are to be provided wherever possible.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.15.6	Appropriate general waste (e.g. construction debris, rubble, timber, tins, drums and domestic waste) collection, storage and removal from site shall be implemented. • Waste shall be removed daily from areas remote from camp and transferred to the appropriate waste storage facility. All non-recyclable litter and refuse shall be disposed of off-site at a licensed landfill facility approved by the Contract Manager and ECO.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.15.7	Precautions shall be taken to avoid any waste from spreading on, or from, the site. • Scavenger and weatherproof bins with lids shall be provided at the contractor's camp, of sufficient number and capacity to store the general domestic waste produced on a daily basis. • Bins shall not be allowed to become overfull and shall be emptied regularly at the waste storages areas in the Contractor's camp, or directly transferred to an approved landfill.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.15.8	Builder's rubble shall be neatly stockpiled in designated stockpile areas, and shall regularly be removed from site to an appropriately licensed waste disposal facility or reuse/recycling facility approved by the Contract manager or ECO.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
	Hazardous Waste			
5.3.15.9	Should the generation of hazardous waste be anticipated during the site activities, then suitable collection and storage facilities shall be planned, and an area of the Contractor's camp designated for this purpose in accordance with the relevant legislation. • Hazardous waste shall be stored in sealed and labelled drums, which shall be situated on a smooth impermeable surface (concrete or 250 micrometre (µm) plastic (plastic must have at least a 5 cm layer of sand on top to prevent damage and perishing)) within an earth bund. The impermeable lining shall extend to the crest of the bund and the volume inside the bund shall be 120% of the total	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

	capacity of all the storage tanks/bowsers (110% statutory requirement plus allowance for rainfall). • Access to waste storage areas shall be restricted, and the areas secured with requisite warning signage. • Rainwater that collects in bunded areas shall be promptly removed and dealt with as water containing waste.			
5.3.15.10	Any hazardous waste or contaminated soil shall be disposed of (in accordance with legislation) at a licensed hazardous waste disposal facility, as approved by the Contract Manager and ECO. • Hazardous waste is to be contained and transported as required by the relevant legislation.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
	Liquid waste (and water containing waste)			
5.3.15.11	Paint products, chemical additives and cleaners, such as thinners and turpentine, or water containing waste may not be disposed of into the stormwater system or elsewhere on site.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.15.12	Should any liquid waste (e.g. spent oils, fuels and hazardous chemicals; cement-laden water or contaminated water from wash slab and repair areas, batching areas, Hazardous Chemical Substance and hydrocarbon storage areas; water containing waste and domestic liquid waste) be generated then the liquid waste shall be stored in sealed and labelled drums or approved containers for such purposes in the designated hazardous waste area of the site until it is disposed of at appropriately licensed wastewater or hazardous waste disposal facilities as approved by the Contract Manager and ECO.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

Stormwater and sediment management

These measures will manage contaminated water and prevent polluted runoff from entering watercourses or water bodies:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
5.3.16.1	All reasonable measures shall be taken to limit erosion. • The most effective way to control erosion is to retain the existing vegetation for as long as possible. Hence, site clearance shall be undertaken in a phased approach wherever possible such that the extent of exposed soils shall be limited to areas of the current construction phase. • Special attention shall be given to ensure the protection of topsoil, overburden, spoil and materials stockpiles from the erosive elements. • Any runnels or erosion channels developed during the construction period or during the vegetation establishment period shall be backfilled and compacted, and the areas restored to a proper condition. • Stabilisation of cleared areas to prevent and control erosion shall be pro-actively managed by the Contractor. • Any relevant requirements stipulated by a Water Use Authorisation must also be implemented, if applicable.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

5.3.16.2	It may be necessary to design specific protection measures that prevent the concentration of stormwater flows. These could include the construction of permanent or temporary drainage works which shall be designed to avoid scouring and erosion within the channel: • *Bund (temporary)*: This constitutes a ridge of compacted material intended to divert overland sheet flow to a stabilised outlet or channel. • *Cut-off drain (permanent)*: This constitutes a formal drainage structure to collect stormwater flow and channel into an appropriate discharge point. This shall be constructed on the uphill side of the bund and side drains shall be constructed to convey the flows to flat ground or into an appropriate watercourse. • Where flow velocities cannot be reduced to safe levels, consideration could be given to drainage structures that incorporate erosion resistant materials (e.g. rock). • Any relevant requirements stipulated by a Water Use Authorisation must also be implemented, if applicable.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.3.16.3	Stormwater that has been loaded with suspended solids and silt during the construction phase can be released into watercourses provided all suspended solids have been removed from the water before it is discharged into the environment. • Sediment traps, sediment filters and settling out the solids in settlement ponds are possible solutions to preventing sediment from entering adjacent watercourses. • Installing porous barriers to collect silt can dramatically reduce sediment pollution on the opposite sides of the barrier. Applications vary depending on location of the barrier. Silt fences are commonly used as they are cost effective and readily available. They typically will be used as the primary silt collection tool and may be augmented with other sediment barriers. • Straw bales alone are not an acceptable sediment barrier. • All sediment barriers must be inspected and maintained during construction and restoration. • Any relevant requirements stipulated by a Water Use Authorisation must also be implemented, if applicable.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

5.4 SITE ACCESS AND HAUL ROUTES

Private properties

These measures will ensure that use of private properties is done with consent and in an environmentally considerate manor:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring

5.4.1.1	The use (access or occupation) of private properties outside of the approved development sites shall not occur without the Contractor proving that the affected landowner/ authorised representative has provided the Proponent with consent in writing.	Contractor	Prior to use	ECO/ESO/EO - as per schedule
5.4.1.2	The Contractor shall agree the detailed access routes and requirements to the development sites, turbine locations and pylon positions with the relevant landowner, specifically adhering to gate management protocols of each landowner/ authorised representative.	Contractor	Prior to access	ECO/ESO/EO - as per schedule
5.4.1.3	Access to the development sites, turbine locations and pylon positions shall make use of existing roads, gates and crossings wherever possible. Where this is not possible, then temporary access routes shall be located within the assessed and authorised area (by environmental assessment or specialist walkthrough) and shall require approval from the Contract Manager and ECO.	Contractor	Prior to activity commencing and ongoing for duration of construction	ECO/ESO/EO - prior to contractor commencing and as per schedule
5.4.1.4	The location, proposed commencement and duration of construction activities planned on (or traversing) private land shall be communicated in writing to the affected landowners to minimise disturbance to their agricultural/other activities.	Contractor	At least 14 days prior to mobilisation	ECO/ESO/EO - as per schedule
5.4.1.5	Every effort shall be made to maintain existing access to private properties, and where this is not possible then suitable temporary access alternatives shall be determined in consultation with the landowner/authorised representative if so required.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.4.1.6	Access to properties shall not be impeded for lengthy periods of time: • Driveway accesses are not to be blocked over night or over weekends/public holidays unless on agreement with the landowner/authorised representative.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

Fencing and gates

These measures will ensure that fencing and gates are maintained/used/erected in a manor agreed to by the landowner:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
5.4.2.1	Existing gates shall be used wherever possible when traversing private property to access the site. • A photographic record of the existing gates shall be kept, and the gates reinstated to their former status once no longer used for construction purposes. • Existing gates that were locked shall remain locked once access is gained, unless otherwise agreed with the landowner. • Under no circumstances are existing fences/gate locks to be cut without prior approval from the landowner/authorised representative.	Contractor	Prior to use	ECO/ESO/EO – as per schedule

5.4.2.2	Where access to the site can only be achieved by installing a gate into existing fencing, approval from the Contract Manager and landowner shall be obtained: • Where gates are installed in specialized fencing (e.g. jackal-proof, game, electrified or security fencing), it must be ensured the gate retains the function of the original fencing, unless otherwise agreed with landowner/authorised representative. • Original tension shall be retained in the fence.	Contractor	Prior to installation	ECO/ESO/EO - as per schedule
5.4.2.3	All demarcation fencing and barriers shall be maintained in good working order for the duration of their use.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.4.2.4	Temporary fencing shall be removed on completion of works, and the uprights shall be removed completely (ensure uprights are not cut at ground level).	Contractor	On completion of works	ECO/ESO/EO - as per schedule

Access road management

These measures will minimise impact to the environment through the planned and restricted movement of vehicles, and management of loads:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
5.4.3.1	Should the existing private roads be used as haulage routes or access, their current status is to be defined by agreement prior to utilisation, such that the roads can be maintained in a condition as close as possible to their former status and reinstated after construction use. • Photographic record of the status of any private access roads shall be taken prior to use thereof and retained as a reference for reinstatement. • Cognisance of vehicle weight/dimensions shall be taken when using existing access roads constructed out of certain materials (e.g. paved surfaces/cobbled entranceways).	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.4.3.2	Any new temporary access roads that are constructed: • On a slope shall have water diversion structures at regular intervals to reduce flow velocities and divert runoff back along the contour. • Shall be kept as narrow as possible.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.4.3.3	Appropriate measures shall be implemented for the management of stormwater runoff and the control of erosion from the road surfaces of access roads: • To increase longevity, reduce dust and limit erosion, access roads that will be used for more than two years shall be well surfaced with durable materials of appropriate size, and surface cross-slopes shall facilitate good drainage. • The Contractor shall ensure that the access roads are maintained and are in good condition by attending to potholes, corrugations and stormwater damage as soon as these develop. • The Contractor shall ensure that all side and mitre drains and scour check walls on access roads are functioning properly and are well maintained.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

	• Any relevant requirements stipulated by a Water Use Authorisation must also be implemented, if applicable.			
5.4.3.4	Materials in transit shall be appropriately secured to ensure safe passage between destinations: • Loads, including but not limited to, sand, stone chip, fine vegetation, refuse, paper and cement, shall have appropriate cover to prevent them spilling from the vehicle during transit (if the material being carted may cause dust or may easily fall out of the vehicles and pose a hazard to other road users). • The Contractor shall be responsible for any road clean up resulting from the failure by employees or suppliers to properly secure transported materials.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.4.3.5	Where road dust becomes a hazard to traffic safety or a nuisance to landowners or communities neighbouring the site, effective dust suppression options such as mulching or wetting shall be applied: • Non-potable water (of suitable quality and from a legal source) used for this purpose shall be used in quantities that will not result in runoff and erosion, or muddy areas (this would, however, need to be balanced against the wasteful use of water).	Contractor	When experienced as a nuisance or hazard	ECO/ESO/EO - as per schedule
5.4.3.6	Vehicle wheel washing with non-potable water could be undertaken where necessary prior to leaving the site to reduce deposition of material on nearby roads. This would only really be appropriate where road traffic is high and where the amount of material carried onto public roads is significant. • Asphalt road access points near the development site shall be regularly swept free of dust.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

Traffic management

These measures will ensure that impacts to other road users are minimized:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
5.4.4.1	Drivers by law must be licensed and shall be carefully briefed on the appropriate driving practices when operating on the development site.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.4.4.2	Reasonable speeds shall be maintained on the access roads in order to prevent accidents, excessive noise and unnecessary dust. Speed limits shall be enforced, and where a speed limit is not specified then speed shall depend on the type of vehicle, status of the road, and other traffic, but speeds between 20 and 40 km/h are typically regarded as acceptable.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.4.4.3	Predetermined detour routes are to be selected to reduce traffic disruptions to busy roads by abnormal loads, and such disruptions should be planned at off-peak times where ever possible.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.4.4.4	Safety risks associated with the movement of heavily laden, slow moving haulage vehicles shall be effectively managed.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.4.4.5	Entry/exit points onto public roads shall take cognisance of traffic safety.	Contractor	Duration of construction	ECO/ESO/EO - as per schedule
5.4.4.6	The use of signalmen shall be considered where relevant (e.g. for access onto highly trafficked roads, for roads with poor site distance, or where visibility is impaired).	Contractor	Duration of construction	ECO/ESO/EO - as per schedule

5.5 SITE REINSTATEMENT, LANDSCAPING AND CLOSURE

Removal of construction infrastructure

These measures will minimise long-term disturbance or pollution to properties following closure:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
	Removal of structures and infrastructure			
5.5.1.1	All construction plant, equipment, storage containers, temporary fencing, temporary services, and fixtures shall be completely removed from site.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.2	All access roads utilised during construction which are outside of the servitude and not earmarked for use during the operational phase, shall be returned to a state no worse than prior to construction.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
	Inert waste and rubble			
5.5.1.3	Inert waste and rubble, including surplus rock, foundations, spoil and batching plant aggregates shall be	Contractor	Prior to site	ECO/ESO/EO -

	removed and disposed of in accordance with Section 0. After the material has been removed, the site shall be re-instated and rehabilitated, in accordance with the approved Landscaping and Rehabilitation Plan.		handover	as per schedule
5.5.1.4	All domestic waste shall be removed from site and dispose of in accordance with Section 5.2.15.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
	Hazardous waste and pollution control			
5.5.1.5	All pollution containment structures shall be removed from site.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.6	All temporary sanitary infrastructure and wastewater disposal systems shall be removed from site. Take care to avoid leaks, overflows and spills and dispose of any waste in the approved manner.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule

Reinstatement

These measures will ensure areas disturbed during the construction phase are returned to a state that approximates original condition, or allows for the natural reestablishment by suitable vegetation:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
	Landscaping			
5.5.1.7	Programme the backfill of excavations so that subsoil is deposited first, followed by the topsoil. Compact in layers for best results.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.8	Monitor backfilled areas for subsidence (as the backfill settles) and fill depressions using available material.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.9	Ensure that no excavated material or stockpiles are left on site and that all material remaining after backfill is landscaped or removed from site and disposed of at a suitably licensed waste disposal site.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
	Topsoil replacement and soil amelioration			
5.5.1.10	Execute top soiling activity prior to the rainy season or any expected wet weather conditions.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.11	Execute topsoil placement only after all construction work has ceased.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.12	Replace and redistribute stockpiled topsoil together with herbaceous vegetation, overlying grass and other fine organic matter in all disturbed areas of the construction site, including temporary access routes. Replace topsoil to the original depth.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.13	Place topsoil in the same area from where it was stripped. If there is insufficient topsoil available from a particular soil zone to produce the minimum specified depth, topsoil of similar quality may be brought from other areas of similar quality. The suitability of substitute material will be determined by means of a soil analysis addressing soil fraction, fertility, pH and drainage.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule

5.5.1.14	Do not use topsoil suspected to be contaminated with the seed of alien vegetation (e.g. black wattle). Alternatively, the soil is to be appropriately treated.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.15	Ensure that stormwater run-off is not channelled alongside the gentle mounding, but that it is taken diagonally across it.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.16	Shape remaining stockpiled topsoil not utilised elsewhere in an acceptable manner so as to blend in with the local surrounding area.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.17	After topsoil placement is complete, spread available stripped vegetation randomly by hand over the top-soiled area.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.18	Newly cleared soils will have to be re-vegetated and stabilised as soon as construction has been completed and there must be an on-going monitoring program to control and/or eradicate newly emerging alien invasive plants until site handover.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.19	Machines must remove the stone material and transport it to another location to be re-used if it is required, removed correctly to a licensed facility, or offered to the landowner.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.20	If applicable, the geotextile base material, and other foreign material must also then removed during rehabilitation.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
	Ripping and scarifying			
5.5.1.21	Rip and / or scarify all areas following the application of topsoil to facilitate mixing of the upper most layers. Whether ripping and/or scarifying is necessary will be determined based on the site conditions immediately before these works begin.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.22	Rip and / or scarify all disturbed (and other specified) areas of the construction site, including temporary access routes and roads, compacted during the execution of the works.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.23	Rip and / or scarify along the contour to prevent the creation of down-slope channels.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.24	Do not rip and / or scarify areas under wet conditions, as the soil will not break up.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.25	The area must be ripped to an appropriate depth (at least 300 mm) to remove any minor compaction.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule

Revegetation

These measures will ensure that any revegetation activities will promote rapid soil cover and indigenous growth:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
5.5.1.26	Revegetation and maintenance shall occur as per the methods described and areas of the site identified in the Landscaping and Rehabilitation Plan.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.27	Temporary fencing or similar shall be considered on areas where livestock have free access, and choice of plant species could give preference to non-palatable species, if appropriate.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
	Grassing			
5.5.1.28	The areas that have been denuded and disturbed as a result of the construction on site, and that will be revegetated, shall be revegetated as soon as possible, and preferably with indigenous vegetation.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.29	Suitably trained personnel shall undertake revegetation by making use of the recommended methods, appropriate equipment and specified grass species as determined by the Landscaping and Rehabilitation Plan. For best results: • Sodding may be done at any time of the year. • Seeding should be done during a season when the germination rate is better. • Hydroseeding is typically done where revegetation is urgent or where slopes are problematic and is more successful during a season when the growth rate is better.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.30	Specifications for sods, runners and hand seeding shall be determined by the Landscaping and Rehabilitation Management Plan.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
	Maintenance			
5.5.1.31	Monitor the re-growth of vegetative material, and address issues of erosion, trampling, and grazing accordingly.	Contractor	Duration of retention period	ECO/ESO/EO - as per schedule
5.5.1.32	Cordon off areas that are under rehabilitation as no-go areas.	Contractor	Prior to site handover	ECO/ESO/EO - as per schedule
5.5.1.33	Control invasive plant species and noxious weeds by means of extraction, cutting or other approved methods.	Contractor	Duration of retention period	ECO/ESO/EO - as per schedule
5.5.1.34	For planted areas that have failed to establish, revegetate according to subsequent recommendations made by the terrestrial ecologist.	Contractor	Duration of retention period	ECO/ESO/EO - as per schedule

6 OPERATION PHASE

6.1 DISTRIBUTION OF ELECTRICITY

Environmental sensitivities for operation

These measures will ensure that the specialist requirements are implemented during the operational phase to minimize environmental impact:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
	Terrestrial Ecology			
6.1.1.1	Alien clearing and continued management in and around those parts of the development footprint that are within natural to near-natural vegetation to improve habitat quality of these areas and limit further degradation of the site from alien invasion.	Proponent to engage with relevant specialist	Operation	TBC
	Aquatic Ecology			
6.1.1.2	Stormwater systems are to be inspected on an annual basis to ensure that the systems are functional.	Proponent (Operator)	Operation	TBC
	Bats			
6.1.1.3	Mitigation and monitoring as per the Bat Management Plan shall be implemented (for the duration specified) during the operational phase and shall be undertaken by a suitably qualified specialist. As soon as the Wind Farm becomes operational, a bat specialist must start to conduct a minimum of 2 years of operational bat mortality monitoring. The bat specialist must be appointed before commencement. Monitoring results must be used to develop specific mitigation to address problems identified during operations. Results of the operational monitoring must be made available, on request, to other bat specialists conducting operational and preconstruction monitoring on WEF's in South Africa	Proponent to engage with relevant specialist	Operation	TBC
6.1.1.4	Bi-annual visits to the facility at night must be conducted for the operational lifetime of the facility by operational staff to assess the lighting setup and whether the passive motion sensors are functioning correctly	Operational staff	Operation	TBC
6.1.1.5	The bat specialist conducting the operational bat mortality monitoring must conduct at least one visit to site during nighttime to assess the placement and setup of outside lights on the facility	Proponent to engage with relevant specialist	Operation	TBC
6.1.1.6	The Bat Mitigation Action Plan must be consulted when lights are replaced and maintenance on lights is conducted	Contractor/Maintenance team	Operation	TBC
6.1.1.7	Curtailment must be applied to all turbines, every night between 1 September and 30 April, by ninety-degree feathering of blades below the manufacturer's cut-in speed, so it is exactly parallel to	Proponent to engage with relevant specialist	Operation	TBC

	the wind direction and minimises freewheeling blade rotation as much as possible without locking the blades			
6.1.1.8	If the acceptable annual mortality of bats (calculated at 53) is exceeded, then additional mitigation will need to be implemented to bring bat mortalities to or below the sustainable threshold. This could include curtailing problematic turbines according to the mitigation cut-in speed (refer to Section 2.3 of the bat micrositing report), and/or to utilise acoustic deterrents on problematic turbines	Proponent to engage with relevant specialist	Operation	TBC
6.1.1.9	For the duration of the lifetime of the facility, the impacts on bats must be audited/monitored by reliable methods of carcass searching and/or electronic devices capable of automatically counting bat mortalities. Such auditing should occur every 5 years (after the end of the initial 2-year operational study) for all turbines on site.	Proponent to engage with relevant specialist	Operation	TBC
	Avifauna			
6.1.1.10	Provision for a mitigation contingency budget for the operational phase should be made for the potential avifaunal impacts that may arise during operation. Update November 2022 – it is likely given the current state of knowledge in SA, that an Observer Led Shutdown On Demand programme would be the preferred mitigation measure if required	Proponent	Operation	TBC
6.1.1.11	Dumping of livestock and/or game carcasses in uncovered pits creates a feeding site for raptors and other scavenging birds. Landowners should be requested to refrain from this practice once the wind farm is operational, or at a minimum to adequately cover these pits at all times to prevent birds from accessing the carrion	Proponent	Operation	TBC
6.1.1.12	If Blue Crane turbine or power line collision fatalities occur as a result of livestock feeding points once the facility is operational, this will need to be mitigated, probably by restricting farmers from feeding too close to turbines (200-300 m) and power lines. or by covering/ obstructing the feeding points in some way that prevents the birds from easily feeding from them (as was done successfully with fence wires at an existing wind farm in the Overberg area for feeding points for sheep). Landowners should be made aware of this possibility at the outset of the project.	Proponent	Operation	TBC
6.1.1.13	Bird fatality searches must be prioritised at Turbines 11, 16, 21, and must be searched daily.	Proponent	Operation	TBC
	Noise & Shadow Flicker			
6.1.1.14	Measurements shall be taken of the actual shadow-flicker impact at the identified sensitive receptors given the assessment used conservative assumptions and it is likely the actual impacts will be less than modelled. If exceedances have been detected, one or more of the following shall be implemented: • Blinds shall be installed in the affected windows and/or trees and evergreen vegetation (indigenous) shall be planted between the turbines and the affected windows. • If the above mitigation is shown to be ineffective, a shadow detection system shall be installed at the turbines to shut down during exceedances.	Proponent	Operation	TBC
	Traffic			
6.1.1.15	Proponent to contribute to the maintenance of the public roads in the area during operation phases	Proponent (Operator)	Operational Phase	TBC

	of the development.			
6.1.1.16	A photographic record of the road condition should be maintained throughout the operational phase of the development. This provides an objective assessment and mitigates any subjective view from road users.	Proponent (Operator)	Operational Phase	TBC
6.1.1.17	Transport Management Plan is to be revised for the operational phase of the development.	Proponent (Operator)	Operational Phase	DFFE
6.1.1.18	Ensure all vehicles are roadworthy, visible, properly marked, and operated by an appropriate licenced operator.	Proponent (Operator)	Operational Phase	TBC
	Socio-Economic			
6.1.1.19	The operator of the wind energy facility should be encouraged to, as far as possible, procure materials, goods and products required for the operation of the facility from local suppliers to increase the positive impact in the local economy.	Proponent (Operator)	Operational Phase	TBC
6.1.1.20	Where possible, local labour should be considered for employment so as to increase the positive impact on the local economy	Proponent (Operator)	Operational Phase	TBC
6.1.1.21	As far as possible, local SMMEs should be approached to investigate the opportunities for supply inputs required for the maintenance and operation of the facility.	Proponent (Operator)	Operational Phase	TBC
6.1.1.22	Enterprise development and socio-economic development initiatives outlined in the REI4P bid must be effectively implemented: These plans should be reviewed on an annual basis and, where necessary, updated.	Proponent (Operator)	Operational Phase	TBC
6.1.1.23	When identifying enterprise development initiatives, the focus should be on creating sustainable and self-sufficient enterprises.	Proponent (Operator)	Operational Phase	TBC
6.1.1.24	In devising the programmes to be implemented through these allocations, the developer should take into account the local Integrated Development Plans.	Proponent (Operator)	Operational Phase	TBC

Maintenance of Infrastructure

These measures will ensure that maintenance activities are undertaken in a socially and environmentally considerate manor:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
6.1.2.1	Negotiate with landowners the timing of the maintenance activities within agricultural properties / land. • Suitable access arrangements to be made with landowners. • Safeguarding of livestock / game against maintenance activities (e.g. effective barricading of excavations). • Where relevant, air traffic (helicopter inspections) associated with the operation of the transmission line to take cognisance of aerial irrigation and spraying activities in agricultural areas.	Proponent (Operator)	Operation	TBC
6.1.2.2	Regular inspection of infrastructure (substations, powerlines and roads) must take place to manage risks.	Proponent (Operator)	Operation	TBC
6.1.2.3	Should new stringing be required, then these shall be fitted with BFDs (if originally required for the section in question or subsequently required following monitoring by the Avifaunal specialist).	Proponent (Operator)	Operation	TBC
6.1.2.4	All vehicle movements must be restricted to designated operational access or service roads, gates and crossings.	Proponent (Operator)	Operation	TBC
6.1.2.5	Existing roads/track must be maintained to ensure limited erosion and impact on areas adjacent to roads. • Monitor culverts to see if any erosion control is required. Should any erosion features develop, they shall be stabilized as soon as possible. • Monitor stormwater management, specifically run-off control system. Should erosion occur downstream, the system will need to be maintained/ upgraded.	Proponent (Operator)	Operation	TBC
6.1.2.6	The taller woody vegetation should only be cleared where this is necessary for operational safety of the transmission line. Taller succulent species such as tree euphorbias should be left in place as they do not pose a fire risk (as such species do not burn).	Proponent (Operator)	Operation	TBC
6.1.2.7	The standard construction specifications apply to all maintenance and repair work. • All maintenance works shall be undertaken in an environmentally responsible manner. • Any areas disturbed during maintenance shall be reinstated such that any disturbed areas are properly reshaped, top soiled and if needed, seeded with indigenous grass seed. • Maintenance and repairs involving earthworks or disturbance to the ground shall be implemented according to the relevant best practices cited in the specifications.	Proponent (Operator)	Operation	TBC
6.1.2.8	Broken infrastructure must be disassembled and removed off-site as soon as reasonably possible after breakdown.	Proponent (Operator)	Operation	TBC

7 DECOMMISSIONING PHASE

7.1 LIFE-CYCLE CONCLUSION

Environmental sensitivities for decommissioning

These measures will ensure that the specialist requirements are implemented during the operational phase to minimize environmental impact:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
	Terrestrial Ecology			
7.1.1.1	Regular monitoring of alien plants within the disturbed areas for at least two years after decommissioning or until alien invasive plants are no longer a problem at the site: • Regular Alien clearing should be conducted using best practice methods for species concerned.	Proponent	Decommissioning Phase	ECO/ESO/EO – as per appointment and schedule
7.1.1.2	Any potentially dangerous fauna such as snakes threatened by the decommissioning activities should be removed to a safe location prior to commencement of decommissioning activities.	Proponent to engage with relevant specialist	Decommissioning Phase	ECO/ESO/EO – as per appointment and schedule
7.1.1.3	To reduce the impacts to terrestrial ecology as a result of decommissioning: • Above-ground infrastructure should be removed from site. Below-ground infrastructure such as cabling can be left in place if it does not pose a risk, as removal of such cables may generate additional disturbance and impact, however, this should be in accordance with the facilities' decommissioning and recycling plan.	Proponent & Contractor	Decommissioning Phase	ECO/ESO/EO – as per appointment and schedule
	Visual			
7.1.1.4	To reduce the visual impact of the decommissioned site: • Wind turbines shall be removed and building structures demolished or recycled for new uses. • Hardened platform areas and access roads no longer required, shall be ripped and regraded. • Exposed or disturbed areas shall be revegetated or returned to grazing pasture or natural vegetation to blend with the surroundings.	Proponent & Contractor	Decommissioning Phase	ECO/ESO/EO – as per appointment and schedule

Removal of infrastructure

These measures will ensure that decommissioning is undertaken in a socially and environmentally considerate manor:

Item	Requirement	Responsibility	Implementation Timeframe	Monitoring
7.1.2.1	All decommissioning activities must be restricted to the development footprint as far as possible. A pre-site investigation shall be undertaken to identify any sensitive areas that should be avoided.	Proponent (Operator)	Decommissioning	TBC
7.1.2.2	Procedures for the removal of infrastructure, buildings, pylons and substation structures during decommissioning are to be implemented according a decommissioning and recycling plan to a visually acceptable standard, and signed off by the delegated authority: • Transmission line cables shall be removed, and substations shall be demolished or regentrified for an alternative purpose. • All above-ground infrastructure such as pylons shall be removed from the site. • Below-ground infrastructure such as cabling or pylon foundations can be left in place if it does not pose a risk, as removal of such infrastructure may generate additional environmental disturbance and impact, however, this should be in accordance with the facilities' decommissioning and recycling plan, and as per the agreements with the landowners concerned. • All above-ground components that are associated with the project infrastructure, such as fencing, signs etc. must be removed from site. • Reuse and recycling is preferable wherever possible.	Proponent (Operator)	Decommissioning	TBC
7.1.2.3	Effective communication should be undertaken with landowners about the timing and location of decommissioning activities.	Proponent (Operator)	Decommissioning	TBC
7.1.2.4	Excavated holes or trenches are to be filled and reinstated, and any structures at risk of collapsing are to be	Proponent (Operator)	Decommissioning	TBC
7.1.2.5	Exposed or disturbed areas shall be revegetated and stabilized prior to being handed back to former landowners.	Proponent (Operator)	Decommissioning	TBC
7.1.2.6	Access roads which are no longer required are to be ripped and rehabilitated.	Proponent (Operator)	Decommissioning	TBC
7.1.2.7	Any roads that will not be rehabilitated, should have runoff control features which redirect water flow and dissipate any energy in the water which may pose an erosion risk. Any roads that will not be used, must be closed and form part of the rehabilitation.	Proponent (Operator)	Decommissioning	TBC
7.1.2.8	Regular monitoring for alien plants within the disturbed areas shall be undertaken for at least two years after decommissioning or until alien invasives are no longer a problem at the site.	Proponent (Operator)	Decommissioning	TBC
7.1.2.9	Erosion should be monitored annually for at least 3 years after decommissioning and any erosion problems observed along the servitude should be rectified as soon as possible using the appropriate revegetation and erosion control works.	Proponent (Operator)	Decommissioning	TBC

Appendix 1:	Curriculum Vitae of EAP who amended the EMPr to this current version
Appendix 2:	Environmental sensitivities and No-Go Areas
Appendix 3:	Draft Method Statements
Appendix 4:	Example of Environmental Training and Awareness Course Content
Appendix 5:	Updated Management Plans
Appendix 6:	Public Participation Report

8 APPENDIX 1: CURRICULUM VITAE OF EAP WHO AMENDED THE EMPR TO THIS CURRENT VERSION

Curriculum Vitae: Belinda Joan Clark

Personal Details:

ID Number: 7507170038084

Address: 43 Rhodes Street, Mount Pleasant, Port Elizabeth

Contact number: 072 725 6400

Email: bclark@telkomsa.net

Qualifications

- B.Sc (Botany, Geology)
- B. Sc Honours (Botany: terrestrial ecology, environmental management, agriculture)
- M.Sc (Botany: Marine Eco-physiology)
- PhD (Botany: Marine Ecology, focusing on marine pollution)

Training and Workshops:

- Light Sport Aircraft Licence: May 2018
- Private Pilot's Licence: 2020
- Eastern Cape Tour Guide Course: January 2010
- Introduction to Wildflower Identification: January 2010
- National Biodiversity Planning Forum (2018)
- National Biodiversity Planning Forum (2009)
- National Biodiversity Planning Forum (2008)
- Identification workshop on the *Ericaceae* family
- Advanced International Training in Urban Environment Management (2010 - 2011) – Sweden and Zambia
- EIA Regulations (2010, 2011, 2014) Workshops – various
- Climate Change Workshop (2011)

- Workshop: Integrated Coastal Management Act (Kenton, 2011). Imbewu
- Workshop: Introduction to the implementation of environmental law (Kenton, October, 2012). Imbewu
- Workshop: Contaminated Land Register (Port Elizabeth, February 2013). Imbewu
- Veld Management and Grass Identification course (Pretoria, February 2013). Africa Land Use Training
- Water Law Workshop (Port Elizabeth, August 2013). Imbewu
- Wetland Indaba (Cape St Francis, October 2013)
- Thicket Forum (various – 2009 to current)
- Water Use Licence Training – Section 21 c and i water use activities (August 2016)
- Estuary Management Course (December 2016)

Seminars/Presentations delivered:

- Nelson Mandela University – 2019: Environmental Management in South Africa. Presentation to Masters Students in Development Studies
- Geography Teachers Conference – 2019: Environmental management issues in the lower Baakens River Valley
- Thicket Forum – 2018: Ecosystem Guidelines for the Albany Thicket Biome
- Biodiversity Planning Forum – 2018: Ecosystem Guidelines for the Albany Thicket and Savanna Biomes
- IMESA Conference – 2018: Environmental management issues in the lower Baakens River Valley
- Nelson Mandela University – 2017: EIA process and regulations presentation to Development Studies students
- Masifunde – 2017: Presentation on Climate Change
- Nelson Mandela Bay Climate Change Conference – 2011: the role of academic institutions (specifically the NMMU Botany Department) in climate change planning
- Geography Conference – 2011: Environmental Impact Management in South Africa
- Thicket Forum – August 2008: Case study: Towards implementing environmental planning guidelines (STEP, MOSS, ECBCP) in EIAs

- Phycological Society of Southern Africa (PSSA) - January 1999: The effect of water-solute oil extracts and metals on oxygen evolution rates by *Anaulus australis*.

- PSSA – July 2000: The effect of excess concentrations of nitrate, ammonium, and phosphate on cell division cycles of *Anaulus australis*.

- PSSA – January 2002: Microalgae as indicators of pollution in surf-zones in Algoa and St Francis Bay

- PSSA – January 2003: Increases in surf-zone nutrient concentrations as a result of increased septic tank outflow after an Easter weekend

- PSSA – January 2004: Surf-zone water quality and the associated microalgal species composition

- SAAB – January 2002: Microalgae as indicators of pollution on the south coast of South Africa

- South African Marine Science Symposium (SAMSS) – January 2005 – Factors determining the dominance of dinoflagellate cells versus *Anaulus australis*.

- UPE Departmental Seminars - Hydroponics (1997), Aspects of ecophysiology of *A. australis* (1998), Microalgae as indicators of pollution (project proposal) (2000), Microalgae as indicators of pollution (2001)

Career Biography

- Nelson Mandela Metropolitan University (North Campus) (January 2004 – December 2006)

  - Responsibilities:
    Lecturer in Epidemiology II, III and IV (Department of Environmental Health)
    Supervising and participating in various post-graduate research projects, dealing largely with community health and environmental pollution

- IECM (January 2000 – December 2003)

  - Responsibilities:
    Coega Harbour Environmental Monitoring and Cerebos Saltworks contracts – water and sediment quality analyses, microalgal counts, invertebrate sorting

Recent experience (CEN IEM Unit: 2006 -):
Type of work: Environmental Consulting, including management plans, feasibility assessments, construction auditing, strategic environmental assessments, environmental impact assessments, specialist surveys (e.g. forest mapping and description), public participation, training, project management.

Areas worked in: terrestrial and coastal ecosystems (estuaries and nearshore), industry, urban development, infrastructure (e.g. roads, power lines, waste water treatment works, water supply network), alternative energy projects, waste management, agricultural development, sports and recreational areas, landscaping, community projects.

List of projects worked on at CEN IEM Unit:

Note: Belinda Clark has been the primary author of all the reports listed below. She is responsible for field work, research, public participation, report writing, and project management.

Sensitivity Assessments/Feasibility Studies /Specialist Input Studies

Completed Projects:

1. Sensitivity Assessment of Ashmead Resort in Knysna, Western Cape
2. Sensitivity Assessment for the creation of a high intensity mixed-use waterfront development on Erf 577 and a portion of Erf 578, Kings Beach, Port Elizabeth
3. Sensitivity Assessment of the Old Power Station site in Swartkops, Port Elizabeth
4. Environmental Sensitivity Description of Erven 268, 287 and 288 in the vicinity of Coega, Eastern Cape
5. Environmental Comment on the Proposed Port St Johns Master Plan
6. Environmental Input into the Happy Valley Local Spatial Development Framework Plan
7. Environmental Input into the Inner City Local Spatial Development Framework Plan
8. Environmental Input into the proposed development of a Military Health Unit in Forest Hill, Port Elizabeth
9. Specialist investigation of the Kariega River Estuary in response to a proposed housing development on the eastern bank of the estuary.
10. Specialist vegetation assessment for the EIA for a housing development in Motherwell
11. Specialist Ecological Impact Assessment for the NMBM (Coega) Reclaimed Effluent Scheme – Phase 1
12. Scoping Report: A review of available information of operations at the Manganese Ore Terminal and Storage Facility and Tank Farm on Erf 578 at the Port Elizabeth Harbour area with emphasis on environmental transgressions
13. Sampling protocol to determine the extent of potential contamination in the environment surrounding the Manganese Ore Facility and Fuel Storage Tanks in the Port Elizabeth Harbour
14. Sensitivity assessment of Erf 313 in the Coega area to inform possible land use options
15. Environmental input into a feasibility study to determine suitable locations for 8 rural police stations in Transkei
16. Sensitivity assessment of the area proposed for the 'N2 North Housing Project'.
17. Forest survey of Erf 11305 and 1948, Walmer to inform land use planning
18. Forest survey of an area proposed for sand mining on a Ptn of Remainder of Erf 1948, Walmer, Port Elizabeth
19. Forest survey of the Remainder Ptn 220 of Farm Mauritzkraal No. 501 at Gamtoos River Mouth
20. Forest Survey in Seaview for municipal housing projects
21. Forest Survey of plots on the Sardinia Bay Eco-Estate, Nelson Mandela Bay Municipality
22. Forest Survey of Ptn 15 of Farm Seaview No. 28, Nelson Mandela Bay Municipality to place residential units
23. Preliminary Environmental Screening of properties in Lorraine, Walmer, Greenbushes/Kuyga area, and Colchester under consideration for acquisition by the Nelson Mandela Bay Municipality
24. Assessment of the suitability of plants used in landscaping at Marula Game Ranch in Namibia
25. Environmental Input into a feasibility assessment of a small-boat harbour in Port St Johns
26. Forest Survey on Ptn 0 (Remaining Extent) of Erf 382 in Theesecombe, Nelson Mandela Bay Municipality to inform land use planning
27. Strategic Environmental Assessment for the Happy Valley Development area
28. Development of Ecosystem Guidelines for the Savanna Biome

29. Development of Ecosystem Guidelines for the Thicket Biome
30. Assessment of Water Options for Buccara Wildlife Reserve, Graaff-Reinet.
31. Facilitation of the development of the Motherwell Community and Enviro Hub.

Management Plans

Completed Projects:

1. Development of a Coastal Management Programme for the Nelson Mandela Bay Municipality
2. Operational Environmental Management Plan for the storage of manganese ore at the old power station in Swartkops
3. Operational Management Plan for a cementitious grinding facility in the Coega Industrial Development Zone
4. Operational Management Plan for a bunkering licence application in the Port Elizabeth Port
5. Development of a Coastal Management Programme for the Sarah Baartman District Municipality

Current Projects:

1. Facilitation of upgrades to the Motherwell Buy-Back Centre, and expansion to integrate with an Enviro-Edu facility, food gardens and composting areas – 'Motherwell Community and Enviro Hub'

Project/database management and training

1. Support consultants to the Environmental Management Sub-directorate of the Nelson Mandela Bay Municipality
2. Training facilitator for the Groen Sebenza program in the Environmental Management section of the NMBM

Environmental Auditing

Completed Projects:

1. Environmental Audit for the Upgrading of a Stormwater Channel and Wetland in Blue Water Bay
2. Environmental Audit for the Construction of Kenton Eco-Estate and Associated Infrastructure on the Farm Remainder of Grants Valley 396, Kenton-on-Sea
3. St Francis Bay Marina Extension: Final Audit
4. Environmental auditing for the upgrading of the National Road 2, Section 9 between Witelsbos and Tsitsikamma
5. Environmental auditing of the construction of the Helenvale Thusong Centre in Port Elizabeth
6. Construction auditing of the upgrades to Kings Beach area (Phase 2)
7. Construction auditing of the extension to the industrial area in Graaff-Reinet
8. Construction auditing of the Aberdeen reservoir
9. Review of compliance of an operational sand mine in Theesecombe with conditions of the EMP
10. Environmental audit of the Robberg waste disposal facility in the Bitou Municipality
11. Construction auditing of the cemetery in Graaff-Reinet
12. Construction auditing of Pola Park housing in Uitenhage
13. Construction auditing of Pola Park housing (Extension) in Uitenhage
14. Construction auditing of a cementitious grinding facility in the Coega IDZ
15. Construction auditing of the Graaff-Reinet emergency bulk water scheme
16. Construction auditing for the expansion of the NMU's internal return effluent scheme
17. Construction auditing for a sludge rising main between Cape Recife and Driftsands Waste Water Treatment Works
18. Construction auditing of the establishment of a petroport along the N2
19. Construction auditing of the installation of a pedestrian bridge across the lower reaches of the Baakens River
20. Construction auditing of the establishment of a family residence and infrastructure on Ptn 0 (Remaining Extent) of Erf 382 in Theesecombe, Nelson Mandela Bay Municipality
21. Audit of structures at Lalibela Game Reserve

22. Pre-construction planning and auditing for the establishment of infrastructure and boreholes in the Camdeboo National Park
23. Construction and operational phase auditing of the Noupoort Wind Farm
24. Construction audit of the buffer yard at the Nxuba Wind Farm
25. Pre-construction compliance audit – Latita Tank Farm (Phase 1), Zone 7, Coega Special Economic Zone.

Basic Assessment Reports

Completed Projects:

1. BAR for the proposed erection of an above-ground 2300 l diesel storage tank for a standby generator in an industrial area (Aberdare Cables)
2. BAR for the proposed rezoning and subdivision of a Portion of Erf 349, New Brighton to develop the Helenvale Community Centre (multi-purpose hall and offices) as part of the Helenvale Urban Renewal Programme.
3. BAR for the proposed augmentation of bulk water supply to Nieu-Bethesda, Camdeboo Municipality, Eastern Cape
4. BAR for the establishment of an oyster nursery on Erf 171, Swartkops (old coal power station site).
5. BAR for the proposed development of an Eco-Estate on Portion 190 of Chelsea 25, comprised of 18 residential units and associated infrastructure
6. BAR for the proposed Development and erection of a prototype 300 KW wind turbine adjacent to the Neptune Substation in the Coega IDZ.
7. BAR for the proposed rezoning and subdivision of Portion 75 of the Farm Kragga Kamma No 23 for rural-residential development.
8. BAR for the proposed rezoning, subdivision and consolidation of portions of Erf 1 and Erf 6, and the entire Erf 15831in Uitenhage to develop housing (Joe Slovo Housing Project).
9. BAR for a desalination plant at the Old Power Station in Swartkops, Port Elizabeth
10. BAR for the construction of a water pipeline in Graaff-Reinet as part of the Drought Emergency Scheme
11. BAR for the construction of a promenade along a section of the Port Elizabeth beachfront
12. BAR for the upgrade of Kings Beach (Phase 2)
13. BAR for the proposed excavation of a portion of the western channel of the Bushmans Estuary, Eastern Cape
14. BAR for the proposed subdivision of Portion 3 of Farm No 43 in Theesecombe into 3 portions, Eastern Cape
15. BAR for the proposed sinking and pumping of two boreholes and further pumping of an additional 3 existing boreholes to supply water to the proposed Cob Creek Estate on Portion 21 of the Farm Kabeljaauws Rivier No 321 in Jeffreys Bay, Eastern Cape
16. BAR for the proposed establishment of lodges and tented camps, as well as the necessary services infrastructure on sections of the following farms in the divisions of Jansenville and Pearston, Eastern Cape Province: Remainder of the Farm Vlak Nek No 31, Ptn 1 of the Farm Vlak Nek No 31, Farm 30, Farm 101, Ptn 1 of the Farm Groot Kloof No 32, Remainder of Farm Groot Kloof No 32, Ptn 1 of the Farm Jacobsdal No 33, Remainder of Farm Jacobsdal No 33, Ptn 1 of the Farm Hinchinbrook No 92, Farm Oudeberg No 94, Ptn 4 of the Farm Smitskraal No 113, Remainder of the Farm Russouwspoort No 115, Remaining Extent of the Farm Smitskraal No 113, and Ptn 1 of the Remaining Extent of the Farm Smitskraal No 113
17. Basic Assessment and Waste Licence application of the upgrade of Kelvin Jones Waste Water Treatment Works (Phase 1)
18. BAR for the proposed construction and operation of a highway rest and service facility and associated infrastructure, including a Waste Water Treatment Plant on Ptn 147 of Farm Gedults River No 411 in the Division of Uitenhage
19. Basic Assessment for Umnyama Park Housing development in Graaff-Reinet
20. Basic Assessment for the rezoning of a portion of Erf 1226 in Fairview for a residential development
21. Basic Assessment for a lodge at Kwandwe Private Game Reserve
22. Basic Assessment for a sludge pumping main to transfer sludge from the Cape Recife Waste Water Treatment Works (WWTW) to the Driftsands WWTW
23. Basic Assessment for a communal jetty on the eastern bank of the Kromme River estuary

24. BAR for the establishment of a staff village at Kwandwe Game Reserve
25. BAR for the implementation of infrastructure needed for water provision in Graaff-Reinet
26. BAR for the expansion of the Mayfield Waste Water Treatment Works in Grahamstown
27. BAR for the expansion to the St Francis Bay WWTW
28. BAR for a gasification plant in Uitenhage
29. BAR for the proposed upgrades to sections of the lower Baakens River Valley
30. BAR for the establishment of a staff village for Kwandwe Private Nature Reserve, Makana Municipality
31. BAR for the development of a residence on Ptn 0 (Remaining Extent) of Erf 382 in Theesecombe, Nelson Mandela Bay Municipality
32. BAR for the upgrades to and expansion of the Nelson Mandela University Return Effluent reticulation system
33. BAR for a shopping centre and filling station in Mount Fletcher
34. BAR for the Florida Heights housing development and bulk infrastructure, Nelson Mandela Bay
35. BAR for the establishment of the George Airport Support Zone, George
36. BAR for the expansion of Mn ore storage capacity at the Old Power Station in Swartkops
37. BAR for the expansion of the Grid Corridor for Electrical Infrastructure for the Impofu Wind Farms.

Current Projects:

1. BAR for the establishment of a resort type development on Erf 168, Colchester
2. BAR for the establishment of a boardwalk and heliport at Noetzie, Knysna
3. BAR for demolition of parts of Bayworld
4. BAR for a light industrial development in the Airport Support Zone in George
5. BAR for the establishment of Battery Energy Storage Systems for the Impofu Wind Farms

Environmental Impact Reports

Completed Projects:

1. EIA for a Low-Density Golf and Agricultural Estate on the Remainder of the Farm Excelsior No 443, Division Joubertina
2. EIA for the Proposed Development of an Integrated Residential Estate on Erven 5614 and 5616, KwaNobuhle, Uitenhage, Eastern Province
3. EIA for the Proposed Establishment of the Sardinia Bay Golf Estate on Erf 378 Theesecombe, Port Elizabeth
4. EIA for Roll-Out Phase of an Aquaculture Operation for the Grow-Out of *Litopenaeus vannamei* Prawn Larvae for Commercial Purposes and a Process Plant, Zones 1 and 10, Coega Industrial Development Zone, Port Elizabeth, Eastern Cape Province
5. EIA for Proposed Construction of a Link Road between Grahamstown Road and Seyisi Street in Port Elizabeth and the upgrading of stormwater infrastructure
6. EIA for the proposed Rezoning and Subdivision of Farms 36 and 37 in Theesecombe, Port Elizabeth for a Rural-Residential Development, Lodge and Associated Infrastructure
7. EIA for the Proposed Rezoning, Subdivision, and Consolidation of Farm Vrede No. 190, Knysna, Western Cape for a Residential Development (Simola Phase 3)
8. EIA and Waste Licence Application for the Proposed Augmentation of the existing Waste Water Treatment Works in Nieu-Bethesda
9. EIA, Waste Licence and Air Emission Licence applications for a pyrolysis plant on Erf 329 in Zone 6 of the Coega IDZ.
10. EIA for the proposed development of a Leisure Estate (Kadouw Leisure Estate) on Remainder of Farm 201, Ptn 15 of Farm 194, and Farm 627 in the Sundays River Valley area

11. EIA for the Proposed Rezoning and Subdivision of Ptn 1 and 118 of the Farm Chelsea 25 (Kragga Kamma Game Park), Port Elizabeth, Eastern Cape
12. EIA for the Proposed Rezoning of Portions 55, 56, 62 and 81 of the Farm Maitland Mines No 478, Uitenhage, Eastern Cape to Establish Lodge Developments and a Nature Reserve
13. EIA for the proposed operation of a 55 MW photovoltaic solar farm on Ptn 2 of the Farm Kraan Vogel Kuil in Pearston.
14. EIA for a landing strip and lodge at Kwandwe Private Game Reserve near Grahamstown.
15. EIA for a proposed housing development and associated infrastructure in Mount Fletcher.
16. EIA for a proposed cement grinding facility in the Coega IDZ
17. EIA for the proposed N2 north housing development.
18. EIA for the Proposed Rezoning and Subdivision of Portion 1 of the Farm Seaview No 28 in Port Elizabeth for a Residential Development and Associated Infrastructure
19. EIA and Coastal Waters Discharge Permit application of the expansion of the Cape Recife Waste Water Treatment Works and new marine outfall sewer (Scoping Report)
20. EIA and Coastal Waters Discharge Permit application for a proposed marine pipeline servitude in the Coega IDZ (Scoping Report)
21. EIA for the establishment of the Bloemendal Arterial and Link Road in the Bethelsdorp area, NMBM.

Current Projects:

1. EIA and Air Emission Licence for a tantalum processing plant in the Coega IDZ
2. EIA, Waste Licence and Air Emission Licence for a waste incinerator at Deal Party, Gqeberha.

Water Use Applications

Completed Projects

1. Water Use Application for the proposed construction of a pipeline across a stream in Graaff-Reinet
2. Water Use Application for the upgrading of stormwater infrastructure that crosses a portion of the Klein Vis Rivier in Somerset East.
3. General Authorisation Application for clearing alien trees and establishment of a temporary mobile gasification plant outside Uitenhage
4. Water Use Application for the establishment of the Bloemendal Arterial and Link Road
5. Water Use Application for irrigating with treated effluent from a package plant at a staff village in Kwandwe
6. Water Use Application for the installation of litter booms in 3 rivers in Nelson Mandela Bay.

Current Projects

1. Water Use Application for disposal of treated effluent and/or irrigation at the proposed Island Vibes resort development in Colchester
2. Water Use Application for borehole abstraction for dust suppression at the Mn ore storage facility in Swartkops.

Environmental Assessment Practitioners Association of South Africa

Registration No. 2019/1336

Herewith certifies that

Belinda Joan Clark

is registered as an

Environmental Assessment Practitioner

Registered in accordance with the prescribed criteria of Regulation 15. (1) of the Section 24H Registration Authority Regulations (Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the National Environmental Management Act (NEMA), Act No. 107 of 1998, as amended).

Effective: 01 March 2022

Expires: 28 February 2023

Chairperson

Registrar

SAQA
SOUTH AFRICAN QUALIFICATIONS AUTHORITY

University
of
Port Elizabeth

Universiteit
van
Port Elizabeth

This is to certify that, the requirements having been satisfied, the degree of

Hiermee word verklaar dat, nadat aan die vereistes voldoen is, die graad

Baccalaureus Scientiae

has been conferred upon

toegeken is aan

BELINDA JOAN CLARK

Vice-Chancellor / Vise-Kanselier

Registrar / Registrateur

Port Elizabeth
19 April 1997

SUID AFRIKAANSE POLISIE
COMMUNITY SERVICE CENTRE
2018 -02- 02
CSC
SOUTH AFRICAN POLICE

SERTIFISEER DAT HIERDIE DOKUMENT 'N WARE AFDRUK (AFSKRIF) IS VAN DIE OORSPRONKLIKE DOKUMENT WAT AAN MY VIR WAARNEMING VOORGELÊ IS. EK SERTIFISEER VERDER DAT, VOLGENS MY WAARNEMINGS DAAR NIE 'N WYSIGING OF VERANDERING OP DIE OORSPRONKLIKE DOKUMENT AANGE-BRING IS NIE.

I CERTIFY THAT THIS DOCUMENT IS A TRUE COPY OF THE ORIGINAL DOCUMENT WHICH WAS HANDED TO ME FOR AUTHENTICATION. I FURTHER CERTIFY THAT, FROM MY OBSERVATIONS, AN AMENDMENT OR A CHANGE WAS NOT MADE TO THE ORIGINAL DOCUMENT.

MAGSNOMMER / FORCE NUMBER 7172359T
HANDTEKENING/SIGNATURE
RANG / RANK Cst
NAAM IN DRUKSKRIF / NAME IN PRINT DE RUDDER

University
of
Port Elizabeth

Universiteit
van
Port Elizabeth

This is to certify that, the requirements having been satisfied, the degree of

Hiermee word verklaar dat, nadat aan die vereistes voldoen is, die graad

Baccalaureus Scientiae Honores

(Botany / Botanie)

has been conferred upon

SUID AFRIKAANSE POLISIEDIENS
COMMUNITY SERVICE CENTRE
2018 -02- 02
CSC
SOUTH AFRICAN POLICE SERVICE

toegeken is aan

BELINDA JOAN CLARK

EK SERTIFISEER DAT HIERDIE DOKUMENT 'N WARE AFDRUK (AFSKRIF) IS VAN DIE OORSPRONKLIKE DOKUMENT WAT AAN MY VIR WAARNEMING VOORGELÊ IS. EK SERTIFISEER VERDER DAT, VOLGENS MY WAARNEMINGS DAAR NIE 'N WYSIGING OF VERANDERING OP DIE OORSPRONKLIKE DOKUMENT AANGEBRING IS NIE.

I CERTIFY THAT THIS DOCUMENT IS A TRUE REPRODUCTION (COPY) OF THE ORIGINAL DOCUMENT WHICH WAS HANDED TO ME FOR AUTHENTICATION. I FURTHER CERTIFY THAT, FROM MY OBSERVATIONS, AN AMENDMENT OR A CHANGE WAS NOT MADE TO THE ORIGINAL DOCUMENT.

HANDTEKENING/SIGNATURE

MAGSNOMMER / FORCE NUMBER 7171 3595 RANG / RANK CST

NAAM IN DRUKSKRIF / NAME IN PRINT DE RIDDER

Vice-Chancellor / Vise-Kanselier

Registrar / Registrateur

Port Elizabeth

18 April 1998

University
of
Port Elizabeth

Universiteit
van
Port Elizabeth

This is to certify that, the requirements having been satisfied, the degree of

Hiermee word verklaar dat, nadat aan die vereistes voldoen is, die graad

Magister Scientiae

(Botany / Botanie)

has been conferred upon

toegeken is aan

BELINDA JOAN CLARK

SUID AFRIKAANSE POLISIEDIENS
COMMUNITY SERVICE CENTRE
2018 -02- 02
CSC
SOUTH AFRICAN POLICE SERVICE

EK SERTIFISEER DAT HIERDIE DOKUMENT 'N WARE AFDRUK (AFSKRIF) IS VAN DIE OORSPRONKLIKE DOKUMENT WAT AAN MY VIR WAARNEMING VOORGELE IS. EK SERTIFISEER VERDER DAT VOLGENSKENNIS GEEN VERANDERINGS DAAR NIE 'N WYSIGING OF VERANDERING OF DIE OORSPRONKLIKE DOKUMENT AANGE-BRING IS NIE.

I CERTIFY THAT THIS DOCUMENT IS A TRUE REPRODUCTION (COPY) OF THE ORIGINAL DOCUMENT WHICH WAS SUBMITTED TO ME FOR AUTHENTICATION. I FURTHER CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, NO ADDITIONS, AN AMENDMENT OR A CHANGE WAS NOTICEABLE TO THE ORIGINAL DOCUMENT.

HANDTEKENING/SIGNATURE

MAGSNOMMER/FORCE NUMBER 71723595 RANG/RANK Cpt

NAAM IN DRUKSKRIF/NAME IN PRINT DE RIDDER

Vice-Chancellor / Vise-Kanselier

Registrar / Registrateur

Port Elizabeth
21 April 2001

NELSON MANDELA
UNIVERSITY

This is to certify that, all the requirements
having been met, the degree

Doctor of Philosophy

Botany

with all the associated rights and privileges,
was conferred upon

Belinda Joan Clark

Identity no.: 7507170038084

at a congregation of the Nelson Mandela University on

15 April 2005

Certificate no.: 520198

EK SERTIFISEER DAT HIERDIE DOKUMENT 'N WARE AFDRUK (AFSKRIF) IS VAN DIE OORSPRONKLIKE DOKUMENT WAT AAN MY VIR WAARNEMING VOORGELÊ IS. EK SETIFISEER VERDER DAT VOLGENS MY WAARNEMINGS DAAR NIE 'N WYSIGING OF VERANDERING OP DIE OORSPRONKLIKE DOKUMENT AANGEBRING IS NIE.
I CERTIFY THAT THIS DOCUMENT IS A TRUE REPRODUCTION (COPY) OF THE ORIGINAL DOCUMENT WHICH WAS HANDED TO ME FOR INSPECTION. I FURTHER CERTIFY THAT FROM MY OBSERVATIONS, AN AMENDMENT OR CHANGE WAS NOT MADE TO THE ORIGINAL DOCUMENT.

HANDTEKENING/SIGNATURE

PERSOONNOMMER/PERSONNEL NUMBER 7216377 RANG/RANK CO

NAAM IN DRUKSKRIF/NAME IN PRINT

SUID-AFRIKAANSE POLISIEDIENS
P. O. BOX 5019, WALMER 6065
2019 -09- 25
WALMER
SOUTH AFRICAN POLICE SERVICE

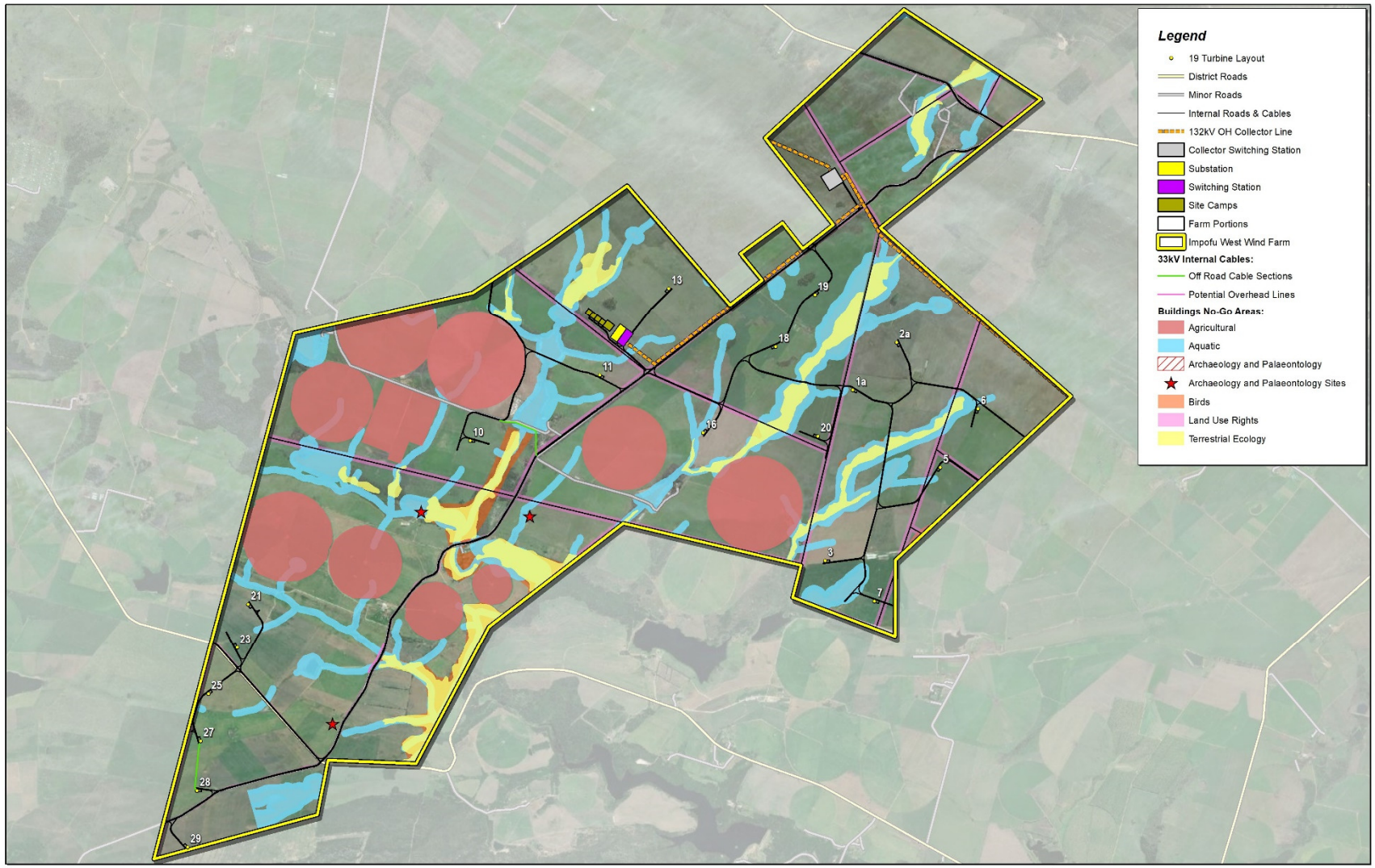
Vice-Chancellor

Registrar

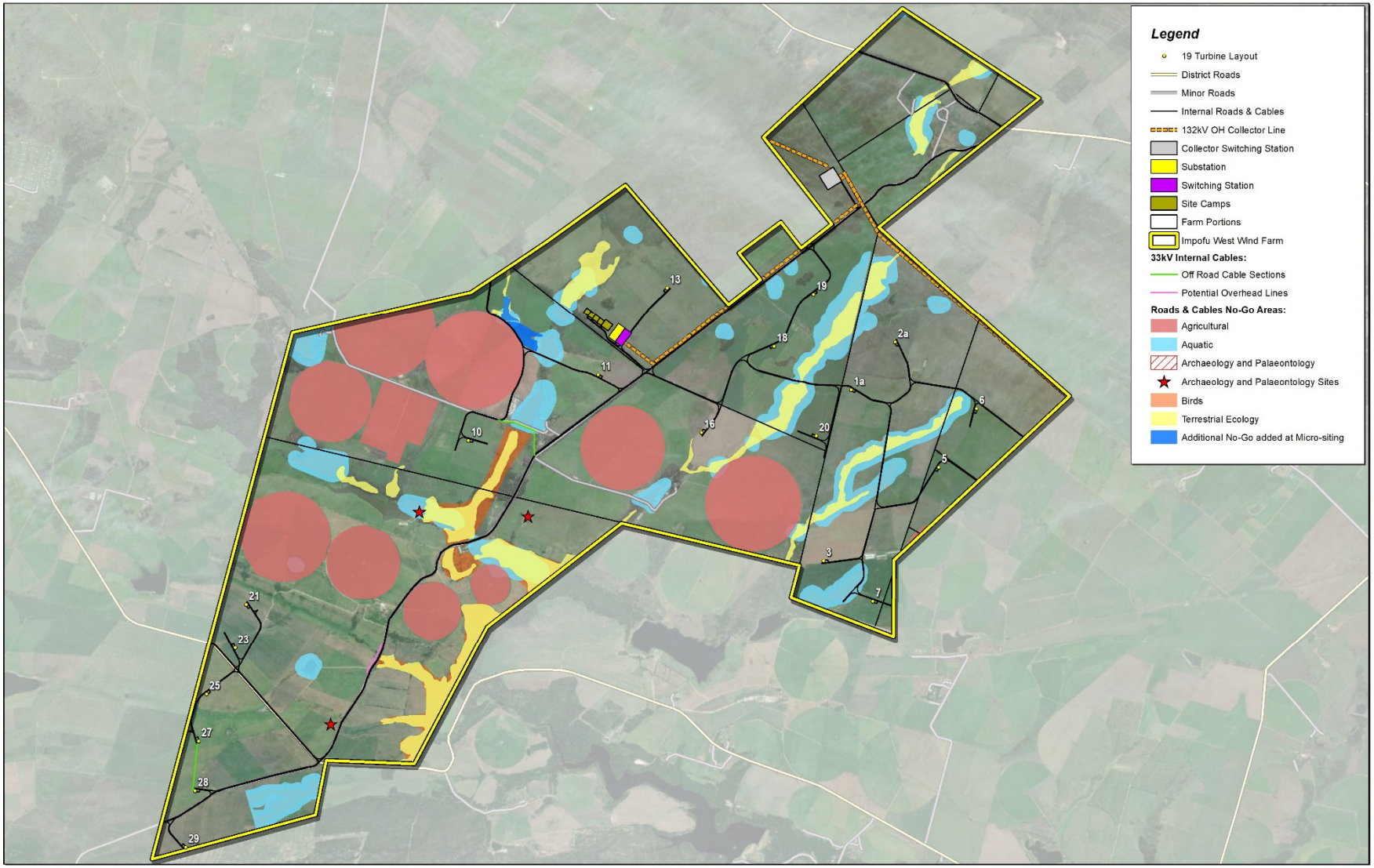
This is a duplicate qualification certificate. The original certificate was either lost or damaged.

00001774

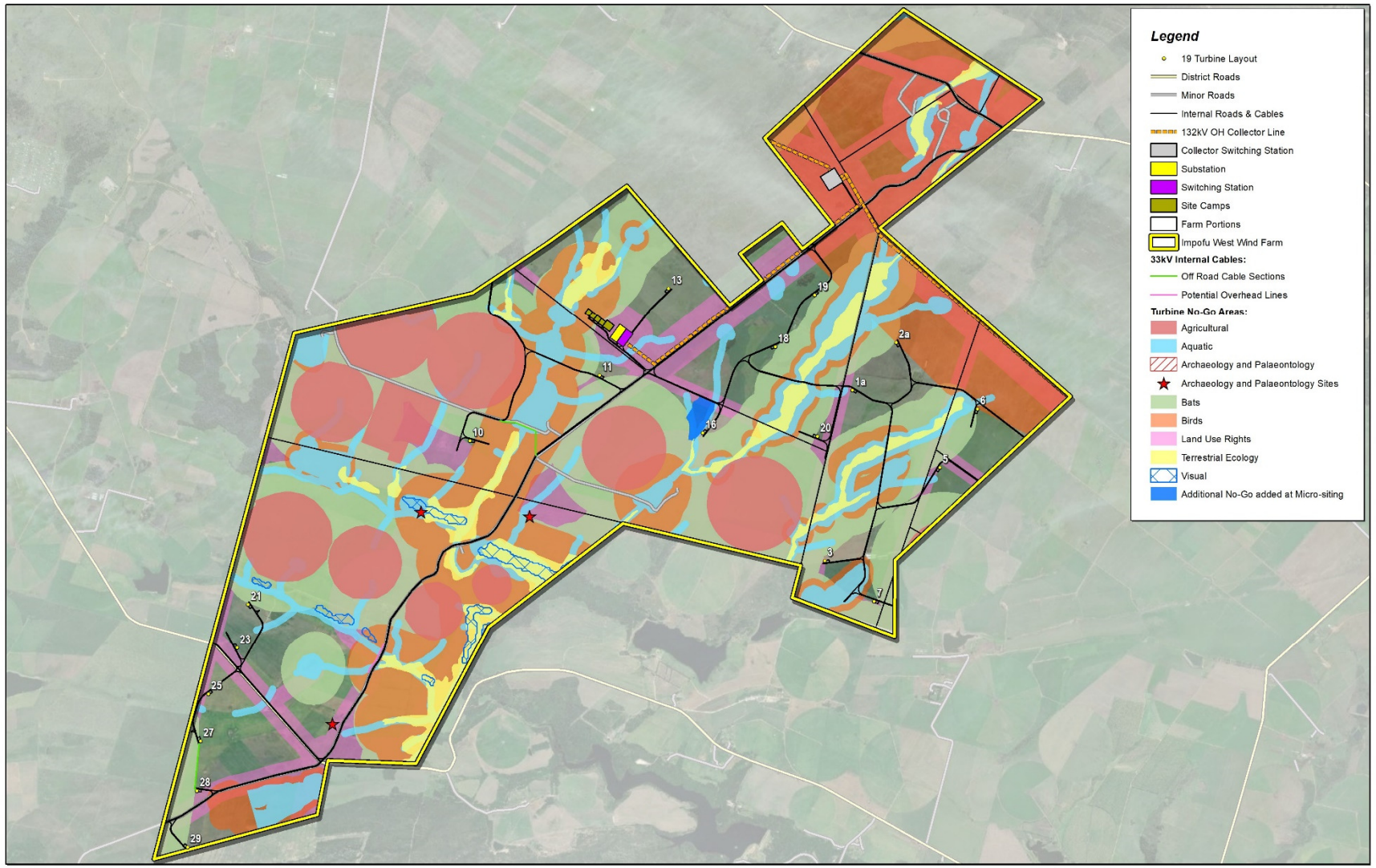
9 APPENDIX 2: ENVIRONMENTAL SENSITIVITIES AND NO-GO AREAS



No-Go Layers – Buildings.



No-Go Layers – Roads and Cables.



redcap INNOVATING ENERGY

Scale: 1:30 000

0 250 500 Meters

Coordinate System: UTM Zone 35S
Datum: D_WGS_1984

Compiled by	J. Minnie	
Approved by	J. Schmidt	

Project	Red Cap Impofu West Wind Farm		
Drawing Description	SASAL Layout for Construction		
	Drawing No.	Revision No	Date
	093	3	09/03/23

No-Go Layers – Turbines.

10 APPENDIX 3: DRAFT METHOD STATEMENTS

11 APPENDIX 4: EXAMPLE OF ENVIRONMENTAL TRAINING AND AWARENESS COURSE CONTENT

12 APPENDIX 5: UPDATED MANAGEMENT PLANS

Management Plan	Specialist/EAP/Red Cap
Alien Invasive Management Plan	Simon Todd
Plant Rescue and Protection Plan	Dr Brian Colloty
Revegetation and Habitat Rehabilitation Plan	Dr Brian Colloty and Simon Todd
Wetland Rehabilitation and Monitoring Plan	Dr Brian Colloty
Traffic Management Plan	Athol Schwarz
Avifauna Monitoring Plan	Jon Smallie
Bat Monitoring Plan	Werner Marais
Stormwater Management Plan	SMEC (with contributions from Dr Brian Colloty)
Erosion Management Plan	Dr Brian Colloty and Simon Todd
Monitoring system - detect spills or leaks of hazardous substances (transport, handling, storage)	Addressed in project method statements.
Fire Management Plan	Red Cap (and Emergency Preparedness Plan method statement)
Open Space Management Plan	Simon Todd

13 APPENDIX 6: PUBLIC PARTICIPATION REPORT