

RED ROCKET SOUTH AFRICA (PTY) LTD

# PROPOSED SOL INVICTUS PHOTOVOLTAIC SOLAR ENERGY FACILITY 132KV OVERHEAD POWERLINE

## DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

2021-11

DRAFT





PROPOSED SOL  
INVICTUS  
PHOTOVOLTAIC  
SOLAR ENERGY  
FACILITY 132KV  
OVERHEAD  
POWERLINE  
DRAFT ENVIRONMENTAL  
MANAGEMENT  
PROGRAMME

RED ROCKET SOUTH AFRICA (PTY) LTD

TYPE OF DOCUMENT (VERSION)  
DRAFT

PROJECT NO.: 41102909  
DATE: 2021-11

WSP  
THE PAVILION, 1ST FLOOR  
CNR PORTSWOOD AND BEACH ROAD, WATERFRONT  
CAPE TOWN, 8001  
SOUTH AFRICA

T: +27 21 481 8700  
F: +086 606 7121  
WSP.COM

---

# QUALITY MANAGEMENT

ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
Remarks	Draft EMPr			
Date	November 2021			
Prepared by	Jennifer Green			
Signature				
Checked by	Robert Els			
Signature				
Authorised by	Ashlea Strong			
Signature				
Project number	41102909			
Report number	01			
File reference	\\corp.pbwan.net\za\Central_Data\Projects\41100xxx\41102909 - Sol Invictus 132kV Powerline\41 ES\01-Reports\01-Draft\EMPr			

---

# SIGNATURES

PREPARED BY

---

Jennifer Green  
Environmental Consultant

REVIEWED BY

---

Robert Els  
Principal Consultant

This Environmental Management Programme Report (Report) for the Proposed Sol Invictus 132kV Overhead Powerline was prepared by WSP Group Africa Proprietary Limited (WSP) on behalf of Red Rocket South Africa Proprietary Limited (Client), as part of the application process for Environmental Authorisation.

Unless otherwise agreed by us in writing, we do not accept responsibility or legal liability to any person other than the Client for the contents of, or any omissions from, this Report.

To prepare this Report, we have reviewed only the documents and information provided to us by the Client or any third parties directed to provide information and documents to us by the Client. We have not reviewed any other documents in relation to this Report, except where otherwise indicated in the Report.

---

# PRODUCTION TEAM

## RED ROCKET SOUTH AFRICA (PTY) LTD

Head of Environmental, Social & Governance      Magdalena Logan

Environmental & Social Developer      Janine Brasington

## WSP

Project Director / EAP      Ashlea Strong

Project Manager      Robert Els

Consultant      Jennifer Green

## SUBCONSULTANTS

Aquatic Ecology Specialist      FEN Consulting : Christel Du Preez

Bat Specialist      Inkululeko Wildlife Services on behalf of the Biodiversity Company: Dr Caroline Lötter

Heritage Specialist      ACO Associates: David Halkett

Socio-economic Specialist      Tony Barbour Environmental Consulting: Tony Barbour

Soils Specialist      WSP: Karen King

Terrestrial Ecology (including Avifauna) Specialist      The Biodiversity Company: Andrew Husted

Visual Specialist      LOGIS: Lourens Du Plessis

---

# ACRONYMS

AEL	Atmospheric Emission Licence
AIS	Alien and Invasive Species
BA	Basic Assessment
BAR	Basic Assessment Report
BBBEE	Broad Based Black Economic Empowerment
BPEO	Best Practicable Environmental Option
BSP	Biodiversity Spatial Plan
CA	Competent Authority
CARA	Conservation of Agricultural Resources Act (Act 43 of 1983)
CBA	Critical Biodiversity Area
CH	Critical Habitat
CIA	Cumulative Impact Assessment
CR	Critically Endangered
CRR	Comments and Responses Report
CSP	concentrated solar power
CV	Curriculum vitae
DEA	Department of Environmental Affairs
DFFE	Department of Forestry, Fisheries and the Environment
DEA&DP	Department of Environmental Affairs and Development Planning
DMRE	Department of Mineral Resources and Energy
DoA	Department of Agriculture
DoT	Department of Transport
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EDL	episodic drainage line
EGI	Electricity Grid Infrastructure
EHS	Environmental, Health and Safety

EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EMPr	Environmental Management Programme
EN	Endangered
EP	Equator Principles
EPL	Ecosystem Protection Level
EPFI	Equator Principles Financial Institution
ERA	Electricity Regulation Act (Act 4 of 2006)
ESA	Ecological Support Area
ESA	Early Stone Age
ESMS	Environmental and Social Management System
ETS	Ecosystem Threat Status
EWT	Endangered Wildlife Trust
FI	Financial Institution
FPIC	Free, Prior, and Informed Consent
GA	General Authorisation
GBIF	Global Biodiversity Information Facility
GM	Grievance Mechanism
GG	Government Gazette
GHG	Greenhouse Gases
GIIP	Good International Industry Practice
GN	Government Notice
GNR	Government Notice Regulation
GPS	Global Positioning System
IBA	Important Bird Area
ICAO	International Civil Aviation Organisation
ICP	Informed Consultation and Participation
IDP	Integrated Development Plan
IEP	Integrated Energy Plan
IFC	International Finance Corporation
IPPPP	Independent Power Producer Procurement Programme

IRP	Integrated Resource Plan
IUCN	International Union for Conservation of Nature
LC	Least Concern
LSA	Later Stone Age
LUPA	Land Use Planning Act (Act 3 of 2014)
MF	Monitoring Forum
MP	Moderately Protected
MSA	Middle Stone Age
MSDS	Material Safety Data Sheets
NCHRA	Northern Cape Heritage Resources Authority
NDP	National Development Plan
NEMA	National Environmental Management Act (Act 107 of 1998)
NEMAQA	National Environment Management Air Quality Act (No. 39 of 2004)
NEMBA	National Environmental Management Biodiversity Act (Act 10 of 2004)
NEMPAA	National Environmental Management Protected Areas Act (Act 57 of 2003)
NEMWA	National Environmental Management Waste Act (Act 59 of 2008)
NERSA	National Energy Regulator of South Africa
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resource Act (Act 25 of 1999)
NID	Notice of Intent to Develop
NIP	National Infrastructure Plan
NP	Not Protected
NT	Near Threatened
NWA	National Water Act (Act 36 of 1998)
OEC	Obstacle Evaluation Committee
OHPL	Overhead Powerline
OHSA	Occupational Health and Safety Act (Act 85 of 1993)
ONA	Other Natural Areas
PA	Protected Area
PES	Present Ecological State
PICC	Presidential Infrastructure Coordinating Commission



POSA	Plants of South Africa
PP	Poorly Protected
PPE	Personal Protective Equipment
PPP	Public Participation Process
PS	Performance Standard
PSDF	Provincial Spatial Development Framework
PV	Photovoltaic
REDZ	Renewable Energy Development Zones
REIPPPP	Renewable Energy Independent Power Producer Procurement Programme
SAAF	South African Air Force
SA CATS	South African Civil Aviation Technical Standards
SACAA	South African Civil Aviation Authority
SAHRA	South African Heritage Resources Agency
SAIIAE	South African Inventory of Inland Aquatic Ecosystems
SANBI	South African National Biodiversity Institute
SAPAD	South Africa Protected Areas Database
SARPs	Standards and Recommended Practices
SCC	Species of Conservation Concern
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
SER	Stakeholder Engagement Report
SIA	Social Impact Assessment
SIP	Strategic Integrated Projects
SKEP	Succulent Karoo Ecosystem Programme
SO	Spatial objective
SPLUMA	Spatial Planning and Land Use Management Act (Act 16 of 2013)
STD	sexually transmitted disease
UN	United Nations
VEC	Valued Environmental and Social Components
VU	Vulnerable
WBG	World Bank Group

WEF	Wind Energy Facility
WMA	Water Management Area
WML	Waste Management Licence
WP	Well Protected
WSP	WSP Group Africa (Pty) Ltd
WUL	Water Use Licence

# TABLE OF CONTENTS

1	INTRODUCTION.....	1
1.1	Background and Terms of Reference.....	1
1.2	Details of the Applicant.....	6
1.3	Terms of Reference and Details of the EAP.....	6
1.4	Environmental Management Programme Structure.....	7
1.5	Applicable Documentation.....	8
2	GOVERNANCE FRAMEWORK.....	9
2.1	National Legal and Regulatory Framework.....	9
2.2	Provincial and Municipal Legal and Regulatory Framework.....	17
2.3	Other Guidelines and Best Practice Recommendations.....	21
3	PROJECT DESCRIPTION.....	23
3.1	Location of the Proposed Project.....	23
3.2	Project Infrastructure.....	26
3.3	Proposed Project Development Activities.....	28
3.4	Environmental Sensitivities.....	30
3.5	Need and Desirability of the Project.....	36
4	IMPACT ASSESSMENT.....	38
5	ENVIRONMENTAL MANAGEMENT OBJECTIVES.....	40
5.1	EMPr Objectives.....	40
5.2	Environmental Objectives and Targets.....	40
6	MANAGEMENT PROCEDURES AND ADMINISTRATIVE REQUIREMENTS.....	42
6.1	Roles and Responsibilities.....	42
6.2	ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE.....	43

7	ENVIRONMENTAL CONTROLS.....	44
7.1	General Control Measures.....	44
7.2	Site Specific Control Measures.....	46
8	METHOD STATEMENTS / MANAGEMENT PLANS .....	77
8.1	Waste Management .....	77
8.2	Vegetation / Alien Invasive Plant Management .	81
8.3	Plant Rescue and Protection.....	81
8.4	Re-Vegetation and Habitat Rehabilitation.....	82
8.5	Fire Management .....	82
8.6	Emergency Preparedness and Response .....	83
8.7	Stormwater Management.....	86
8.8	Covid -19 .....	86
8.9	Erosion Management.....	87
8.10	Chance Find Procedure.....	88
9	GRIEVANCE MECHANISM .....	89
9.1	Grievance Mechanism - External .....	89
9.2	GRIEVANCE MECHANISM - Internal.....	92
10	CONCLUSION .....	93

## TABLES

TABLE 1-1:	DETAILS OF THE APPLICANT ....6
TABLE 1-2:	DETAILS OF THE EAP.....6
TABLE 1-3:	LEGISLATION REQUIREMENTS AS DETAILED IN APPENDIX 4 OF GNR 326 .....7
TABLE 2-1:	APPLICABLE LEGISLATION.....9
TABLE 2-2:	APPLICABLE POLICIES..... 14
TABLE 2-3:	PROVINCIAL AND MUNICIPAL LEGISLATION AND PLANS ..... 17
TABLE 3-1:	FARM PORTIONS ON WHICH THE PROPOSED DEVELOPMENT IS LOCATED .....24
TABLE 3-2:	CO-ORDINATES OF STRUCTURES ALONG THE OHPL ROUTE (WGS84) .....25
TABLE 3-3:	SEI SUMMARY OF HABITAT TYPES DELINEATED WITHIN FIELD ASSESSMENT AREA OF PROJECT AREA .....32
TABLE 3-4:	GUIDELINES FOR INTERPRETING SITE ECOLOGICAL IMPORTANCE IN THE CONTEXT OF THE PROPOSED DEVELOPMENT ACTIVITIES.....32
TABLE 3-5:	RELATIVE SENSITIVITY OF DIFFERENT BAT HABITATS AND BUFFERS WITHIN THE OHPL CORRIDOR.....35
TABLE 4-1:	IMPACT SUMMARY .....38
TABLE 6-1:	DOCUMENTATION REPORTING AND COMPLIANCE REQUIREMENTS AS PER THE GENERIC EMPRS.....43
TABLE 7-1:	FORMAT OF A GENERAL ENVIRONMENTAL CONTROL ILLUSTRATING ASPECTS WHICH ARE PREDEFINED VERSUS THOSE WHICH STILL NEED TO BE COMPLETED BY THE CONTRACTOR .....44
TABLE 7-2:	ACTIVITIES AND MANAGEMENT MEASURES AS PER GENERIC EMPR (PART B: SECTION 1).....44
TABLE 7-3:	STRUCTURE OF EMPR.....46
TABLE 7-4:	ENVIRONMENTAL MANAGEMENT PROGRAMME..48
TABLE 8-1:	WASTE MANAGEMENT OPTIONS .....79

TABLE 8-2:	ROLES AND RESPONSIBILITIES	80
------------	----------------------------	----

---

**FIGURES**

FIGURE 1-1:	LOCATION OF THE PROPOSED SOL INVICTUS 132KV POWERLINE AND PROPOSED AGGENEIS SUBSTATION EXPANSION (SOURCE: LOGIS, 2021).....	2
FIGURE 1-2:	STRATEGIC TRANSMISSION CORRIDORS (GN 113 OF 2018) (RED STAR IS APPROXIMATE LOCATION OF SOL INVICTUS OHPL).....	3
FIGURE 1-3:	CBAS IN RELATION TO THE PROPOSED SOL INVICTUS POWERLINE AND AGGENEIS SUBSTATION (SOURCE: THE BIODIVERSITY COMPANY, 2021) .....	4
FIGURE 1-4:	THE PROJECT AREA IN RELATION TO THE KAMIESBERG BUSHMANLAND AUGRABIES NPAES (SOURCE: THE BIODIVERSITY COMPANY, 2021) .....	5
FIGURE 3-1:	THE STUDY AREA (RED POLYGON) IN RELATION TO THE NORTHERN CAPE DISTRICT AND LOCAL MUNICIPALITIES ..	23
FIGURE 3-2:	THE PROPOSED OHPL IN RELATION TO AFFECTED LAND PORTIONS.....	25
FIGURE 3-3:	CONVENTIONAL LATTICE POWERLINE TOWER COMPARED WITH A STEEL MONOPOLE STRUCTURE .....	26
FIGURE 3-4:	FARM TRACK PROVIDING ACCESS TO WITPUTS FROM THE N14 .....	27
FIGURE 3-5:	EXISTING DIRT TRACK NEAR BLACK MOUNTAIN MINE .....	27
FIGURE 3-6:	AREA EARMARKED FOR THE EXPANSION OF THE AGGENEIS SUBSTATION.....	28
FIGURE 3-7:	TERRESTRIAL BIODIVERSITY THEME SENSITIVITY, NATIONAL	

	WEB BASED ENVIRONMENTAL SCREENING TOOL.....	31
FIGURE 3-8:	TERRESTRIAL BIODIVERSITY SENSITIVITY FOR THE OHPL...	32
FIGURE 3-9:	CRYPTIC WETLANDS IDENTIFIED WITHIN THE INVESTIGATION AREA OF THE PROPOSED POWERLINE WITH THE ASSOCIATED ZONES OF REGULATION IN TERMS OF NEMA AND GN509 AS IT RELATES TO THE NWA.....	34
FIGURE 3-10:	THE EPISODIC DRAINAGE LINE ASSOCIATED WITH THE EASTERN PORTION OF THE PROPOSED POWERLINE AND INVESTIGATION AREA WITH THE ASSOCIATED ZONES OF REGULATION IN TERMS OF NEMA AND GN509 AS IT RELATES TO THE NWA.....	34
FIGURE 3-11:	BAT SENSITIVITY MAP FOR THE PROPOSED SOL INVICTUS OVERHEAD POWER LINE .....	36
FIGURE 6-1:	OUTLINE OF ROLES AND REPORTING STRUCTURE FOR THE EMPR.....	42
FIGURE 8-1:	WASTE HIERARCHY .....	78

---

## *APPENDICES*

<b>A</b>	EAP CV
<b>B</b>	EAP DECLARATION
<b>C</b>	LAYOUT MAP
<b>D</b>	POWERLINE GENERIC EMPR
<b>E</b>	SUBSTATION GENERIC EMPR

# 1 INTRODUCTION

---

## 1.1 BACKGROUND AND TERMS OF REFERENCE

Sol Invictus (Pty) Ltd (Sol Invictus), proposes to construct a 132 kV overhead powerline (OHPL), approximately 23 km in length, to connect the proposed Sol Invictus 1 to 6 Photovoltaic Solar Energy Facility (PVSEF cluster) onsite connector substation to the national grid via the existing Eskom Aggeneis substation. To facilitate the connection Sol Invictus proposes to expand the Eskom Aggeneis substation, involving the extension of the 400kV busbar and adding a 400/132kV 500MVA transformer and 132kV busbars. The Aggeneis substation and proposed OHPL are situated near Aggeneis in the Khâi-Ma and Nama Khoi Local Municipalities, within the Namakwa District Municipality of the Northern Cape Province, South Africa **Figure 1-1**.

The proposed Sol Invictus PVSEF cluster (1 to 6) was authorised under separate Environmental Authorisations (EA) and will be participating in the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) Bid Window 5 procurement round. Originally, only four (4) PVSEF projects of 150MW each (i.e. Sol Invictus 1 - 4) were planned and authorised under 4 separate EAs in September 2016 as part of the SOL Invictus PVSEF Project. In 2019, Sol Invictus 3 was split into two 75MW projects (i.e. Sol Invictus 3 and 5). Sol Invictus 4 was also split into two 75MW projects (i.e. Sol Invictus 4 and 6) in 2019. The EA reference numbers are as follows:

- 150MW Sol Invictus 1 PVSEF (EA Ref. No.: 14/12/16/3/3/2/873);
- 150MW Sol Invictus 2 PVSEF (EA Ref. No.: 14/12/16/3/3/2/869);
- 75MW Sol Invictus 3 PVSEF (EA Ref. No.: 14/12/16/3/3/2/872/1);
- 75MW Sol Invictus 4 PVSEF (EA Ref. No.: 14/12/16/3/3/2/871/1);
- 75MW Sol Invictus 5 PVSEF (EA Ref. No.: 14/12/16/3/3/2/872/1); and
- 75MW Sol Invictus 6 PVSEF (EA Ref. No.: 14/12/16/3/3/2/871/2).

The PVSEF site is located approximately 30 km southwest of Aggeneis **Figure 1-1**. The proposed Sol Invictus 132kV OHPL constitutes associated infrastructure of the Sol Invictus PVSEF.

On 16 February 2018, the Department of Environmental Affairs (DEA), now the Department of Forestry, Fisheries and the Environment (DFFE), gazetted the Renewable Energy Development Zones (REDZ) and Strategic Transmission Corridors and procedures for the assessment of large-scale wind and solar photovoltaic energy development activities (Government Notice (GN) 114) and grid infrastructure (GN 113). The proposed Sol Invictus OHPL falls within the Northern Strategic Transmission Corridor.

The powerline route traverses Critical Biodiversity Areas (CBA), according to the Namakwa Biodiversity Sector Plan (2008) and the Northern Cape CBA map (2016) (**Figure 1-3**), and falls within the Kamiesberg Bushmanland Augrabies National Protected Area Expansion Strategy (NPAES) focus area (**Figure 1-4**). As such, the proposed OHPL requires an EA in terms of the National Environmental Management Act (Act 107 of 1998), as amended (NEMA) and the associated Environmental Impact Assessment (EIA) Regulations (2014, as amended) (the EIA Regulations). WSP Group Africa (Pty) Ltd (WSP) has been appointed by Red Rocket South Africa (Pty) Ltd, on behalf of Sol Invictus, as the independent Environmental Assessment Practitioner (EAP) to facilitate the Basic Assessment (BA) process in accordance with the EIA Regulations.



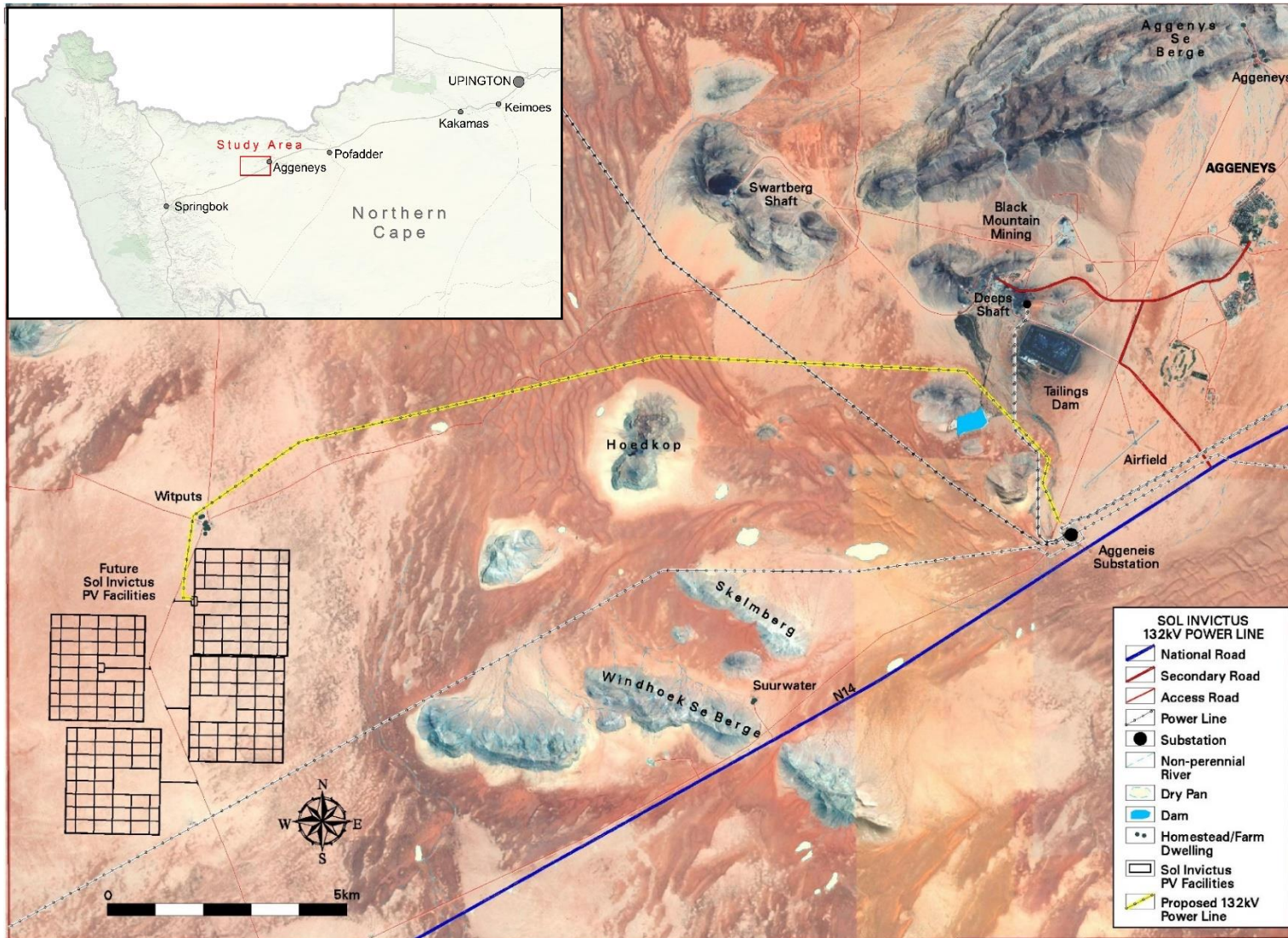


Figure 1-1: Location of the proposed Sol Invictus 132kV powerline and proposed Aggeneis substation expansion (source: LOGIS, 2021)

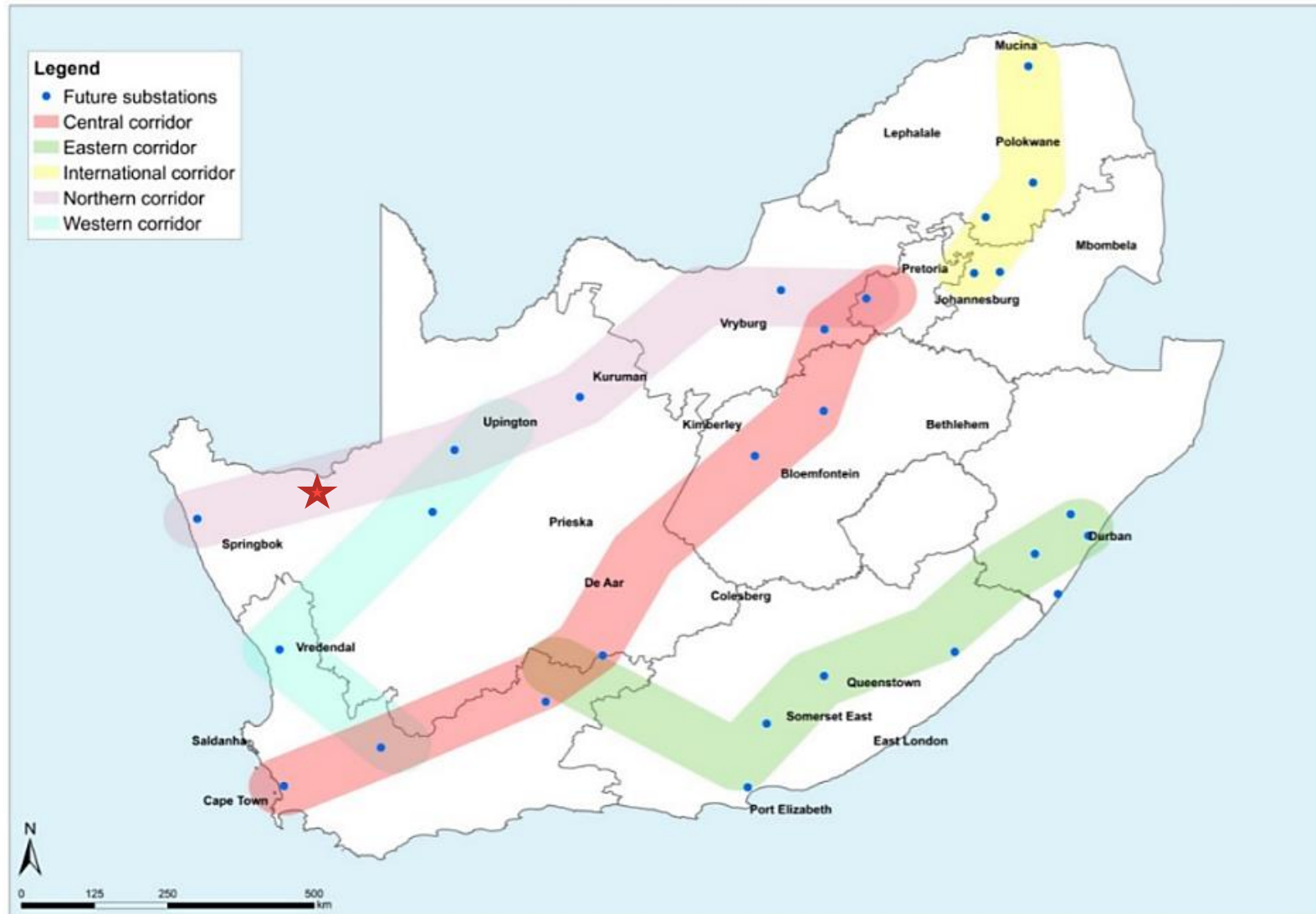
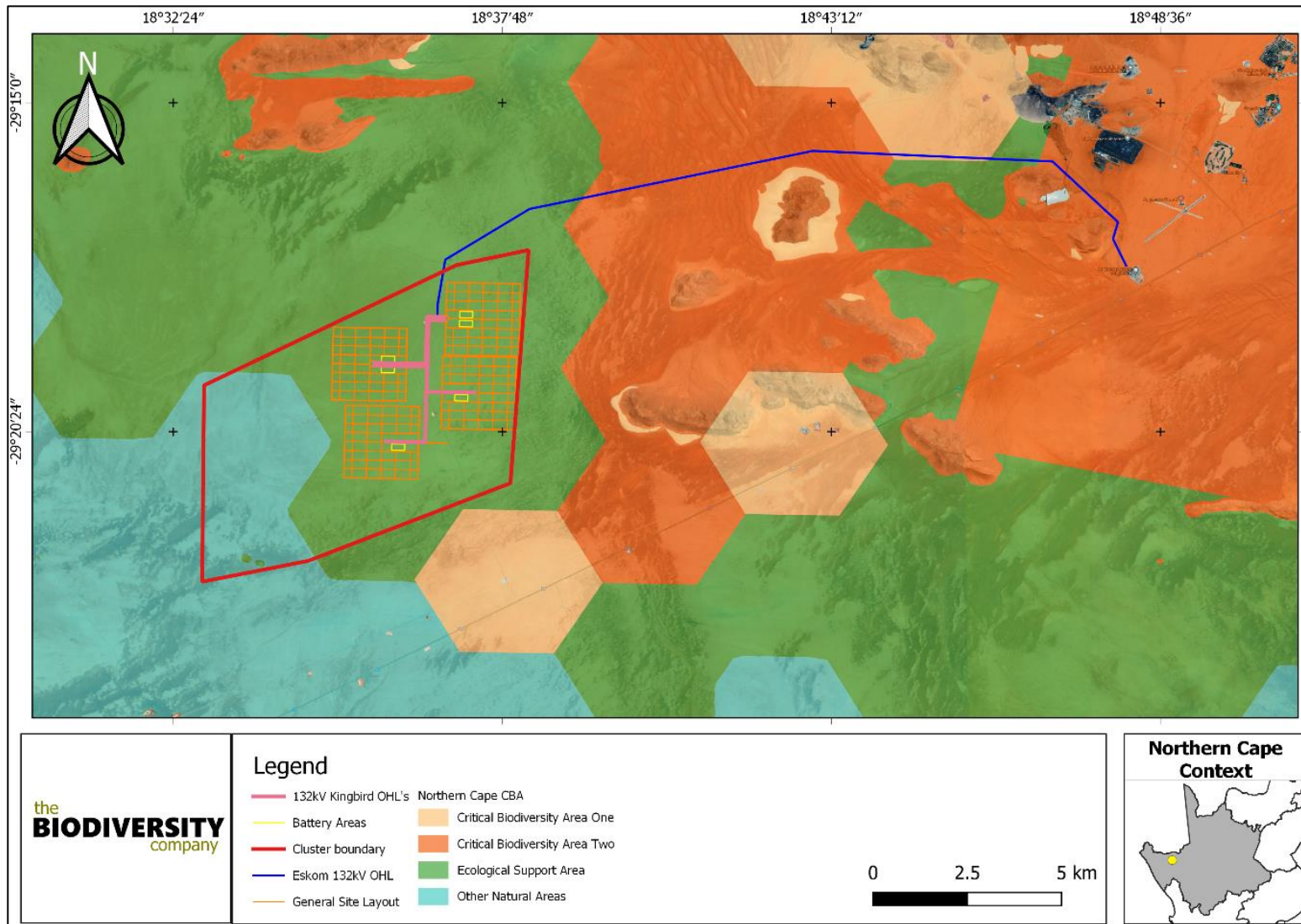
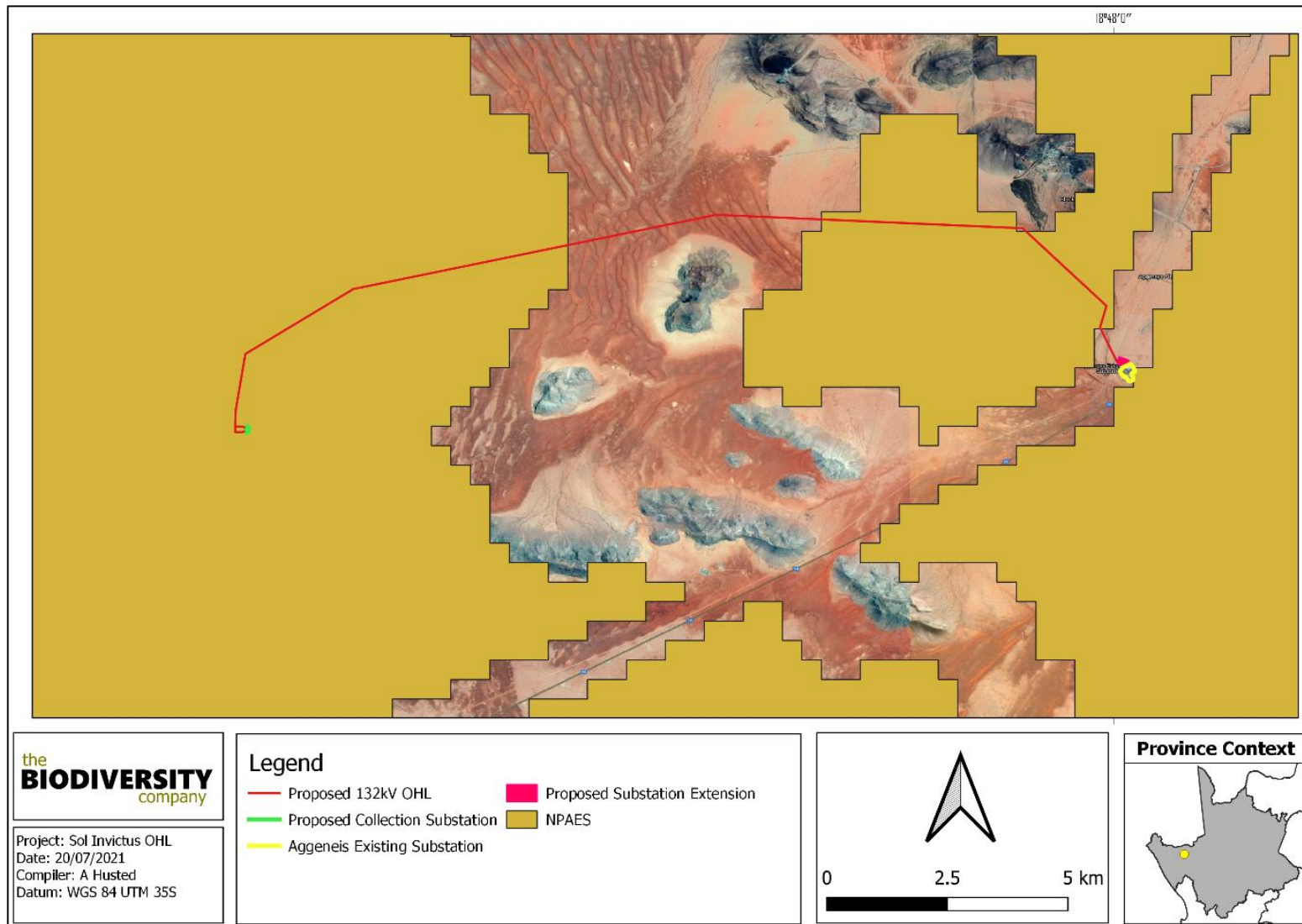


Figure 1-2: Strategic Transmission Corridors (GN 113 of 2018) (red star is approximate location of Sol Invictus OHPL)



**Figure 1-3: CBAs in relation to the proposed Sol Invictus Powerline and Aggeneis substation (source: The Biodiversity Company, 2021)**



**Figure 1-4: The project area in relation to the Kamiesberg Bushmanland Augrabies NPAES (source: The Biodiversity Company, 2021)**

---

## 1.2 DETAILS OF THE APPLICANT

Sol Invictus is the project proponent (Applicant) with regards to this application for the construction and operation of the Sol Invictus 132kV OHPL. **Table 1-1** provides the relevant details of the Applicant.

**Table 1-1: Details of the Applicant**

ASPECT	DESCRIPTION
Company Name	Sol Invictus (Pty) Ltd
Contact Person:	Matteo Brambilla
Postal Address:	Postnet Suite 150, Private Bag X3, Roggebaai, Cape Town, 8012
Telephone:	072 212 1531
Email:	m.logan@redrocket.energy

---

## 1.3 TERMS OF REFERENCE AND DETAILS OF THE EAP

WSP was appointed in the role of Independent EAP to undertake the BA processes for the proposed Project. This Environmental Management Programme (EMPr) was compiled as part of the BA process and must be read in conjunction with the Basic Assessment Report (BAR) in support of the EA application. The CV of the EAP is available in **Appendix A**. The EAP declaration of interest and undertaking is included in **Appendix B**. **Table 1-2** details the relevant contact details of the EAP.

**Table 1-2: Details of the EAP**

ASPECT	DESCRIPTION
EAP	WSP Group Africa (PTY) Ltd
Company Registration:	1999/008928/07
Contact Person:	Ashlea Strong
Physical Address:	Building C, Knightsbridge, 33 Sloane Street, Bryanston, Johannesburg
Postal Address:	P.O. Box 98867, Sloane Park 2151, Johannesburg
Telephone:	011 361 1392
Fax:	011 361 1301
Email:	<a href="mailto:Ashlea.Strong@wsp.com">Ashlea.Strong@wsp.com</a>

To adequately identify and assess potential environmental impacts, the EAP was supported by a number of specialists, the details of which are provided in the BAR.

### STATEMENT OF INDEPENDENCE

Neither WSP nor any of the authors of this Report have any material present or contingent interest in the outcome of this Report, nor do they have any business, financial, personal or other interest that could be reasonably regarded as being capable of affecting their independence. WSP has no beneficial interest in the outcome of the assessment.

## 1.4 ENVIRONMENTAL MANAGEMENT PROGRAMME STRUCTURE

**Table 1-3** cross-references the sections within the EMPr with the legislated requirements as per Appendix 4 of GNR 326.

**Table 1-3: Legislation Requirements as Detailed in Appendix 4 of GNR 326**

APPENDIX 3 LEGISLATED REQUIREMENTS AS PER THE NEMA GNR 326		REPORT SECTION
(a)	Details of	
	i) the EAP who compiled the EMPr; and	Section 1.2 <b>Appendix A</b>
	ii) the expertise of the EAP, including a Curriculum Vitae	Section 1.2 <b>Appendix A</b>
(b)	Detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Section 3
(c)	A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	Section 3 <b>Appendix C</b>
(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-	
	i) Planning and design;	Section 3
	ii) Pre-construction activities;	Section 3
	iii) Construction activities	Section 3
	iv) Rehabilitation of the environment after construction and where applicable post closure; and	Section 7
	v) Where relevant, operation activities.	
(e)	A description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);	Section 7
(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 -	
	i) Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;	Section 7
	ii) Comply with any prescribed environmental management standards or practices;	
	iii) comply with any applicable provisions of the Act regarding closure, where applicable; and	
	iv) Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable	

**APPENDIX 3 LEGISLATED REQUIREMENTS AS PER THE NEMA GNR 326****REPORT  
SECTION**

(g)	The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 6
(h)	The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 6
(i)	An indication of the persons who will be responsible for the implementation of the impact management actions;	Section 6 Section 7
(j)	The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Section 7
(k)	The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 6
(l)	A program for reporting on compliance, taking into account the requirements as prescribed by the Regulations	Section 6
(m)	An environmental awareness plan describing the manner in which-	
	i) The applicant intends to inform his or her employees of any environmental risk which may result from their work; and	Section 6
	ii) Risks must be dealt with in order to avoid pollution or the degradation of the environment; and	
(n)	any specific information that may be required by the competent authority	N/A

## 1.5 APPLICABLE DOCUMENTATION

The EMPr (this Report) is to be read in conjunction with following documentation:

- Bat Impact Assessment for the proposed Sol Invictus Overhead Power Line (July 2021);
- Freshwater Ecological Assessment as Part of the Environmental Authorisation and Water Use Licence Application Processes for the Proposed 132 kV Overhead Powerline Route as Part of the Proposed Sol Invictus Photovoltaic (Pv) Solar Power Generation Facility, Near Aggeneys, Northern Cape Province (June 2021);
- Integrated Heritage and Archaeological Impact Assessment of the Proposed Sol Invictus 132kv Powerline West of Aggeneys, Northern Cape (September 2021);
- Proposed Sol Invictus 132kV Overhead Powerline Near Aggeneys, Northern Cape Province Soil and Agricultural Potential Study (August 2021);
- The Terrestrial Ecology Baseline & Impact Assessments for the Proposed Sol Invictus Overhead Powerline Aggeneys, Northern Cape Province (August 2021);
- Proposed Grid Connection Infrastructure for The Sol Invictus Solar PV Projects Khâi-Ma And Nama Khoi Local Municipalities, Northern Cape Province Visual Impact Assessment (August 2021);
- Social Impact Assessment Sol Invictus PV Solar Grid Connection Northern Cape Province (September 2021); and
- EA (once issued by DFFE).

# 2 GOVERNANCE FRAMEWORK

## 2.1 NATIONAL LEGAL AND REGULATORY FRAMEWORK

The South African regulatory framework establishes well-defined requirements and standards for environmental and social management of industrial and civil infrastructure developments. Different authorities at both national and regional levels carry out environmental protection functions. The applicable legislation and policies are shown in **Table 2-1** and

**Table 2-2** below.

**Table 2-1: Applicable Legislation**

APPLICABLE LEGISLATION	DESCRIPTION OF LEGISLATION
<p><b>The Constitution of South Africa (No. 108 of 1996)</b></p>	<p>Section 24(b) of the Constitution provides that “everyone has the right to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation [and] promote conservation.” The Constitution cannot manage environmental resources as a stand-alone law, hence additional legislation has been promulgated in order to manage the various spheres of both the social and natural environment. Each promulgated Act and associated Regulations are designed to focus on various industries or components of the environment to ensure that the objectives of the Constitution are effectively implemented and upheld in an on-going basis throughout the country. In terms of Section 7, a positive obligation is placed on the State to give effect to the environmental rights.</p>
<p><b>National Environmental Management Act (No. 107 of 1998)</b></p>	<p>In terms of Section 24(2) of the National Environmental Management Act (No. 107 of 1998) (NEMA), the Minister may identify activities which may not commence without prior authorisation. On 7 April 2017, the Minister thus published GNR 327 (Listing Notice 1), 325 (Listing Notice 2) and 324 (Listing Notice 3) listing activities that may not commence prior to authorisation. The regulations outlining the procedures required for authorisation are published in GNR 326 EIA Regulations (2014, as amended). Listing Notice 1 and Listing Notice 3 identify activities that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 2 identifies activities that require a Scoping and EIA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity.</p> <p><b>Listed Activities 11, 12 and 19 of GNR 327 and Listed Activities 12 and 14 of GNR 324</b> are considered applicable to the Sol Invictus OHPL and therefore a BA process must be followed to obtain an EA.</p>
<p><b>Listing Notice 1: GNR 327</b></p>	<p><b>Activity 11(i):</b>  <i>The development of facilities or infrastructure for the transmission and distribution of electricity—</i>  <i>(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or</i>  <i>(ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more; excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is —</i>  <i>(a) temporarily required to allow for maintenance of existing infrastructure;</i>  <i>(b) 2 kilometres or shorter in length;</i>  <i>(c) within an existing transmission line servitude; and</i>  <i>(d) will be removed within 18 months of the commencement of development.</i></p> <p><b>Applicability:</b>                      The project involves the construction of a 132kV powerline to evacuate electricity from the Sol Invictus PVSEF cluster.</p>



**APPLICABLE  
LEGISLATION**

**DESCRIPTION OF LEGISLATION**

	<p><b>Activity 12 (ii), (a) and (c):</b>  <i>The development of—</i>  <i>(ii) infrastructure or structures with a physical footprint of 100 square metres or more;</i>  <i>where such development occurs—</i>  <i>(a) within a watercourse; or</i>  <i>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse</i></p> <p><b>Applicability:</b>  The OHPL will be constructed within 32 m of a watercourse. The footprint of the powerline and associated servitude is greater than 100m<sup>2</sup>.</p>
	<p><b>Activity 19:</b>  <i>The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse</i></p> <p><b>Applicability:</b>  The OHPL will be constructed within 32 m of a watercourse and depending on the footprint of the infrastructure, this activity may be triggered.</p>
<p><b>Listing Notice 3: GNR 324</b></p>	<p><b>Activity 12 (i) (i) and (ii):</b>  <i>The clearance of an area of 300 square metres or more of indigenous vegetation. Except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</i></p> <p><b><u>Northern Cape</u></b></p> <ul style="list-style-type: none"> <li><i>i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</i></li> <li><i>ii. Within critical biodiversity areas identified in bioregional plans;</i></li> </ul> <p><b>Applicability:</b>  The OHPL route traverses a CBA (according to the Namakwa Biodiversity Sector Plan and the Northern Cape CBA map) and falls within the Kamiesberg Bushmanland Augrabies NPAES focus area.  The construction of the OHPL tower structures is likely to require the clearance of indigenous vegetation where the combined area to be cleared will exceed 300 m<sup>2</sup>.</p> <p><b>Activity 14 (ii) (a) and (c) (i) (i) (bb) and (ff):</b>  <i>The development of—</i>  <i>(ii) infrastructure or structures with a physical footprint of 10 square metres or more;</i>  <i>where such development occurs—</i>  <i>(a) within a watercourse; or</i>  <i>(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;</i></p> <p><b><u>Northern Cape</u></b></p> <ul style="list-style-type: none"> <li><i>i. Outside urban areas;</i></li> <li><i>(bb) National Protected Area Expansion Strategy Focus areas;</i></li> <li><i>(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.</i></li> </ul> <p><b>Applicability:</b></p>

**APPLICABLE  
LEGISLATION**

**DESCRIPTION OF LEGISLATION**

	<p>The powerline route traverses a CBA (according to the Namakwa Biodiversity Sector Plan and the Northern Cape CBA map) and falls within the Kamiesberg Bushmanland Augabies NPAES focus area.</p> <p>The powerline will be constructed within 32 m of a watercourse and depending on the footprint of the infrastructure, this activity may be triggered.</p>
<p><b>National Environmental Management Biodiversity Act (No. 10 of 2004)</b></p>	<p>The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) was promulgated in June 2004, within the framework of NEMA, to provide for the management and conservation of national biodiversity. NEMBA's primary aims are for the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources, and the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources. In addition, NEMBA provides for the establishment and functions of the South African National Biodiversity Institute (SANBI). SANBI was established primarily to report on the status of the country's biodiversity and conservation status of all listed threatened or protected species and ecosystems.</p> <p>The Threatened or Protected Species (TOPS) Regulations were promulgated on 1 June 2007 in terms of Section 91(1)(g), (h) and (i) of NEMBA. TOPS aims to further regulate the permit system set out in NEMBA, provide for the prohibition and regulation of restricted activities, and provide for the protection of wild populations of listed and threatened or protected species. The minister published amendments to the TOPS on 29 April 2014, which was updated to include for the regulations and registration of a number of activities for the capture, farming and handling of threatened or protected species (e.g. captive breeding facilities, sanctuaries, game farms and nurseries).</p>
<p><b>National Environmental Management Protected Areas Act (No. 57 of 2003)</b></p>	<p>The purpose of the National Environmental Management Protected Areas Act (No. 57 of 2003) (NEMPAA) is to, inter alia, provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes. To this end, it provides for the declaration and management of various types of protected areas.</p> <p>Section 50(5) of NEMPAA states that "<i>no development, construction or farming may be permitted in a nature reserve or world heritage site without the prior written approval of the management authority.</i>" The Sol Invictus OHPL route does not fall within any proclaimed protected areas as per NEMPAA.</p>
<p><b>National Water Act (No. 36 of 1998)</b></p>	<p>The purpose of the National Water Act (No. 36 of 1998) (NWA) is to provide a framework for the equitable allocation and sustainable management of water resources. Both surface and groundwater sources are national resources, which cannot be owned by any individual, and rights to which are not automatically coupled to land rights, but for which prospective users must apply for authorisation and register as users. The NWA also provides for measures to prevent, control and remedy the pollution of surface and groundwater sources.</p> <p>The Act aims to regulate the use of water and activities (as defined in Part 4, Section 21), which may impact on water resources through the categorisation of 'listed water uses.' Defined water use activities require the approval of DWS in the form of a General Authorisation (GA) or Water Use Licence (WUL) authorisation.</p> <p>Quantities of water required for the construction of the OHPL are unknown at this stage. However, based on the proposed installation methodology (i.e. standard OHPL installation methods), limited volumes of water will be required for installation of the OHPL. As such, the main demand for water will be for dust suppression (non-potable), to service the site camp (potable) and for mixing concrete foundation / capping should it be required. The contractor appointed for the construction of the OHPL will be required to arrange a suitable water supply. Should groundwater be abstracted as part of project activities, a WUL/GA would potentially be required.</p>
<p><b>National Heritage Resources Act (No. 25 of 1999)</b></p>	<p>The National Heritage Resource Act (Act No. 25 of 1999) (NHRA) serves to protect national and provincial heritage resources across South Africa. The NHRA provides for the protection of all archaeological and palaeontological sites, the conservation and care of cemeteries and graves by the South African Heritage Resource Agency (SAHRA), and lists activities which require any person who intends to undertake to notify the responsible</p>

**APPLICABLE  
LEGISLATION**

**DESCRIPTION OF LEGISLATION**

	<p>heritage resources agency and furnish details regarding the location, nature, and extent of the proposed development.</p> <p>In terms of the Section 38 of NHRA, any person who intends to undertake a linear development including, inter alia, a powerline, exceeding 300m in length or a development that exceeds 5000m<sup>2</sup> must notify the heritage resources authority and undertake the necessary assessment requested by that authority.</p> <p>As the proposed Sol Invictus OHPL is approximately 23km in length, a Notice of Intent to Develop (NID) is required.</p> <p>SAHRA was notified of the proposed project on 05 July 2021 by way of registering a description of the project via the SAHRIS online system. An interim comment was received from the SAHRA case officer on 04 August 2021 requesting a Heritage Impact Assessment (HIA) to be undertaken.</p> <p>Construction activities should be conducted carefully, and all activities ceased if any archaeological, cultural and heritage resources are discovered. SAHRA should be notified and investigation conducted in accordance with the Chance Find Procedure to be established for the Project before any activities can commence.</p>
<p><b>National Environmental Management Waste Act (No. 59 of 2008)</b></p>	<p>The National Environmental Management Waste Act (No. 59 of 2008) (NEMWA) is subsidiary and supporting legislation to NEMA. NEMA is a framework legislation that provides the basis for the regulation of waste management. NEMA also contains policy elements and gives a mandate for further regulations to be promulgated.</p> <p>It is anticipated that activities on the site will not trigger the NEMWA list of waste management activities that require a Waste Management Licence (WML). However, waste handling, storage and disposal during the construction and operational phase of the project must be undertaken in accordance with the requirements of this Act and the Best Practicable Environmental Option (BPEO) which will be incorporated into the site-specific Environmental Management Programme (EMPr).</p>
<p><b>National Environment Management Air Quality Act (No. 39 of 2004)</b></p>	<p>The National Environment Management: Air Quality Act (No. 39 of 2004) (NEMAQA) came into effect on 11 September 2005. Persons undertaking such activities listed under GNR 893, as amended, are required to possess an Atmospheric Emissions License (AEL).</p> <p>The National Dust Control Regulations (GNR 827) were promulgated in terms of Section 32 of NEMAQA, which aim at prescribing general measures for the control of dust in both residential and non-residential areas.</p> <p>Although no AEL will be required for the construction and operation of the powerline, the dust control regulations will be applicable during construction.</p>
<p><b>Conservation of Agricultural Resources Act (No. 43 of 1983)</b></p>	<p>The Conservation of Agricultural Resources Act (Act 43 of 1983) (CARA) provides for the implementation of control measures for soil conservation works as well as alien and invasive plant species in and outside of urban areas.</p> <p>In terms of the amendments to the regulations under the CARA, landowners are legally responsible for the control of alien species on their properties. Various Acts administered by the DFFE and the DWS, as well as other laws (including local by-laws), spell out the fines, terms of imprisonment and other penalties for contravening the law. Although no fines have yet been placed against landowners who do not remove invasive species, the authorities may clear their land of invasive alien plants and other alien species entirely at the landowners' cost and risk.</p> <p>The CARA Regulations with regards to alien and invasive species have been superseded by NEMBA Alien and Invasive Species (AIS) Regulations which became law on 1 October 2014.</p>
<p><b>Mineral and Petroleum Resources Development Act (No. 28 of 2002)</b></p>	<p>The aim of the Mineral and Petroleum Resources Development Act (No. 28 of 2002) (MPRDA) is to make provision for equitable access to and sustainable development of the nation's mineral and petroleum resources.</p> <p>Section 53(1) of the MPRDA provides that any person who intends to use the surface of any land in any way that may be contrary to any object of the MPRDA, or which is likely to impede any such object, must apply to the Minister of Mineral Resources (the Minister) for approval. Section 53 of the MPRDA provides a mechanism for ensuring that, inter alia,</p>

**APPLICABLE  
LEGISLATION**

**DESCRIPTION OF LEGISLATION**

	<p>the mining of mineral resources is not detrimentally affected through the use of the surface of land and which may, for example, result in the sterilisation of a mineral resource.</p> <p>A Section 53 approval is necessary due to the fact that the powerline traverses a portion of the mining rights area of the Vedanta Black Mountain Mine.</p> <p>The Amendment Regulations (GNR 420 of 27 March 2020) introduced a template for section 53 applications (Form Z) and the specific information that applicants will need to provide as part of a section 53 application.</p>
<p><b>Civil Aviation Act (No. 13 of 2009)</b></p>	<p>Civil aviation in South Africa is governed by the Civil Aviation Act (Act 13 of 2009). This Act provides for the establishment of a stand-alone authority mandated with controlling, promoting, regulating, supporting, developing, enforcing and continuously improving levels of safety and security throughout the civil aviation industry. This mandate is fulfilled by SACAA as an agency of the Department of Transport (DoT). SACAA achieves the objectives set out in the Act by complying with the Standards and Recommended Practices (SARPs) of the International Civil Aviation Organisation (ICAO), while considering the local context when issuing the South African Civil Aviation Regulations. All proposed developments or activities in South Africa that potentially could affect civil aviation must thus be assessed by SACAA in terms of the Civil Aviation Regulations and South African Civil Aviation Technical Standards (SA CATS) to ensure aviation safety. Potential impacts from the power lines must be reviewed by these authorities.</p> <p>The Obstacle Evaluation Committee (OEC) which consists of members from both the SACAA and South African Air Force (SAAF) fulfils the role of streamlining and coordinating the assessment and approvals of proposed developments or activities that have the potential to affect civil aviation, military aviation, or military areas of interest.</p> <p>A portion of the powerline falls within 8km of the Aggeneys Airport. An Application for the Approval of Obstacles will therefore be submitted to SACAA. SACAA has also been included as an I&amp;AP for the public participation process.</p>
<p><b>Occupational Health and Safety Act (No. 85 of 1993)</b></p>	<p>The National Occupational Health and Safety Act (No. 85 of 1993) (OHS Act) and the relevant regulations under the Act are applicable to the proposed project. This includes the Construction Regulations promulgated in 2014 under Section 43 of the Act. Adherence to South Africa's OHS Act and its relevant Regulations is essential.</p>
<p><b>National Energy Act (No. 34 of 2008)</b></p>	<p>The National Energy Act aims to ensure that diverse energy resources are available, in sustainable quantities, and at affordable prices, to the South African economy in support of economic growth and poverty alleviation, taking into account environmental management requirements and interactions amongst economic sectors.</p> <p>The main objectives of the Act are to:</p> <ul style="list-style-type: none"> <li>— Ensure uninterrupted supply of energy to the Republic;</li> <li>— Promote diversity of supply of energy and its sources;</li> <li>— Facilitate effective management of energy demand and its conservation;</li> <li>— Promote energy research;</li> <li>— Promote appropriate standards and specifications for the equipment, systems and processes used for producing, supplying and consuming energy;</li> <li>— Ensure collection of data and information relating to energy supply, transportation and demand;</li> <li>— Provide for optimal supply, transformation, transportation, storage and demand of energy that are planned, organised and implemented in accordance with a balanced consideration of security of supply, economics, consumer protection and a sustainable development;</li> <li>— Provide for certain safety, health and environment matters that pertain to energy;</li> <li>— Facilitate energy access for improvement of the quality of life of the people of Republic;</li> <li>— Commercialise energy-related technologies;</li> <li>— Ensure effective planning for energy supply, transportation, and consumption; and</li> <li>— Contribute to sustainable development of South Africa's economy.</li> </ul>

**APPLICABLE LEGISLATION**

**DESCRIPTION OF LEGISLATION**

	<p>In terms of the act, the Minister of Energy is mandated to develop and, on an annual basis, review and publish the Integrated Energy Plan (IEP) in the Government Gazette. The IEP analyses current energy consumption trends within different sectors of the economy (i.e. agriculture, commerce, industry, residential and transport) and uses this to project future energy requirements, based on different scenarios. The IEP and the Integrated Resource Plan are intended to be updated periodically to remain relevant. The framework is intended to create a balance between energy demand and resource availability so as to provide low-cost electricity for social and economic development, while taking into account health, safety and environmental parameters.</p>
<p><b>Electricity Regulation Act (No. 4 of 2006)</b></p>	<p>The Electricity Regulation Act (No. 4 of 2006) (ERA) aims to:</p> <ul style="list-style-type: none"> <li>– Achieve the efficient, effective, sustainable and orderly development and operation of electricity supply infrastructure in South Africa;</li> <li>– Ensure that the interests and needs of present and future electricity customers and end users are safeguarded and met, having regard to the governance, efficiency, effectiveness and long-term sustainability of the electricity supply industry within the broader context of economic energy regulation in the Republic;</li> <li>– Facilitate investment in the electricity supply industry;</li> <li>– Facilitate universal access to electricity;</li> <li>– Promote the use of diverse energy sources and energy efficiency;</li> <li>– Promote competitiveness and customer and end user choice; and</li> <li>– Facilitate a fair balance between the interests of customers and end users, licensees, investors in the electricity supply industry and the public.</li> </ul> <p>The Act establishes a National Energy Regulator as the custodian and enforcer of the National Electricity Regulatory Framework. The Act also provides for licenses and registration as the manner in which generation, transmission, distribution, trading and the import and export of electricity are regulated.</p>

**Table 2-2: Applicable Policies**

**APPLICABLE POLICY**

**DESCRIPTION OF POLICY**

<p><b>National Development Plan</b></p>	<p>The National Development Plan (NDP) aims to eliminate poverty and reduce inequality by 2030. The main objectives to achieve this aim are categorised as follows:</p> <ul style="list-style-type: none"> <li>– Economy and Employment</li> <li>– Economic infrastructure</li> <li>– Environmental sustainability and resilience</li> <li>– Inclusive rural economy</li> <li>– South Africa in the region and the world</li> <li>– Transforming Human Settlements</li> <li>– Improving education, training and innovation</li> <li>– Health care for all</li> <li>– Social protection</li> <li>– Building Safer Communities</li> <li>– Building a capable and developmental state</li> <li>– Fighting corruption</li> <li>– Nation building and social cohesion</li> </ul> <p>Under “<i>Economic Infrastructure</i>”, the NDP identifies “<i>improving infrastructure</i>” as an imperative for South Africa in the coming decade. It recognises that “<i>infrastructure is not just essential for faster economic growth and higher employment. It also promotes inclusive growth, providing citizens with the means to improve their own lives and boost their incomes. Infrastructure is essential to development.</i>” In terms of electrical infrastructure, the NDP envisions that “<i>the proportion of people with access to the electricity grid should rise to at</i></p>
---	--

**APPLICABLE POLICY****DESCRIPTION OF POLICY**

	<p><i>least 90 percent by 2030.”</i> The NDP further refers to the need to produce sufficient energy to support industry at competitive prices and ensure access for poor households, while reducing carbon emissions per unit of power by about one-third.</p> <p>In this regard, South Africa must invest in a strong network of economic infrastructure designed to support the country's medium- and long-term economic and social objectives. The plan envisages that, by 2030, South Africa will have an energy sector that promotes:</p> <ul style="list-style-type: none"> <li>— Economic growth and development through adequate investment in energy infrastructure. The sector should provide reliable and efficient energy service at competitive rates, while supporting economic growth through job creation.</li> <li>— Environmental sustainability through efforts to reduce pollution and mitigate the effects of climate change. More specifically, South Africa should have adequate supply security in electricity and in liquid fuels, such that economic activity, transport, and welfare are not disrupted.</li> </ul> <p>Chapter 3, Economy and Employment, identifies some of the structural challenges specific to South Africa, including an energy constraint that will act as a cap on growth and on options for industrialisation. The NDP notes that from an environmental perspective South Africa faces several related challenges. The reduction of greenhouse gas emissions and shift to a green low-carbon economy, is one of these challenges.</p> <p>In terms of implementation, the NDP identifies three phases. The first two are of specific relevance to the proposed project. The first phase (2012–2017) notes that ensuring the supply of energy and water is reliable and sufficient for a growing economy. The second phase (2018–2023) involves building on the first phase to lay the foundations for more intensive improvements in productivity. The provision of affordable and reliable energy is a key requirement for this to take place.</p> <p>The plan sets out steps that aim to ensure that, in 20 years, South Africa's energy system looks very different to the current situation. In this regard, coal will contribute proportionately less to primary-energy needs, while gas and renewable energy resources, will play a much larger role.</p>
<p><b>Integrated Resource Plan 2010 – 2030</b></p>	<p>The integrated resource plan (IRP) is an electricity capacity plan which aims to provide an indication of the country's electricity demand, how this demand will be supplied and what it will cost. On 6 May 2011, the then Department of Energy (DoE) released the Integrated Resource Plan 2010-2030 (IRP 2010) in respect of South Africa's forecast energy demand for the 20-year period from 2010 to 2030. The promulgated IRP 2010–2030 identified the preferred generation technology required to meet expected demand growth up to 2030. It incorporated government objectives such as affordable electricity, reduced greenhouse gas (GHG) emissions, reduced water consumption, diversified electricity generation sources, localisation and regional development.</p> <p>The IRP recognises that Solar photovoltaic (PV), wind and concentrated solar power (CSP) with storage present an opportunity to diversify the electricity mix, to produce distributed generation and to provide off-grid electricity. Renewable technologies also present huge potential for the creation of new industries, job creation and localisation across the value chain.</p>
<p><b>New Growth Path</b></p>	<p>Government released the New Economic Growth Path Framework on 23 November 2010. The aim of the framework is to enhance growth, employment creation and equity. The policy's principal target is to create five million jobs over the next 10 years and reflects government's commitment to prioritising employment creation in all economic policies. The framework identifies strategies that will enable South Africa to grow in a more equitable and inclusive manner while attaining South Africa's developmental agenda. Central to the New Growth Path is a massive investment in infrastructure as a critical driver of jobs across the economy. In this regard the framework identifies investments in five key areas namely: energy, transport, communication, water and housing.</p>
<p><b>National Infrastructure Plan</b></p>	<p>The South African Government adopted a National Infrastructure Plan (NIP) in 2012. The NIP aims to transform the South African economic landscape while simultaneously creating significant numbers of new jobs and strengthening the delivery of basic services. It outlines the challenges and enablers which needs to be addressed in the building and developing of</p>

**APPLICABLE POLICY**

**DESCRIPTION OF POLICY**

	<p>infrastructure. The Presidential Infrastructure Coordinating Commission (PICC) was established by the Cabinet to integrate and coordinate the long-term infrastructure build.</p>
<p><b>Strategic Integrated Projects</b></p>	<p>As part of the NIP and in terms of Section 8(1)(a) read with Section 7(1) of the Infrastructure Development Act, as amended (Act 23 of 2014), large-scale infrastructure projects, known as Strategic Integrated Projects (SIPs), have been identified across all nine provinces. Eighteen (18) SIPs have been prioritised as part of the NIP. SIPs cover catalytic projects that can fast-track development and growth. Work is being aligned with key cross-cutting areas: human settlement planning and skills development. The SIPs comprise:</p> <ul style="list-style-type: none"> <li>— Five Geographically focussed SIPs (SIP 1 to 5);</li> <li>— Three Spatial SIPs (SIP 6, 7 and 11);</li> <li>— Three Energy SIPs (SIP 8 to 10);</li> <li>— Three Social Infrastructure SIPs (SIP 12 to 14);</li> <li>— Two Knowledge SIPs (SIP 15 and 16);</li> <li>— One Regional Integration SIP (SIP 17); and</li> <li>— One Water and Sanitation SIP (SIP 18).</li> </ul> <p><b>SIP 10: Electricity Transmission and Distribution for All</b> aims to “<i>expand the transmission and distribution network to address historical imbalances, provide access to electricity for all and support economic development</i>” in South Africa. SIP 10 recognises that a reliable transmission network with adequate capacity to meet customer needs is a fundamental condition for the provision of a reliable electricity supply in South Africa. To remain reliable, the transmission system requires not only maintenance, but must also be developed and expanded to meet changing electricity demand and energy generation requirements. A reliable transmission network and an effective process for enabling network expansion, is therefore critical to the realisation of development plans and services, including job creation, the provision of quality education and health care, and the upliftment of previously disadvantaged communities.</p> <p>The Strategic Environmental Assessment (SEA) for Electricity Grid Infrastructure (EGI) in South Africa (CSIR, 2016) identified five Strategic Transmission Corridors that are of strategic importance for the rollout of the supporting large-scale electricity transmission and distribution infrastructure in terms of SIP 10. The EGI SEA identified the optimal location for strategic corridors where transmission infrastructure expansion is needed to enable the regionalised balancing of future demand and supply requirements, whilst minimising negative impacts to the environment.</p> <p>GN 113 of 16 February 2018 approved the Strategic Transmission Corridors, which support areas where long-term electricity grid infrastructure will be developed and where an integrated decision-making process for applications for EA in terms of NEMA will be followed. Applications for EA for large scale electricity transmission and distribution facilities, when such facilities trigger Activity 9 of Listing Notice 2 of the EIA Regulations (2014, as amended) and any other listed activities necessary for the realisation of such facilities, and where the greater part of the proposed facility is to occur in one or more such Strategic Transmission Corridors, must follow a BA procedure (and not a full S&amp;EIA). The timeframe for decision-making is 57 days. Routes that have been pre-negotiated with landowners must be submitted as part of the application for an EA.</p> <p>The proposed Sol Invictus 132kV OHPL falls within the Northern Strategic Transmission Corridor of the promulgated Strategic Transmission Corridors per GN 113 and will therefore be subject to the shorter decision-making timeframes.</p>
<p><b>National Protected Area Expansion Strategy, 2010</b></p>	<p>The National Protected Area Expansion Strategy 2010 (NPAES) areas were identified through a systematic biodiversity planning process. They present the best opportunities for meeting the ecosystem-specific protected area targets set in the NPAES and were designed with strong emphasis on climate change resilience and requirements for protecting freshwater ecosystems. These areas should not be seen as future boundaries of protected areas, as in many cases only a portion of a particular focus area would be required to meet the protected area targets set in the NPAES. They are also not a replacement for fine scale planning which may identify a range of different priority sites based on local requirements, constraints and opportunities (NPAES, 2010). The OHPL falls within the Kamiesberg Bushmanland Augrabies NPAES focus area (<b>Figure 1-4</b>).</p>

**APPLICABLE POLICY****DESCRIPTION OF POLICY**

	The Kamiesberg Bushmanland Augrabies focus area, in the Northern Cape, represents the largest remaining natural area for the expansion of the protected area network. It provides an opportunity to protect 22 Desert and Succulent Karoo vegetation types, mostly completely unprotected, several river types that are still intact but not protected, and important ecological gradients and centres of endemism.
--	---

## 2.2 PROVINCIAL AND MUNICIPAL LEGAL AND REGULATORY FRAMEWORK

**Table 2-3: Provincial and Municipal Legislation and Plans**

**APPLICABLE****LEGISLATION / PLAN****DESCRIPTION OF LEGISLATION / PLAN**

<b>Northern Cape Nature Conservation Act (Act No. 9 of 2009)</b>	<p>The purpose of the act is to provide for the sustainable utilisation of wild animals, aquatic biota and plants; to provide for the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora; to provide for offences and penalties for contravention of the Act; to provide for the appointment of nature conservators to implement the provisions of the Act and to provide for the issuing of permits and other authorisations.</p> <p>Schedule 1 and 2 of the Act give extensive lists of specially protected and protected fauna and flora species. Refer to <b>Section 6.1.9</b> of this report for further details on flora species present on site.</p>
<b>Northern Cape CBA Map (2016)</b>	<p>The Northern Cape CBA Map identifies biodiversity priority areas, CBAs and Ecological Support Areas (ESAs), which, together with Protected Areas, are important for the persistence of a viable representative sample of all ecosystem types and species, as well as the long-term ecological functioning of the landscape as a whole.</p> <p>The Northern Cape Critical Biodiversity Area (CBA) Map updates, revises and replaces all older systematic biodiversity plans and associated products for the province. These include the:</p> <ul style="list-style-type: none"> <li>— Namakwa District Biodiversity Sector Plan;</li> <li>— Cape Fine-Scale Plan (only the extent of the areas in the Northern Cape i.e. Bokkeveld and Nieuwoudtville); and</li> <li>— Richtersveld Municipality Biodiversity Assessment.</li> </ul> <p>As the proposed Sol Invictus OHPL traverses a CBA, a biodiversity impact assessment has been undertaken as part of the BA Process.</p>
<b>Namakwa Biodiversity Sector Plan</b>	<p>The Northern Cape Department of Environment and Nature Conservation published the Namakwa Biodiversity Sector Plan in 2008. The purpose of the plan is to ensure that biodiversity information can be accessed and utilized by local municipalities within the Namakwa District Municipality (NDM) to inform land use planning and development as well as decision making processes within the NDM. Furthermore, it is intended to help guide land use planning, environmental assessments and authorisations and natural resource management in order to promote development that occurs in a sustainable manner.</p> <p>The plan includes a map of CBAs for the Namakwa District. The CBA map indicates the most efficient selection and classification of land portions requiring safeguarding to meet national biodiversity objectives. As the proposed Sol Invictus OHPL traverses a CBA, a biodiversity impact assessment has been undertaken as part of the BA Process.</p>
<b>Northern Cape Provincial Growth and Development Strategy (NCPGDS)</b>	<p>The NCPGDS identifies poverty reduction as the most significant challenge facing the government and its partners. All other societal challenges that the province faces emanate predominantly from the effects of poverty. The NCPGDS notes that the only effective way to reduce poverty is through long-term sustainable economic growth and development. The sectors where economic growth and development can be promoted include:</p>



**APPLICABLE  
LEGISLATION / PLAN**

**DESCRIPTION OF LEGISLATION / PLAN**

	<ul style="list-style-type: none"> <li>– Agriculture and Agro-processing;</li> <li>– Fishing and Mariculture;</li> <li>– Mining and mineral processing;</li> <li>– Transport;</li> <li>– Manufacturing; and</li> <li>– Tourism.</li> </ul> <p>However, the NCPGDS also notes that economic development in these sectors also requires:</p> <ul style="list-style-type: none"> <li>– Creating opportunities for lifelong learning;</li> <li>– Improving the skills of the labour force to increase productivity;</li> <li>– Increasing accessibility to knowledge and information.</li> </ul> <p>The achievement of these primary development objectives depends on the achievement of a number of related objectives that, at a macro-level, describe necessary conditions for growth and development. These are:</p> <ul style="list-style-type: none"> <li>– Developing requisite levels of human and social capital;</li> <li>– Improving the efficiency and effectiveness of governance and other development institutions; and</li> <li>– Enhancing infrastructure for economic growth and social development.</li> </ul> <p>Of specific relevance to the OHPL, the NCPGDS make reference to the need to ensure the availability of inexpensive energy. The section notes that in order to promote economic growth in the Northern Cape the availability of electricity to key industrial users at critical localities at rates that enhance the competitiveness of their industries must be ensured. At the same time, the development of new sources of energy through the promotion of the adoption of energy applications that display a synergy with the province’s natural resource endowments must be encouraged. In this regard the NCPGDS notes “the development of energy sources such as <i>solar energy</i>, the natural gas fields, bio-fuels, etc., could be some of the means by which new economic opportunity and activity is generated in the Northern Cape”. The NCPGDS also highlights the importance of close co-operation between the public and private sectors in order for the economic development potential of the Northern Cape to be realised.</p> <p>The NCPGDS also highlights the importance of enterprise development, and notes that the current levels of private sector development and investment in the Northern Cape are low. In addition, the province also lags in the key policy priority areas of SMME Development and Black Economic Empowerment. The proposed OHPL therefore has the potential to create opportunities to promote private sector investment and the development of SMMEs in the Northern Cape Province.</p> <p>In this regard care will need to be taken to ensure that the proposed OHPL does not negatively impact on the region’s natural environment. In this regard the NCPGDS notes that the sustainable utilisation of the natural resource base on which agriculture depends is critical in the Northern Cape with its fragile eco-systems and vulnerability to climatic variation. The document also indicates that due to the province’s exceptional natural and cultural attributes, it has the potential to become the preferred adventure and ecotourism destination in South Africa. Care therefore needs to be taken to ensure that the development of large renewable energy projects, such as the proposed solar energy facility and associated OHPL, do not affect the tourism potential of the province.</p>
<p><b>Northern Cape Provincial Spatial Development Framework (NCSDF)</b></p>	<p>The Northern Cape Provincial Spatial Development Framework (NCSDF) (2012) lists a number of sectoral strategies and plans are to be read and treated as key components of the PSDF. Of these there are a number that are relevant to the proposed OHPL. These include:</p> <ul style="list-style-type: none"> <li>– Sectoral Strategy 1: Provincial Growth and Development Strategy of the Provincial Government;</li> <li>– Sectoral Strategy 2: Comprehensive Growth and Development Programme of the Department of Agriculture, Land Reform and Rural Development;</li> <li>– Sectoral Strategy 5: Local Economic Development (LED) Strategy of the Department of Economic Development and Tourism;</li> </ul>

**APPLICABLE  
LEGISLATION / PLAN**

**DESCRIPTION OF LEGISLATION / PLAN**

	<ul style="list-style-type: none"> <li>— Sectoral Strategy 11: Small Micro Medium Enterprises (SMME) Development Strategy of the Department of Economic Development and Tourism;</li> <li>— Sectoral Strategy 12: Tourism Strategy of the Department of Economic Development and Tourism; and</li> <li>— Sectoral Strategy 19: Provincial renewable energy strategy (to be facilitated by the Department of Economic Development and Tourism).</li> </ul> <p>Under Section B 14.4, Energy Sector, the NCSDF (2012), notes the total area of high radiation in South Africa amounts to approximately 194 000 km<sup>2</sup> of which the majority falls within the Northern Cape. It is estimated that, if the electricity production per km<sup>2</sup> of mirror surface in a solar thermal power station were 30.2 MW and only 1% of the area of high radiation were available for solar power generation, then generation potential would equate to approximately 64 GW. A mere 1.25% of the area of high radiation could thus meet projected South African electricity demand in 2025 (80 GW) (NCSDF, 2012). However, the SDF does indicate that this would require large investments in transmission lines from the areas of high radiation to the main electricity consumer centres.</p> <p>Section C8.2.3, Energy Objectives, sets out the energy objectives for the Northern Cape Province. The section makes specific reference to renewable energy. The objectives are listed below:</p> <ul style="list-style-type: none"> <li>— Promote the development of renewable energy supply schemes. Large-scale renewable energy supply schemes are strategically important for increasing the diversity of domestic energy supplies and avoiding energy imports while minimizing detrimental environmental impacts.</li> <li>— Develop and institute innovative new energy technologies to improve access to reliable, sustainable, and affordable energy services with the objective to realize sustainable economic growth and development. The goals of securing supply, providing energy services, tackling climate change, avoiding air pollution, and reaching sustainable development in the province offer both opportunities and synergies which require joint planning between local and provincial government as well as the private sector.</li> <li>— Develop and institute energy supply schemes with the aim to contribute to the achievement of the targets set by the White Paper on Renewable Energy (2003). This target relates to the delivery of 10 000 GWh of energy from renewable energy sources (mainly biomass, wind, solar, and small-scale hydro) by 2013.</li> </ul> <p>Section C8.3.3, Energy Policy, sets out the policy guidelines for the development of the energy sector, with specific reference to the renewable energy sector.</p> <ul style="list-style-type: none"> <li>— The construction of infrastructure must be strictly regulated in terms of the spatial plans and guidelines put forward in the PSDF. They must be carefully placed to avoid visual impacts on landscapes of significant symbolic, aesthetic, cultural or historic value and should blend in with the surrounding environment to the extent possible.</li> <li>— EIAs undertaken for such construction must assess the impacts of such activities.</li> </ul>
<p><b>Namakwa District Municipality Integrated Development Plan (IDP)</b></p>	<p>The Namakwa District Municipality IDP (2019/2020) notes that the vision of the Namakwa DM is: ‘Namakwa District, the centre of excellence’. The Mission statement for the MD includes:</p> <ul style="list-style-type: none"> <li>— Stimulating radical economic and social transformation.</li> <li>— Fostering partnerships with relevant role-players.</li> <li>— Supporting and capacitating local municipalities.</li> <li>— Maintaining transparent and accountable processes.</li> <li>— Providing local leadership.</li> </ul> <p>Key developmental issues facing the DM include:</p> <ul style="list-style-type: none"> <li>— The DM has a large cohort of people in the economically active age category (15-64). This highlights the need for local employment creation.</li> <li>— The youthful population group (15-34) has increased by 2.4%, further emphasizing the need for local employment creation.</li> </ul>

**APPLICABLE  
LEGISLATION / PLAN**

**DESCRIPTION OF LEGISLATION / PLAN**

	<ul style="list-style-type: none"> <li>— Between 2004 and 2014, the urbanization rate in the DM has increased from 77.3% to 91.2% and that in the NKLM from 88.4% to 95.3%. These increases in urbanization have increased pressure on local authorities to provide municipal and social services.</li> <li>— The DM’s economic outlook is depressed. This is linked to limited new mining activity and the ongoing drought.</li> </ul> <p>Key developmental priorities identified for the DM include:</p> <ul style="list-style-type: none"> <li>— Economic diversification, specifically the development of local agricultural and mining manufacturing sectors.</li> <li>— New mining and renewable energy projects should be supported.</li> </ul> <p>The IDP notes support for the commitments made in terms of the Paris Accord on Climate Change. The IDP notes that the DM is located in an arid region, prone to droughts, and therefore very vulnerable to global warming.</p>
<p><b>Namakwa District Climate Change Response Plan</b></p>	<p>The Namakwa District Climate Change Response Plan (2017-2022) was developed through the Local Government Climate Change Support program. It includes a climate change vulnerability assessment and associated climate change responses which address these vulnerabilities. The vulnerability assessment identified 17 of the DM’s socio-economic indicators which are both very exposed and highly sensitive to climate change but have very low capacity to adapt. These included the agricultural sector, tourism, water-dependent municipal services and the coastal and marine environment.</p> <p>Priority responses are identified for the key sectors, including agriculture, biodiversity and habitat conservation, human health, and human settlements. These include mainstreaming climate change preparedness into all future IDPs, and implementation of a Namakwa Renewable Energy Strategy which supports the development and use of non-fossil sources of energy.</p>
<p><b>Nama Khoi Local Municipality IDP (2019/2020)</b></p>	<p>The Nama Khoi IDP (2019/2020) Strategic Objectives are aligned with the 2010 National Outcomes and 2012 National Development Plan, and include:</p> <ul style="list-style-type: none"> <li>— Fostering the growth if an effective and efficient skilled workforce.</li> <li>— Maintaining a healthy and safe environment.</li> <li>— Expanding and strengthening relationships with LED stakeholders.</li> <li>— Sustainable delivery of basic services.</li> <li>— Effective land use management.</li> <li>— Mainstreaming sustainability and optimizing resource efficiency.</li> </ul> <p>The IDP notes that the closure of mines in the LM and DM has hit communities very hard, contributing to high poverty rates. At the same time, the LM has seen a mushrooming of small-scale farmers, as former labour sending communities try to find an alternative source of livelihoods.</p>
<p><b>Khâi-Ma Local Municipality IDP (2017 – 2022)</b></p>	<p>The Khai-Ma IDP (2017/2022) lists five Key Performance Areas (KPA) developed to guide how the municipality must respond to the identified (and prioritised) community needs and challenges. The objectives are listed and linked to outcomes, predetermined objectives (PDO) and aligned with the higher-order ‘performance directives. The SOs are:</p> <ul style="list-style-type: none"> <li>— KPA 1 Infrastructure Development and Basic Service Delivery.</li> <li>— KPA 2 Institutional Development and Transformation.</li> <li>— KPA 3 Economic Development.</li> <li>— KPA 4 Financial sustainable and viability.</li> <li>— KPA 5 Good governance and public participation.</li> </ul> <p>KPA 1 and 3 are relevant to the proposed development.</p>

---

## 2.3 OTHER GUIDELINES AND BEST PRACTICE RECOMMENDATIONS

---

### 2.3.1 WORLD BANK GROUP ENVIRONMENTAL, HEALTH, AND SAFETY GUIDELINES

#### **EHS GENERAL GUIDELINES**

The Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry-specific examples of GIIP. They contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs.

The EHS General Guidelines contain information on cross-cutting environmental, health and safety issues potentially applicable to all industry sectors, used together with the relevant industry sector guideline(s), to guide the development of management and monitoring strategies for various project-related impacts.

#### **EHS GUIDELINES FOR ELECTRIC POWER TRANSMISSION AND DISTRIBUTION**

The EHS Guidelines for Electric Power Transmission and Distribution include information relevant to power transmission between a generation facility and a substation located within an electricity grid, in addition to power distribution from a substation to consumers located in residential, commercial, and industrial areas.

The Guidelines includes industry-specific impacts and management, provides a summary of EHS issues associated with electric power transmission and distribution that occur during the construction and operation phases of a facility, along with recommendations for their management. Additionally, it includes performance indicators and monitoring related to the environment an occupational health and safety.

These Guidelines have been considered in the impact assessment and formulation of mitigation measures in this BAR.

---

### 2.3.2 GENERIC EMPR RELEVANT TO AN APPLICATION FOR SUBSTATION AND OVERHEAD ELECTRICITY TRANSMISSION AND DISTRIBUTION INFRASTRUCTURE

NEMA requires that an EMPr be submitted where an EIA has been identified as the environmental instrument to be utilised as the basis for a decision on an application for environmental authorisation. The content of an EMPr must either contain the information set out in Appendix 4 of the EIA Regulations, 2014, as amended, or must be a generic EMPr relevant to an application as identified and gazetted by the Minister in a government notice. Once the Minister has identified, through a government notice, that a generic EMPr is relevant to an application for EA, that generic EMPr must be applied by all parties involved in the EA process, including, but not limited to, the applicant and the CA.

GN 435 of 22 March 2019 identified a generic EMPr relevant to applications for substations and overhead electricity transmission and distribution infrastructure which require authorisation in terms of Section 42(2) of NEMA. Applications for overhead electricity transmission and distribution infrastructure and applications for the development or expansion of substation infrastructure for the transmission and distribution of electricity that trigger Activity 11 or 47 of Listing Notice 1 or Activity 9 of Listing Notice 2 and any other listed or specified activities must use the generic EMPrs.

The objective of the generic EMPr is to prescribe and pre-approve generally accepted impact management outcomes and impact management actions, which can commonly and repeatedly be used for the avoidance, management and mitigation of impacts and risks associated with the development or expansion of overhead electricity transmission and distribution infrastructure and the development or expansion of substation

infrastructure for the transmission and distribution of electricity. The use of a generic EMPr is intended to reduce the need to prepare and review individual EMPrs for applications of a similar nature.<sup>1</sup>

A pre-application consultation meeting was held with DFFE on 28 April 2021, where the proposed EMPr for the Project was discussed, amongst other agenda items. During the meeting, DFFE confirmed that both the generic EMPr for transmission lines as well as the generic EMPr for substations must be submitted for the Project.

The generic EMPrs have therefore been used as a basis for this EMPr. The Generic Environmental Management Programme (EMPr) for the Development and Expansion for Overhead Electricity Transmission and Distribution Infrastructure is attached as **Appendix D** and the Generic Environmental Management Programme (EMPr) for the Development and Expansion of Substation Infrastructure for the Transmission and Distribution of Electricity is attached as **Appendix E**.

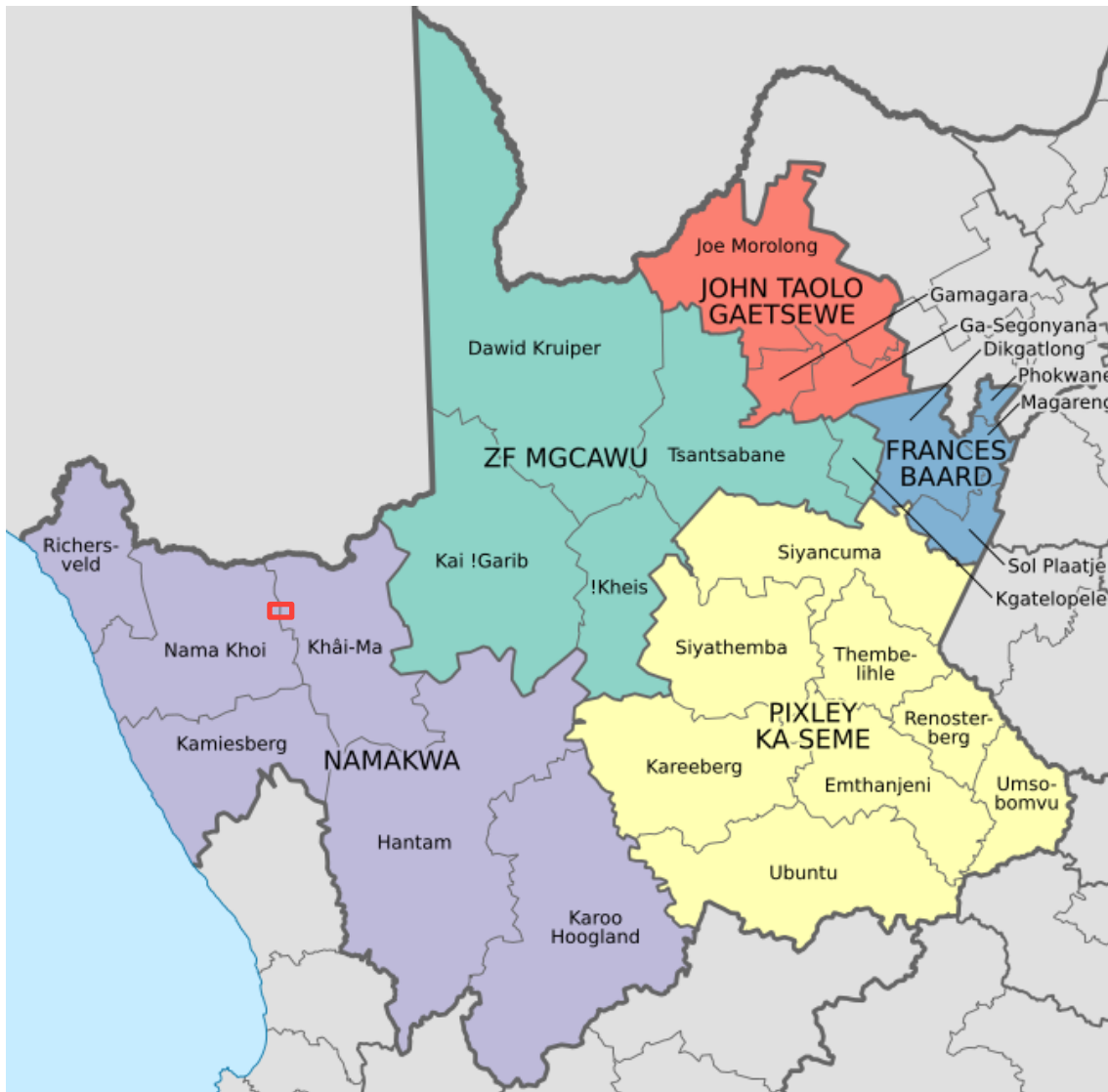
---

<sup>1</sup> DEA (2019) *Appendix 1: Generic Environmental Management Programme (EMPr) for the Development and Expansion for Overhead Electricity Transmission and Distribution Infrastructure*; DEA (2019) *Generic Environmental Management Programme (EMPr) for the Development and Expansion of Substation Infrastructure for the Transmission and Distribution of Electricity*

# 3 PROJECT DESCRIPTION

## 3.1 LOCATION OF THE PROPOSED PROJECT

The proposed Project is located in the Namakwa District Municipality of the Northern Cape Province. Approximately 4.7 km of the OHPL, along with the collector substation, fall within Ward 4 of the Nama Khoi Local Municipality, and the remainder of the OHPL and Aggeneis substation fall within Ward 1 of the Khâi-Ma Local Municipality (**Figure 3-1**).



**Figure 3-1: The study area (red polygon) in relation to the Northern Cape District and Local Municipalities**

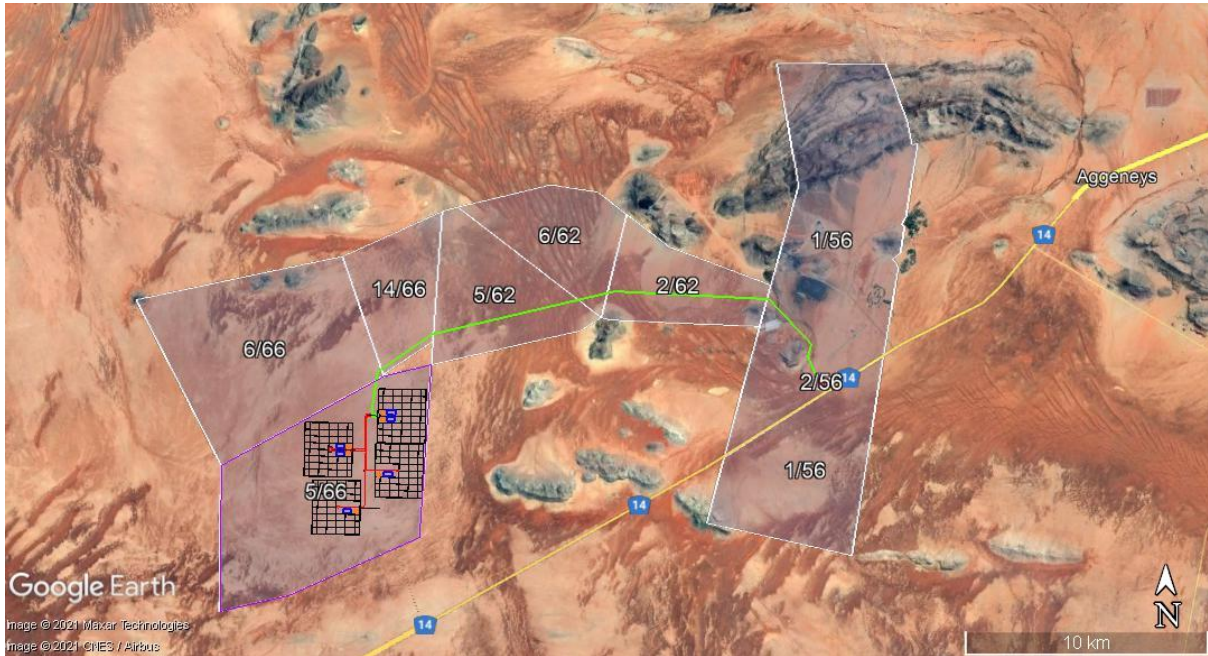
The proposed OHPL route runs from the proposed Sol Invictus PVSEF to the existing Eskom Aggeneis substation, located approximately 5 km south west of Aggeneis. **Figure 1-1** shows the alignment of the OHPL in relation to the proposed Sol Invictus PVSEF and existing Aggeneis substation as well as approximate routing of the OHPL.

The PVSEF site is located on one land parcel (Portion 5 of the Farm Ou Taaibosmond 56), which is situated approximately 4 km north of the N14 and approximately 20 km southwest of Aggeneis. The proposed Sol Invictus OHPL is proposed to be located over eight (8) properties owned by three (3) landowners (**Table 3-1**).

**Table 3-1: Farm portions on which the proposed development is located**

<b>FARM NAME AND NUMBER</b>	<b>21 DIGIT SG CODE</b>	<b>MUNICIPALITY / PROVINCE</b>	<b>LAND USE</b>	<b>OWNER</b>	<b>FARM SIZE (HA)</b>
Portion 5 of Farm 66	C0530000000006600005	Nama Khoi LM / Namakwa DM / Northern Cape	Grazing Proposed Sol Invictus PVSEF cluster	Blommeland Boerdery CC	5 769.40
Portion 6 of Farm 66	C0530000000006600006	Nama Khoi LM / Namakwa DM / Northern Cape	Grazing	Blommeland Boerdery CC	5 131.35
Portion 14 of Farm 66	C0530000000006600014	Nama Khoi LM / Namakwa DM / Northern Cape	Grazing	Blommeland Boerdery CC	1 669.35
Portion 5 of Farm 62	C0530000000006200005	Khâi-Ma LM Namakwa DM / Northern Cape	Grazing	Blommeland Boerdery CC	2 467.28
Portion 6 of Farm 62	C0530000000006200006	Khâi-Ma LM Namakwa DM / Northern Cape	Grazing	Blommeland Boerdery CC	1 931.62
Portion 2 of Farm 62	C0530000000006200002	Khâi-Ma LM Namakwa DM / Northern Cape	Grazing	Blommeland Boerdery CC	1 852.81
Portion 1 of Farm 56	C0530000000005600001	Khâi-Ma LM Namakwa DM / Northern Cape	Mining (Vedanta Black Mountain Mine)	Black Mountain Mining (Pty) Ltd	6 984.24
Portion 2 of Farm 56	C0530000000005600002	Khâi-Ma LM Namakwa DM / Northern Cape	Aggeneis Substation	Eskom Holdings Ltd	36.00
<b>Total hectares</b>					<b>25 842.05</b>

The location and layout of the properties on which the OHPL is located is provided in **Figure 3-2**.



**Figure 3-2: The proposed OHPL in relation to affected land portions**

Very few homesteads and settlements are present within the study area. These include *Witputs* (at the proposed Sol Invictus Solar PV facilities), *Suurwater*, *Kamasoas* and the original *Aggeneys* farmstead. Refer to **Section 6.2.5** of this report for further information regarding the land use of the project area.

The centre point of the OHPL is located at 29°16'1.49"S 18°41'45.09"E. **Table 3-2** below provides the co-ordinates of bend points along the proposed route.

**Table 3-2: Co-ordinates of structures along the OHPL route (WGS84)**

POINT	CO-ORDINATES	
Aggeneys Substation Extension	29°17'40.35"S	18°48'2.31"E
Point 1	29°17'14.09"S	18°47'49.36"E
Point 2	29°16'57.46"S	18°47'54.31"E
Point 3	29°15'57.69"S	18°46'49.80"E
Point 4	29°15'47.31"S	18°42'54.01"E
Point 5	29°16'44.46"S	18°38'14.84"E
Point 6 (Witputs)	29°17'34.44"S	18°36'51.86"E
Point 7	29°18'17.70"S	18°36'44.48"E
Sol Invictus PVSEF Onsite Substation	29°18'30.21"S	18°36'44.07"E



---

## 3.2 PROJECT INFRASTRUCTURE

---

### 3.2.1 OVERHEAD POWERLINE

The OHPL will be a 132kV steel single or double structure with kingbird conductor. The power line towers will either be steel lattice or monopole structures with a maximum height up to 36m above ground level. **Figure 3-3** below provides an example of a conventional lattice tower compared with a monopole structure. Pole positions will only be available post preferred bidder award, once the powerline design has started.



**Figure 3-3: Conventional lattice powerline tower compared with a steel monopole structure**

---

### 3.2.2 SERVITUDE

A 200m corridor around the OHPL (100m on either side of the centre line) has been assessed for the purposes of this BAR. The registered servitude will fall within this 200m corridor and will likely be 31m (15.5m on either side of the centre line).

The length of the OHPL is approximately 23km, which will result in a servitude area of approximately 71 ha.

The servitude is required to ensure safe construction, maintenance and operation of the powerline. Registration of the servitude grants Sol Invictus the right to erect, operate and maintain the powerline and to access the land to

carry out such activities, but it does not constitute full ownership of the land. Construction and operation activities and access to the powerline must be carried out with due respect to the affected landowners. The servitude required for the Project will be registered at the Deeds Office and will form part of the title deed of the relevant properties once the environmental authorisation has been obtained.

### 3.2.3 SITE ACCESS

The N14 national road provides motorised access to the region from Upington, the largest town closest to the site (approximately 266 km by road). This road passes to the south of the Aggeneis Substation (see **Figure 1-1**) and similarly provides access to the Sol Invictus Solar PVSEF cluster via the Witputs dirt road (from the N14).

The existing dirt roads and farm tracks will be used during the construction phase and to service the OHPL during the operational phase. **Figure 3-4** and **Figure 3-5** provide examples of the existing gravel farm roads/track on site. Short, temporary access tracks (jeep tracks) may be developed to access certain sections of the OHPL where no existing tracks are present.



**Figure 3-4:** Farm track providing access to Witputs from the N14



**Figure 3-5:** Existing dirt track near Black Mountain Mine

---

### 3.2.4 AGGENEIS SUBSTATION EXPANSION

The expansion area in which the 400kV busbar extension, 400/132kV 500MVA transformer and 132kV busbars are to be established is approximately 4.5 ha (**Figure 3-6**). The exact details/layout within this footprint will be determined during the OHPL design phase.



**Figure 3-6:** Area earmarked for the expansion of the Aggeneis substation

---

## 3.3 PROPOSED PROJECT DEVELOPMENT ACTIVITIES

The typical steps involved in the construction and operation of an OHPL is summarised below:

- Planning and Design Phase
    - Step 1: Surveying of the development area and negotiation with affected landowners; and
    - Step 2: Final design and micro-siting of the infrastructure based on geotechnical, topographical conditions and potential environmental sensitivities.
  - Construction Phase
    - Step 3: Vegetation clearing;
    - Step 4: Assembly and erection of infrastructure on site;
    - Step 5: Stringing of conductors; and
    - Step 6: Rehabilitation of disturbed areas and protection of erosion sensitive areas.
  - Operation Phase
    - Step 7: Continued inspection and maintenance during operation.
- 

### 3.3.1 CONSTRUCTION PHASE

#### CONSTRUCTION SCHEDULE

Construction of the OHPL is anticipated to take 12 - 24 months.

## **SITE ESTABLISHMENT AND TRANSPORTATION OF MATERIALS AND EQUIPMENT TO SITE**

The selected Contractor will establish a temporary site camp including, but not be limited to, temporary offices, laydown areas for equipment and materials, storage facilities, ablutions, waste storage and handling area, and parking area. The location and extent of the Contractors camp, to be established within the Project area, will be undertaken in line with specifications detailed within the EMPr. Materials are to be collected on a daily basis from the contractor laydown area for the construction activities along the servitude. This limits areas to be impacted for storage along the servitude as well as for security purposes when activities cease at the end of each day.

The required materials and equipment will be transported to the site via public roads and private farm roads/tracks along the proposed servitude (as indicated in Section 3.2.3). Mobile plant required for the installation of the OHPL will be determined by the contractor.

## **LABOUR REQUIREMENTS**

During site preparation and installation of Project related infrastructure, the selected Contractor working on behalf of Sol Invictus is anticipated to require 100-150 people to undertake the required works. Approximately 5% of workers would be highly skilled, 15% medium skilled, and 80% low skilled.

## **VEGETATION CLEARING**

Due to the nature of the vegetation within the Project area, which is predominantly sparse, low shrubs, limited vegetation clearing will be required. Clearing of vegetation will be limited to pylon areas to facilitate installation of each pylon. Clearing will be done in phases along the OHPL route as required prior to installation activities.

## **INSTALLATION OF OHPL**

Standard OHPL installation methods will be employed, which entails the of pits / drilling of holes, planting of pylons (backfill and stabilization through compaction, concrete foundations are to be applied where conditions require) and stringing of the conductors. It is not envisaged that any large excavations and stabilized backfill will be required. However, this will be verified on site once the geotechnical assessment has been undertaken at each pylon position (part of construction works).

As identified in Section 3.2.1, the Project will utilise either steel lattice or monopole structures with a maximum height up to 36m above ground level, which are reported to have a life expectancy of more than 25 years. The actual height of the pylons will vary based on the site topography to maintain the specified clearance of the overhead transmission lines.

Once the pylons have been installed, the lines will be strung. The Contractor in collaboration with Eskom will be responsible for functional testing and commissioning of the OHPL. This consists of connecting the line from the Sol Invictus PVSEF to the national grid, to transmit power.

## **DEMOBILISATION**

Upon completion of the installation phase, any temporary infrastructure will be removed, and the affected areas rehabilitated.

---

### **3.3.2 OPERATIONAL PHASE**

Eskom will be responsible for managing the operations of the OHPL in line with their internal management systems. Eskom is considered to have the requisite expertise to operate and maintain the transmission line and substation infrastructure. Eskom will adhere to all existing Safety Codes and Guidelines for the operation and maintenance of the substation and overhead electricity transmission and distribution infrastructure.

During the operational phase, there will be little to no Project-related movement along the servitude as the only activities are limited to maintaining the servitude (including maintenance of access roads and cutting back or pruning of vegetation to ensure that vegetation does not affect the OHPL), inspection of the powerline infrastructure and repairs when required. Inspections are likely to be on an annual basis. Limited impact is expected during operation since there will not be any intrusive work done outside of maintenance in the event that major damage occurs to site infrastructure.

Operation of the OHPL will involve the following activities, discussed below.

## **SERVITUDE MANAGEMENT AND ACCESS ROAD MAINTENANCE**

Servitude and access road maintenance is aimed at eliminating hazards and facilitating continued access to the OHPL. The objective is to prevent all forms of potential interruption of power supply due to overly tall vegetation/climbing plants or establishment of illegal structures within the right servitude. It is also to facilitate ease of access for maintenance activities on the transmission line. During the operational phase of the project, the servitude will be maintained to ensure that the OHPL functions optimally and does not compromise the safety of persons within the vicinity of the line.

## **TRANSMISSION LINE MAINTENANCE AND OPERATIONS**

Eskom will develop comprehensive planned and emergency programmes through its technical operations during the operation and maintenance phase for the OHPL. The maintenance activities will include:

- Eskom’s Maintenance Team will carry out periodic physical examination of the OHPL and its safety, security and integrity.
- Defects that are identified will be reported for repair. Such defects may include defective conductors, flashed over insulators, defective dampers, vandalised components, amongst others.
- Maintenance / repairs will then be undertaken.

---

### **3.3.3 DECOMMISSIONING PHASE**

Decommissioning will be considered when the OHPL is regarded obsolete and will be subject to a separate authorisation and impact assessment process. Based on the design life of at least 25 years, which may be extended, this is not expected to occur in the near future. It is recommended that a decommissioning assessment be undertaken at an appropriate time, prior to decommissioning activities taking place.

---

## **3.4 ENVIRONMENTAL SENSITIVITIES**

The following environmental sensitivities were identified on the site, as a result of the Project location and proposed activities, and will require specific applications or measures for mitigation to minimise impact.

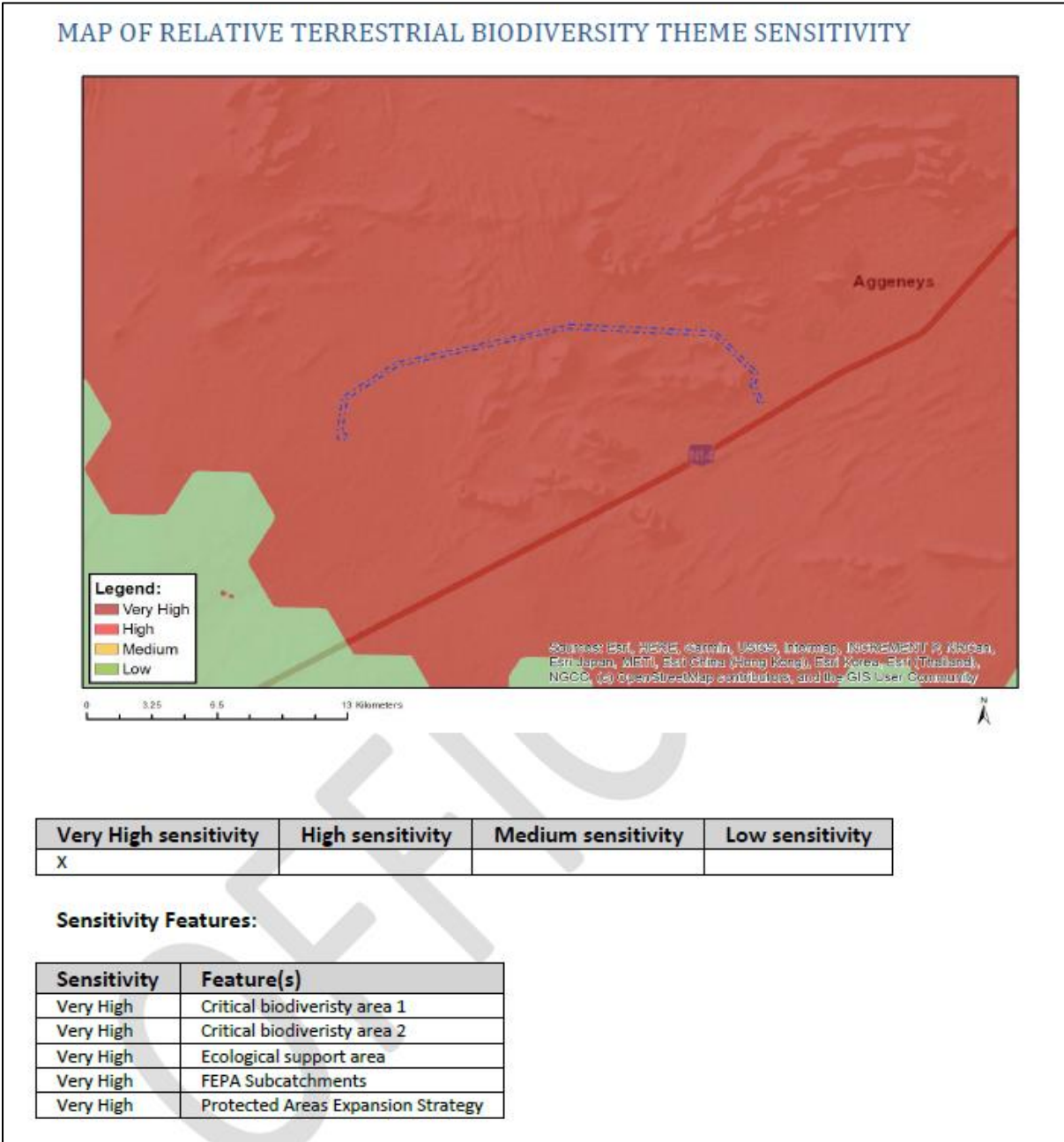
- **Biodiversity:**
  - Critical Biodiversity Area (CBA)
  - Ecological Support Area (ESA)
  - One (1) Endangered avifauna species
  - Unique and low resilience habitats
  - A high richness of protected fauna species was present within the assessment area
- **Freshwater:**
  - NEMA zone of regulation
- **Bats:**
  - Local rocky ridges, cliff faces, steep slopes, and outcrops
  - Local buildings
  - Freshwater Ecosystem Priority Areas and other local rivers, wetlands, and other natural and artificial surface water resources

The above sensitivities are discussed in the following sub-sections (i.e. Section 3.4.1 - 3.4.3).

---

### **3.4.1 BIODIVERSITY**

The biodiversity theme sensitivity, as indicated in the screening report, was derived to be Very High, mainly due to the project area being with a CBA1, CBA2 and ESA (**Figure 3-7**).



**Figure 3-7: Terrestrial Biodiversity Theme Sensitivity, National Web based Environmental Screening Tool.**

Based on the criteria provided in the Terrestrial Biodiversity Impact Assessment (**Appendix F2** of the Draft BAR), all habitats within the assessment area of the proposed project were allocated a sensitivity category (**Table 3-3** and **Table 3-4**). The following criteria were used in assigning sensitivities ratings for the habitat units:

- All habitats within the assessment area were observed to be utilised by threatened species during the field survey, these species comprised of:
  - One (1) EN avifauna species;
- Unique and low resilience habitats; and
- A high richness of protected fauna species was present within the assessment area.

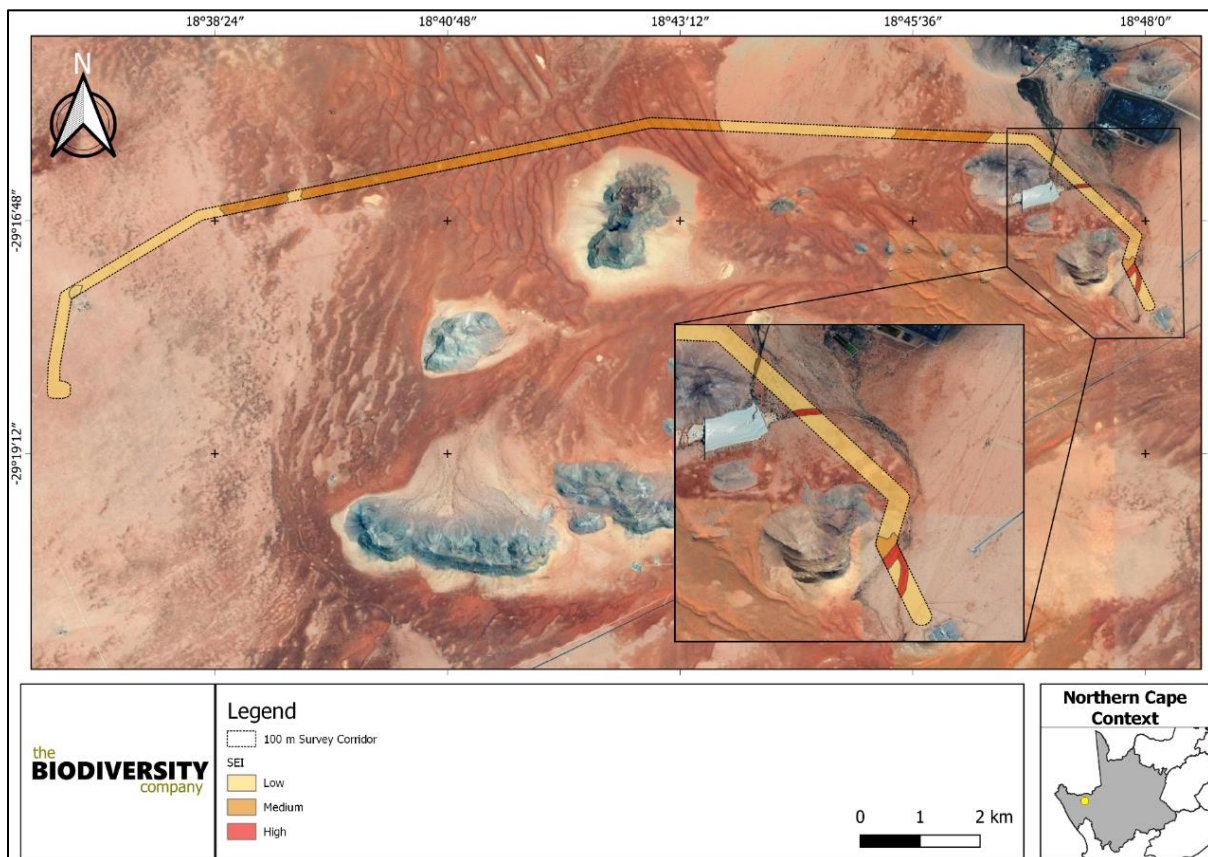
**Table 3-3: SEI Summary of habitat types delineated within field assessment area of project area**

Habitat (Area)	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance
Drainage areas	High	High	High	Medium	High
Sandy Grassland	Medium	Medium	Medium	Medium	Medium
Artificial Wetland	Low	Medium	Medium	Low	Medium
Vygieveld	Medium	Medium	Medium	Medium	Medium
Arid Grassland	Medium	Low	Low	Medium	Low
Disturbed	Medium	Low	Low	Medium	Low

**Table 3-4: Guidelines for interpreting Site Ecological Importance in the context of the proposed development activities**

Site Ecological Importance	Interpretation in relation to proposed development activities
High	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted, limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
Medium	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Low	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.

The sensitivities of the habitat types delineated are illustrated in **Figure 3-8**.



**Figure 3-8: Terrestrial biodiversity sensitivity for the OHPL**

---

### 3.4.2 FRESHWATER

It is important to note that in terms of the definition of a watercourse as per the National Water Act, 1998 (Act No. 36 of 1998), all of the natural watercourses within the investigation area will be regulated by Section 21(c) and (i) of the National Water Act, 1998 (Act No. 36 of 1998) as well as the applicable zones of regulation. All of the natural watercourses will thus require further authorisation from the Department of Agriculture, Environmental Affairs, Land Reform and Rural Development (DAEARDL) and the Department of Water and Sanitation (DWS).

According to Macfarlane et al. (2015), the definition of a buffer zone is variable, depending on the purpose of the buffer zone, however, in summary, it is considered to be “*a strip of land with a use, function or zoning specifically designed to protect one area of land against impacts from another*”. Buffer zones are considered to be important to provide protection of basic ecosystem processes (in this case, the protection of aquatic and wetland ecological services), reduce impacts on watercourses arising from upstream activities (e.g. by removing or filtering sediment and pollutants), provision of habitat for aquatic and wetland species as well as for certain terrestrial species, and a range of ancillary societal benefits (Macfarlane et al. 2015). It should be noted, however, that buffer zones are not considered to be effective mitigation against impacts such as hydrological changes arising from stream flow reduction, impoundments or abstraction, nor are they considered to be effective in the management of point-source discharges or contamination of groundwater, both of which require site-specific mitigation measures (Macfarlane et al. 2015).

The following Zones of Regulation (ZoR) are applicable to the cryptic wetlands and episodic drainage line identified within the investigation area (**Figure 3-9** and **Figure 3-10**):

- A 32 m Zone of Regulation in accordance with the National Environmental Management Act, 1998 (Act No. 107 of 1998) was assigned for the cryptic wetlands and episodic drainage line;
- A 100 m ZoR in accordance with the National Water Act, 1998 (Act No. 36 of 1998) was assigned to the episodic drainage line; and
- A 500 m ZoR in accordance with the National Water Act, 1998 (Act No. 36 of 1998) was assigned to the cryptic wetlands.

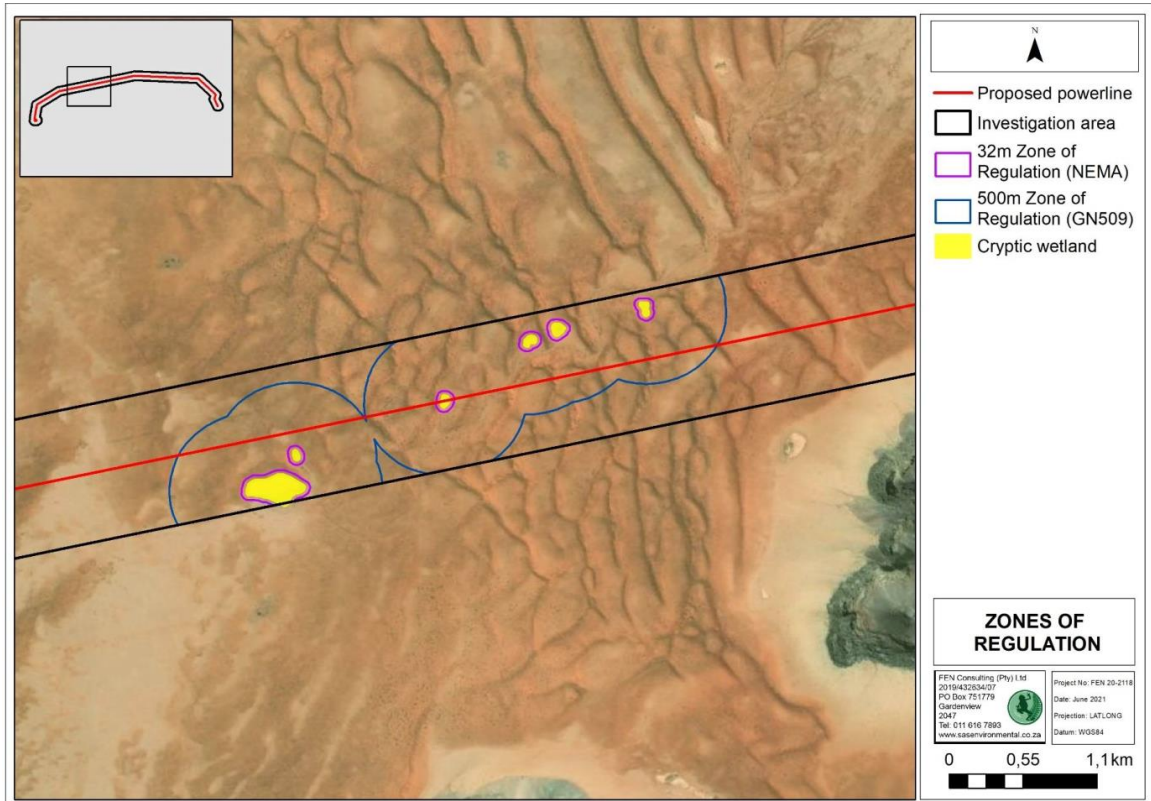
In line with the Water Use Licence (WUL) Application process, a construction and operational phase buffer was also calculated for the cryptic wetlands within the investigation area using the “Preliminary guideline for the determination of buffer zones for rivers, wetlands and estuaries” as developed by Macfarlane et al. (2015).

The results of the buffer tool indicate that a 10 m buffer is applicable to the construction phase and a 12 m buffer is applicable to the operational phase of the proposed powerline.

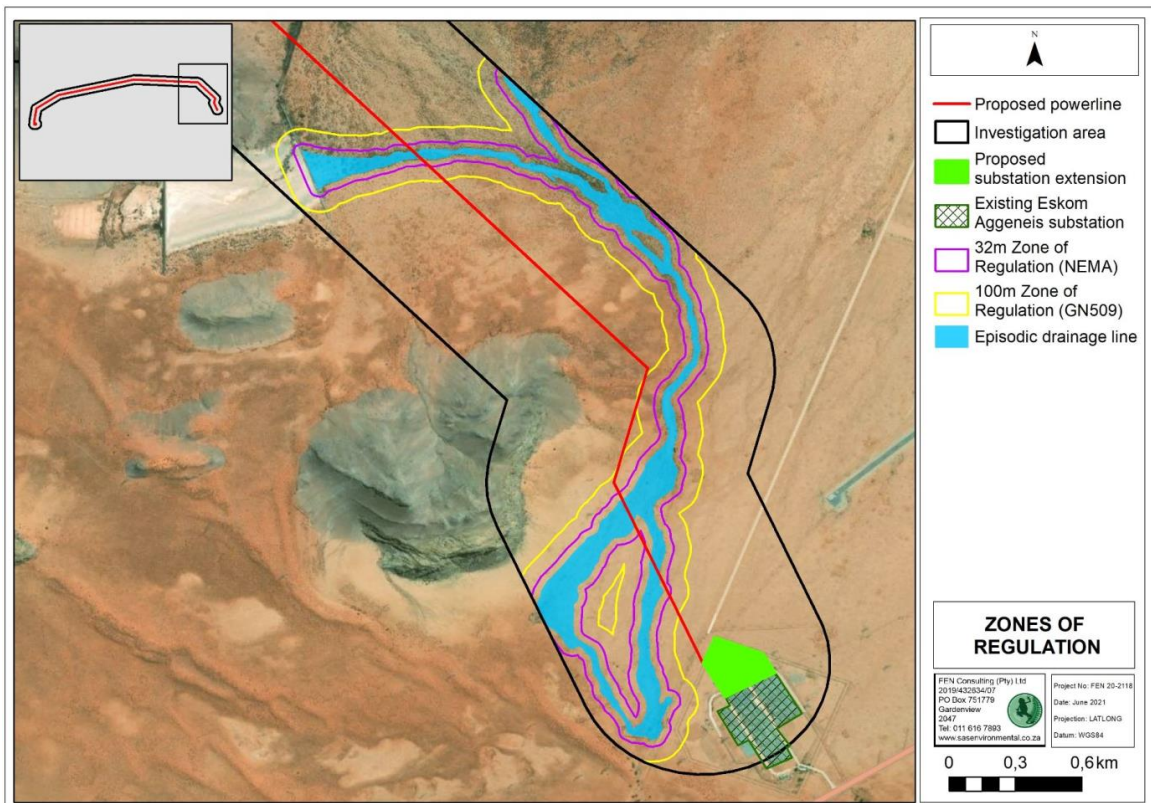
The activities associated with the construction and operational phases of the proposed powerline based on the alignment provided by the proponent, which include site preparation, excavation of foundation pits and installation of the support structures associated by the proposed powerline, pose a low risk to the identified cryptic wetlands and episodic drainage line, should no physical footprint (i.e., support structures) be located within the identified watercourses and their calculated 10 m construction, 12 m operational phase buffers and 32 m NEMA ZoR, as a minimum. Should the recommended mitigation measures be implemented, with specific mention of ensuring that the support structures associated with the proposed powerline are located outside the identified watercourses and their associated buffer zone, as well as keeping the construction footprints as small as possible with suitable rehabilitation post-construction, no significant direct negative impacts to the watercourses, including their characteristics and goods and services provision are expected.

Assuming that strict enforcement of cogent, well-developed mitigation measures takes place, the significance of impacts arising from the proposed powerline are likely to be reduced during the construction and operational phases assuming that a high level of mitigation takes place.





**Figure 3-9: Cryptic wetlands identified within the investigation area of the proposed powerline with the associated zones of regulation in terms of NEMA and GN509 as it relates to the NWA**



**Figure 3-10: The episodic drainage line associated with the eastern portion of the proposed powerline and investigation area with the associated zones of regulation in terms of NEMA and GN509 as it relates to the NWA**

### 3.4.3 BATS

A bat habitat sensitivity map was compiled, which took into consideration the following features of known importance for bats:

- Regional known significant bat roosts (African Chiroptera Report 2020; IWS unpubl. data).
- Local rocky ridges, cliff faces, steep slopes, and outcrops (delineated using contours; CDNGI 2020).
- Local buildings (CDNGI 2020).
- Freshwater Ecosystem Priority Areas (Nel 2011) and other local rivers, wetlands, and other natural and artificial surface water resources (CDNGI 2020).

As there are currently no South African bat-specific buffer and sensitivity mapping guidelines for developments other than wind farms, IWS used the South African guidelines on bat monitoring for proposed wind farms (MacEwan et al. 2020a) as an approximate reference. Described in **Table 3-5** and shown in **Figure 3-11**, is the relative sensitivity (i.e. the conservation importance for bats) of different natural and artificial habitats, and the recommended buffers around these, within the 100 m-wide corridor on either side of the proposed OHPL.

**Table 3-5: Relative sensitivity of different bat habitats and buffers within the OHPL corridor**

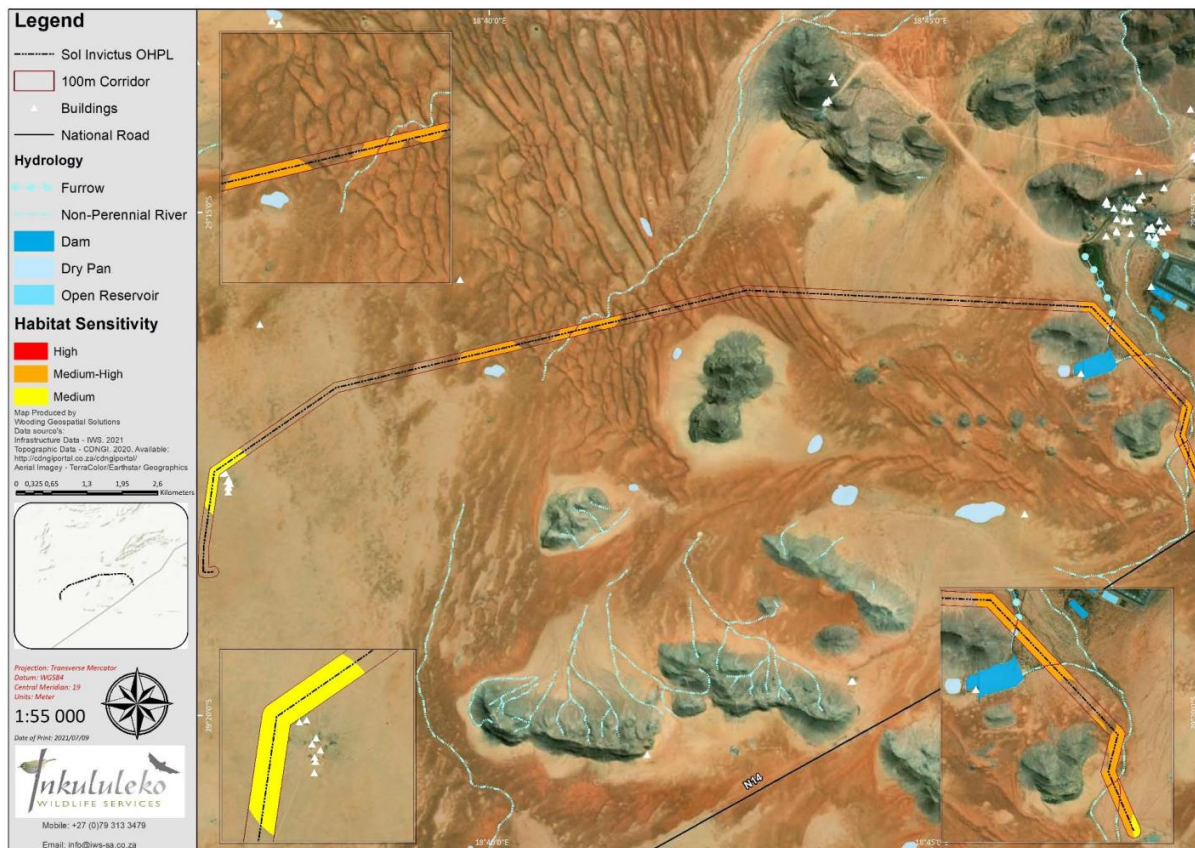
FEATURE	Delineation and Sensitivity
<b>Natural</b>	
River and wetland Freshwater Ecosystem Priority Areas	Lines/Polygons
Buffer around FEPAs	0-500 m
Seasonal water resources	Lines/Polygons
Buffer around other seasonal water resources	0-200 m
Ephemeral water resources	Lines/Polygons
Buffer around ephemeral water resources	0-50 m
Dry water courses	Lines/Polygons
Rocky ridges, cliff faces, steep slopes, and outcrops	Polygons
Buffer around rocky ridges, cliff faces, steep slopes, and outcrops	0-200 m
<b>Artificial</b>	
Buildings	Points
Buffer around buildings	0-500 m

South African Freshwater Ecosystem Priority Areas (Nel et al. 2011) and seasonal water resources were rated with High sensitivity and assigned a 0-500 m and a 0-200 m Medium-High sensitive buffer, respectively. In arid environments especially, (natural and artificial) surface water resources provide bats with essential drinking water, concentrated available insect prey and possible roosting and fruiting trees, as well as landmarks and corridors for movement (Serra-Cobo et al. 2000; Salata 2012; Sirami et al. 2013). Ephemeral water resources were assigned Medium-High sensitivity and buffered with a 0-50 m Medium sensitive buffer. Dry water courses were rated as Medium sensitive areas.

Rocky ridges, cliff faces, steep slopes, and outcrops were assigned High sensitivity and 0-200 m Medium-High sensitive buffer, since rocky terrain is likely to provide suitable natural roosting habitat for many, if not all the listed potentially occurring bat species. Buildings, some of which are likely to provide roosting habitat for certain bat species, were assigned Medium-High sensitivity and buffered with a 0-500m Medium buffer.

The bat sensitivity map (**Figure 3-11**) should be interpreted as follows:

- Powerline poles must not be installed where the OHPL route coincides with High (red) sensitive drainage lines.
- Where Medium-High sensitive (orange) areas are intersected by the OHPL route, the installation of powerline poles should be avoided, where possible.
- In Medium sensitive (yellow) areas, the installation of powerline poles should be minimized.
- In remaining Low sensitive areas, rehabilitation alone is considered sufficient to mitigate disturbance of natural habitat.



**Figure 3-11: Bat sensitivity map for the proposed Sol Invictus Overhead Power Line**

### 3.5 NEED AND DESIRABILITY OF THE PROJECT

The DEA&DP Guideline (2013) states that the essential aim of need and desirability is to determine the suitability (i.e. is the activity proposed in the right location for the suggested land-use/activity) and timing (i.e. is it the right time to develop a given activity) of the development. Therefore, need and desirability addresses whether the development is being proposed at the right time and in the right place. Similarly, the ‘Best Practicable Environmental Option’ (BPEO) as defined in NEMA is “the option that provides the most benefit and causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term.”

The development of renewable energy and the associated energy infrastructure is strongly supported at a national, provincial, and local level. The development of, and investment in, renewable energy and associated energy distribution infrastructure is supported by the National Development Plan, New Growth Path Framework and National Infrastructure Plan, which all highlight the importance of energy security and investment in energy infrastructure. The development of the proposed power line is therefore supported by key policy and planning documents and is in line with South Africa’s strategic energy planning context.

Furthermore, the proposed Sol Invictus OHPL is located within the Northern Strategic Transmission Corridor per GN 113 of 2018. Strategic Transmission Corridors support areas where long-term electricity grid infrastructure will be developed. Refer to **Figure 1-2** above, which shows the location of the five corridors and the approximate location of the Sol Invictus OHPL within the Northern Corridor.

The energy security benefits associated with the proposed Sol Invictus PVSEF are dependent upon it being able to connect to the national grid via the establishment of grid connection infrastructure. The proposed OHPL is therefore essential supporting infrastructure to the solar energy development, which, once developed, will generate power from renewable energy resources.

The land on which the OHPL will be constructed is located between the proposed Sol Invictus 1 to 6 PVSEF site and the existing Aggeneis substation. The land is predominantly privately owned agricultural land, which is zoned for agriculture. It is not necessary for each of the properties to be rezoned as the land will continue to be used for agriculture. The short section of the OHPL that traverses Vedanta Black Mountain Mine will not impact on the operation of the mine and Black Mountain Mining (Pty) Ltd are in support of the OHPL. No physical or economic displacement will be required along the proposed route.

Furthermore, negative environmental impacts associated with the activity will be mitigated to acceptable levels in accordance with this EMPr.

# 4 IMPACT ASSESSMENT

A summary of the identified impacts and corresponding significance ratings for the proposed powerline is provided in **Table 4-1** below.

**Table 4-1: Impact Summary**

REF.	IMPACT DESCRIPTION	PHASE	WITHOUT MITIGATION		WITH MITIGATION	
			SIGNIFICANCE	STATUS	SIGNIFICANCE	STATUS
<b>Air Quality</b>	Generation of Dust and PM	Construction	Moderate	(-)	Low	(-)
<b>Noise</b>	Noise Emissions	Construction	Low	(-)	Low	(-)
<b>Soils and Land</b>	Wind Erosion	Construction	High	(-)	Moderate	(-)
	Change in Surface Profile	Construction	Moderate	(-)	Moderate	(-)
	Change in Land Use	Construction	Moderate	(-)	Moderate	(-)
	Change in Land Capability	Construction	High	(-)	Moderate	(-)
	Soil Contamination	Construction	Moderate	(-)	Low	(-)
<b>Groundwater</b>	Deterioration of Groundwater Quality	Construction	Moderate	(-)	Low	(-)
<b>Freshwater</b>	Freshwater Ecology and Surface Water	Construction	Low	(-)	Low	(-)
	Disturbance of Soils and Altered Runoff Patterns	Construction	Low	(-)	Low	(-)
	Access Road	Construction	Low	(-)	Low	(-)
	Disturbance of Soils and Altered Water Quality	Operation	Low	(-)	Low	(-)
<b>Biodiversity</b>	Destruction, Loss and Fragmentation of Habitats, Ecosystems & Vegetation Community	Construction	Moderate	(-)	Low	(-)
	Introduction of Alien Species	Construction	Moderate	(-)	Low	(-)
	Destruction of Threatened Plant Species	Construction	Moderate	(-)	Low	(-)
	Displacement and Fragmentation of Faunal Community due to Habitat Loss, Direct Mortalities & Disturbance	Construction	Moderate	(-)	Low	(-)
	Continued Disturbance of Vegetation Communities, especially Threatened Species and Encroachment by AIS	Operation	Moderate	(-)	Low	(-)

REF.	IMPACT DESCRIPTION	PHASE	WITHOUT MITIGATION		WITH MITIGATION	
			SIGNIFICANCE	STATUS	SIGNIFICANCE	STATUS
	Ongoing Displacement, Direct Mortalities & Disturbance of Faunal Community due to Habitat Loss and Disturbances	Operation	Moderate	(-)	Low	(-)
Visual	Visual Disturbance (close proximity)	Construction	Low	(-)	Low	(-)
	Visual Disturbance (Local)	Operation	Low	(-)	Low	(-)
	Visual Disturbance (Regional)	Operation	Low	(-)	Low	(-)
	Sense of Place	Operation	Low	(-)	Low	(-)
Waste	Improper Waste Management	Construction	Moderate	(-)	Low	(-)
Traffic	Increased Local Traffic	Construction	Low	(-)	Low	(-)
Heritage	Damage to Heritage Resources	Construction	Low	(-)	Low	(+)
	Historic Built Environment	Construction	Low	(-)	Low	(+)
	Palaeontology	Construction	Low	(-)	Low	(+)
Socio-economic	Creation of Employment, Business Development and Skills Development	Construction	Low	(+)	Low	(+)
	Presence of Construction Workers and Impact on Family Structures and Social Networks	Construction	Low	(-)	Low	(-)
	Noise, Dust and Safety	Construction	Low	(-)	Low	(-)
	Safety, Stock Theft and Damage to Property	Construction	Low	(-)	Low	(-)
	Development of Infrastructure to Improve Energy Security and Reduce Reliance on Coal	Operation	Moderate	(+)	High	(+)
	Creation of Employment Opportunities	Operation	Low	(+)	Low	(+)
	Risks to Farming Activities by Maintenance Workers	Operation	Moderate	(-)	Low	(-)
Health and Safety	Employee Health & Safety	Construction	Moderate	(-)	Low	(-)
	Employee Health & Safety	Operation	Moderate	(-)	Low	(-)

# 5 ENVIRONMENTAL MANAGEMENT OBJECTIVES

---

## 5.1 EMPr OBJECTIVES

The EMPr has the following objectives:

- Encourage good management practices through planning and commitment to environmental issues;
- Minimise disturbance of the natural environment;
- Prevent or minimise all forms of pollution;
- Prevent water wastage;
- Promote the prevention, reduction, reuse, recycling and recovery of waste and develop waste management practices based on prevention, minimisation, recycling, treatment or disposal of waste;
- Adopt the best practical means available to prevent or minimise adverse environmental impacts;
- Comply with all applicable laws, regulations, standards and guidelines for the protection of the environment;
- Describe all monitoring procedures required to identify impacts on the environment; and
- Train onsite personnel with regard to their environmental obligations.

*Please note: This EMPr is a working document and therefore subject to change depending on the requirements of the various Project phases. When applicable, these changes are to be approved in accordance with legislative requirements.*

---

## 5.2 ENVIRONMENTAL OBJECTIVES AND TARGETS

To facilitate compliance to the EMPr, Sol Invictus must comply with all relevant legislation and standards and make all personnel aware of the requirements of the EMPr, as well as the prescribed penalties should a non-conformance be identified during the different phases of the proposed Project.

It is recommended that environmental objectives (as outlined in this document) be emphasised to Sol Invictus as minimum requirements. Objectives include:

- Encourage good management practices through planning and commitment to environmental issues; and
- Provide rational and practical environmental guidelines to:
  - Minimise disturbance of the natural environment;
  - Minimise fugitive emissions;
  - Minimise impact of added traffic into the area;
  - Ensure surface and groundwater resource protection;
  - Prevent or minimise all forms of pollution;
  - Protect indigenous flora and fauna;
  - Prevent soil erosion;
  - Promote sustainable use of resources;
  - Adopt the best practical means available to prevent or minimise adverse environmental impacts;
  - Comply with all applicable laws, regulations, standards and guidelines for the protection of the environment;
  - Promote the reduction, reuse, recycling and recovery of waste;
  - Develop waste management practices based on prevention, minimisation, recycling, treatment or disposal of waste;
  - Describe all monitoring procedures required to identify impacts on the environment;

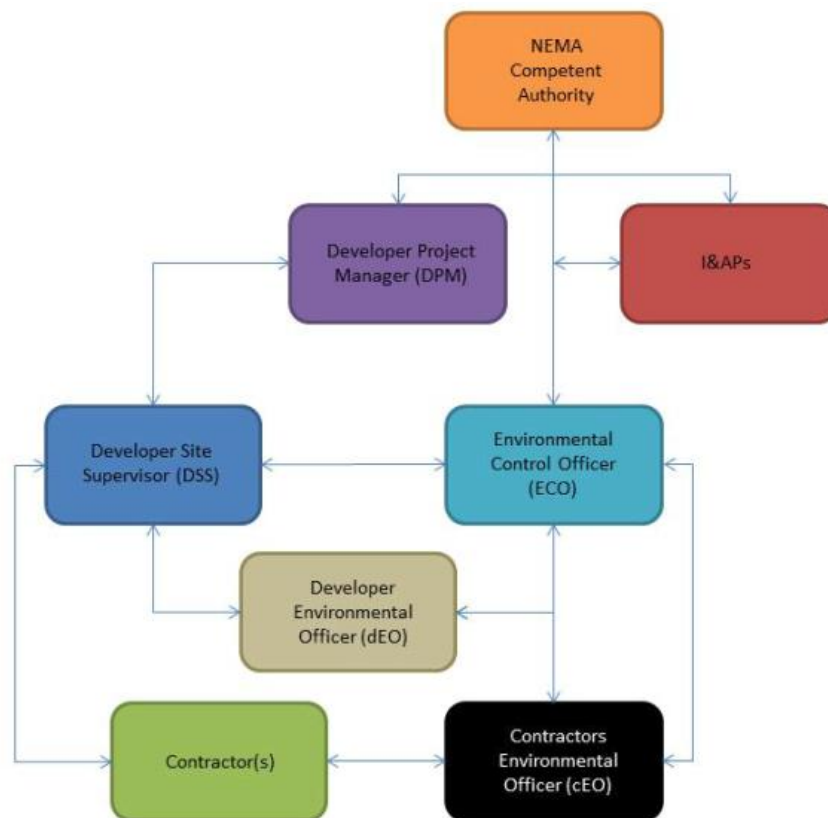
- Define how the management of the environment is reported and performance evaluated; and
- Train onsite personnel with regard to their environmental obligations.



# 6 MANAGEMENT PROCEDURES AND ADMINISTRATIVE REQUIREMENTS

## 6.1 ROLES AND RESPONSIBILITIES

The effective implementation of the EMPr is dependent on established and clear roles, responsibilities, and reporting lines within an institutional framework. The various environmental roles and reporting lines within the institutional framework and outlined in **Figure 6-1**. This institutional structure will be maintained throughout the construction phase until such time as the final construction phase Environmental Report has been prepared and accepted.



**Figure 6-1: Outline of roles and reporting structure for the EMPr<sup>2</sup>**

Specific responsibilities for the Developer’s Project Manager (DPM), Developer Site Supervisor (DSS), Environmental Control Officer (ECO), Developer Environmental Officer (DEO), Contractor, and the Contractor Environmental Officer (CEO) are defined in the Generic EMPr for the development of overhead transmission and distribution infrastructure.

**Refer to: Table 1 (Part A, Section 3) of the Generic EMPr for the development of overhead transmission and distribution infrastructure, attached as Appendix D and Table 1 (Part A, Section 3) of the Generic EMPr for the development and expansion of substation infrastructure for the transmission and distribution of electricity, attached as Appendix E.**

<sup>2</sup> Part 5a, Generic EMPr for Overhead Power Line Construction, Strategic Environmental Assessment for Electricity Grid Infrastructure in South Africa

## 6.2 ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE

To ensure accountable and demonstrated implementation of the EMPr, a number of reporting systems, documentation controls and compliance mechanisms must be in place. **Table 6-1** indicates the minimum requirements as set out in the generic EMPrs for the development of overhead transmission and distribution infrastructure and for the development and expansion of substation infrastructure for the transmission and distribution of electricity.

**Table 6-1: Documentation Reporting and Compliance Requirements as per the generic EMPrs**

ASPECT	REFER TO GENERIC EMPr (PART A)
Document control/Filing system	Section 4.1
Documentation to be available	Section 4.2
Weekly Environmental Checklist	Section 4.3
Environmental site meetings	Section 4.4
Required Method Statements	Section 4.5
Environmental Incident Log (Diary)	Section 4.6
Non-compliance	Section 4.7
Corrective action records	Section 4.8
Photographic record	Section 4.9
Complaints register	Section 4.10
Claims for damages	Section 4.11
Interactions with affected parties	Section 4.12
Environmental audits	Section 4.13
Final environmental audits	Section 4.14

**Refer to: Part A, Section 4 of the Generic EMPr for the development of overhead transmission and distribution infrastructure, attached as Appendix D and Part A, Section 4 of the Generic EMPr for the development and expansion of substation infrastructure for the transmission and distribution of electricity, attached as Appendix E.**

# 7 ENVIRONMENTAL CONTROLS

The Environmental Controls are presented in two sections, firstly the general environmental attributes as per the pre-approved generic EMPs, followed by site specific environmental attributes.

## 7.1 GENERAL CONTROL MEASURES

This section refers to construction related activities that are common to most power line projects as defined within the pre-approved generic EMPs. For each activity, a set of prescribed environmental controls and associated management actions have been identified. Contractors shall implement these controls as a minimum requirement for mitigating the impact of particular construction related activities.

These control measures are defined within Part B: Section 1 of the pre-approved generic EMPs (attached as **Appendix D** and **Appendix E**). The format of a general environmental control is shown below, see **Table 7-1**. The boxes shaded in green are predefined and represent minimum standards for the management of that particular aspect. The Contractor will be required to adhere to all impact management actions (where applicable to the construction related activity) for the Project. The boxes shaded in red assign responsibility for the implementation and monitoring of the impact management actions. This implementation and monitoring information is project specific and shall be completed by the Contractor prior to commencement of construction.

**Table 7-1: Format of a general environmental control illustrating aspects which are predefined versus those which still need to be completed by the contractor**

<b>Management Objective:</b>	Predefined as part of Generic EMP					
<b>Management Outcome:</b>	Predefined as part of Generic EMP					
<b>Impact Management Actions</b>	<b>Implementation</b>			<b>Monitoring</b>		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Predefined as part of Generic EMP	To be completed by Contractor	To be completed by Contractor	To be completed by Contractor	To be completed by Contractor	To be completed by Contractor	To be completed by Contractor

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

The construction related activities addressed within Part B: Section 1 of the pre-approved generic EMPs are as follows:

**Table 7-2: Activities and management measures as per generic EMP (Part B: Section 1)**

ACTIVITY	REFER TO GENERIC EMP FOR THE DEVELOPMENT OF OVERHEAD TRANSMISSION AND DISTRIBUTION INFRASTRUCTURE, ATTACHED AS <u>APPENDIX D</u> (PART B: SECTION 1)	REFER TO GENERIC EMP FOR THE DEVELOPMENT AND EXPANSION OF SUBSTATION INFRASTRUCTURE, ATTACHED AS <u>APPENDIX E</u> (PART B: SECTION 1)
Environmental awareness training	5.1	5.1
Site Establishment development	5.2	5.2

<b>ACTIVITY</b>	<b>REFER TO GENERIC EMPR FOR THE DEVELOPMENT OF OVERHEAD TRANSMISSION AND DISTRIBUTION INFRASTRUCTURE, ATTACHED AS <u>APPENDIX D</u> (PART B: SECTION 1)</b>	<b>REFER TO GENERIC EMPR FOR THE DEVELOPMENT AND EXPANSION OF SUBSTATION INFRASTRUCTURE, ATTACHED AS <u>APPENDIX E</u> (PART B: SECTION 1)</b>
Access restricted areas	5.3	5.3
Access roads	5.4	5.4
Fencing and Gate installation	5.5	5.5
Water Supply Management	5.6	5.6
Storm and wastewater management	5.7	5.7
Solid and hazardous waste management	5.8	5.8
Protection of watercourses and estuaries	5.9	5.9
Vegetation clearing	5.10	5.10
Protection of fauna	5.11	5.11
Protection of heritage resources	5.12	5.12
Safety of the public	5.13	5.13
Sanitation	5.14	5.14
Prevention of disease	5.15	5.15
Emergency procedures	5.16	5.16
Hazardous substances	5.17	5.17
Workshop, equipment maintenance and storage	5.18	5.18
Batching plants	5.19	5.19
Dust emissions	5.20	5.20
Blasting	5.21	5.21
Noise	5.22	5.22
Fire prevention	5.23	5.23
Stockpiling and stockpile areas	5.24	5.24
Finalising tower positions	5.25	
Civil works		5.25
Excavation (and Installation) of foundations	5.26	5.26

ACTIVITY	REFER TO GENERIC EMPr FOR THE DEVELOPMENT OF OVERHEAD TRANSMISSION AND DISTRIBUTION INFRASTRUCTURE, ATTACHED AS <u>APPENDIX D</u> (PART B: SECTION 1)	REFER TO GENERIC EMPr FOR THE DEVELOPMENT AND EXPANSION OF SUBSTATION INFRASTRUCTURE, ATTACHED AS <u>APPENDIX E</u> (PART B: SECTION 1)
Installation of foundations, cable trenching and drainage systems		5.27
Assembly and erecting towers	5.27	
Installation of equipment (circuit breakers, current Transformers, Isolators, Insulators, surge arresters, voltage transformers, earth switches)		5.28
Stringing (and cabling)	5.28	5.30
Testing and Commissioning (all equipment testing, earthing system, system integration)		5.31
Socio-economic	5.29	5.32
Temporary closure of site	5.30	5.33
Dismantling of old equipment		5.34
Landscaping and rehabilitation	5.31	5.35

**Refer to: Part B – Section 1 of the Generic EMPr for the development of overhead transmission and distribution infrastructure, attached as Appendix D and Part B – Section 1 of the Generic EMPr for the development and expansion of substation infrastructure for the transmission and distribution of electricity, attached as Appendix E.**

## 7.2 SITE SPECIFIC CONTROL MEASURES

This section refers to site specific actions or mitigation measures related to the Project and are based on findings from the BA Report and associated specialist studies.

This section identifies various actions which are undertaken throughout the construction and operational phases. Not every action will be required during the entire course of activities. Therefore, the actions identified herein have been given priority timeframes for proposed implementation. **Table 7-3** below shows the structure of the site-specific EMPr.

**Table 7-3: Structure of EMPr**

COLUMN	DESCRIPTION
Activity/Aspect	Highlights the various activities/aspects associated with the project i.e. the contractors' activities that will interact with the environment.
Environmental Measures and Action Plans	Indicates the actions required to prevent and /or minimise the potential impacts on the environment that are associated with the project.

COLUMN	DESCRIPTION
<b>Responsibility</b>	Indicates the party responsible for implementing the environmental measures and action plans laid out in the EMPr. Please note that the Site Manager will have authority to stop works if/as necessary.
<b>Priority Timeframe</b>	Indicates when the actions for the specific aspect must be implemented and/or monitored.

The following assumptions have been made in the development of the environmental specification in this site specific EMPr:

- An environmental file containing the information/documentation required by this site specific EMPr is to remain onsite and to be made available at the request of the auditor or similar monitoring body; and
- For ease of reference, any person(s) employed to assist in the Project (i.e. contractors, sub-contractor and permanent and temporary staff) will be collectively referred to as ‘onsite personnel’.

It should be noted that at this point of the Project planning process, the necessity for and timing of the decommissioning phase is unknown. Before decommissioning, the holder of the EA will need to follow the related legal permitting process in terms of NEMA and other legislation applicable at the time. The future associated permitting process will further supplement any commitments made within this document.

**Table 7-4** outlines the site specific EMPr for the proposed Project.

**Table 7-4: Environmental Management Programme**

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
<b>1. CONTRACTOR LAYDOWN AREA AND SITE ACCESS</b>			
<p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>– To implement measures to minimise impacts on the environment from the initiation of construction activities through planning, careful site access route selection and implementation of mitigation measures.</li> </ul> <p><b>Indicator and Compliance Mechanisms:</b></p> <ul style="list-style-type: none"> <li>– Health, safety, environmental and community incident and complaints management system register.</li> <li>– Close-out on incidents.</li> <li>– Monitoring and audit reports.</li> <li>– Inductions training and register.</li> <li>– Environmental awareness programme/toolbox talks.</li> </ul>			
a) Project Initiation of Construction Activities	i) Prior to commencement of onsite activities - an ECO is to be appointed as an independent quality controller and monitoring agent to manage and verify compliance with the EA and EMPr.	dPM / Contractor	Once-Off
	ii) Ensure construction activities remain within the demarcated project footprint.	Contractor / cEO	Construction
	iii) Any no-go areas identified must be demarcated before construction commences. This includes all wetlands and any sensitive areas such as heritage sites or sensitive plant species, unless a permit is obtained.	dEO & ECO (monitor)	
	iv) Contractor laydown areas, vehicle re-fuelling areas and material storage facilities are to remain outside of the watercourses and their associated 32m NEMA Zone of Regulation (ZoR) as well as any sensitive areas.		
	v) All personnel and contractors to undergo Environmental Awareness Training. A signed register of attendance must be kept for proof. Discussions are required on sensitive environmental receptors within the project area to inform contractors and site staff of the presence of Red / Orange List species, their identification, conservation status and importance, biology, habitat requirements and management requirements the EA and within the EMPr.	ECO (initial training) cEO (continued training) dEO & ECO (monitor)	Construction Operation
vi) Site clearing must be limited to the footprint of the infrastructure requirements.	Contractor / cEO dEO & ECO (monitor)	Construction	

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	vii) Locate adequate firefighting equipment, such as fire extinguishers, at laydown areas and with vehicles and make all personnel aware of fire prevention and firefighting measures. Firefighting equipment must be securely placed and inspected monthly.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
<b>2. VEHICLE, EQUIPMENT AND MACHINERY MANAGEMENT</b>			
<p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>– To implement measures to minimise impacts on the environment from poorly maintained equipment, machinery and vehicles onsite.</li> </ul> <p><b>Indicator and Compliance Mechanisms:</b></p> <ul style="list-style-type: none"> <li>– Vehicle and Equipment maintenance programme</li> <li>– Visual inspection of equipment/plant storage areas and active site area, signage, spill kits, etc. (photographic records)</li> <li>– Health, safety, environmental and community incident and complaints management system register.</li> <li>– Close-out on incidents.</li> <li>– Monitoring and audit reports.</li> <li>– Transport route delineation.</li> <li>– Compliance with SANS 10228.</li> <li>– Daily equipment, machinery and vehicle checklists.</li> <li>– Equipment, machinery and vehicle service records.</li> <li>– Incident Classification and Reporting Procedure.</li> </ul>			
a) Maintenance of Equipment, Machinery and Vehicles	i) Only minor emergency repair / maintenance work may be undertaken on machinery onsite or within the site camp area.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	ii) All construction vehicles, plant, machinery, and equipment must be checked daily to ensure hydrocarbon leaks (including fuel and hydraulic fluids) are not occurring. Leaking equipment must be repaired immediately or be removed from site to facilitate repair.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	iii) All construction vehicles, plant, machinery and equipment must be regularly maintained, in line with a maintenance schedule, to prevent leaks, ensure roadworthiness, and reduce emissions.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
b) Traffic Congestion	i) The movement of vehicles into and out of the site, as well as transporting of equipment / materials to and from site, must be undertaken in line with the approved Contractors Method Statement; to ensure the impact on public areas is minimised, such as ensuring	Contractor / cEO dEO & ECO (monitor)	Construction Operation



ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	that abnormal loads are moved outside of peak traffic hours, and reasonable measures are taken to ensure that public and staff safety is managed adequately.		
c) Site Access	i) When the powerline is spun between the monopoles, and when maintenance is undertaken, no vehicles may indiscriminately drive through the watercourses. Dedicated access roads must be used.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
<b>3. FUEL AND CHEMICAL MANAGEMENT</b>			
<p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>— To ensure the correct storage, handling and disposal of fuels and chemicals in order to prevent impacts to the surrounding environment.</li> </ul> <p><b>Indicator and Compliance Mechanisms:</b></p> <ul style="list-style-type: none"> <li>— Maintenance records.</li> <li>— Material safety data sheets (MSDS).</li> <li>— Health, safety, environmental and community incident and complaints management system register.</li> <li>— Chemicals Management Procedure.</li> <li>— Monitoring and audit reports.</li> <li>— Training records.</li> </ul>			
a) Fuel and Chemical Management	i) A spill management plan must be put in place to ensure that should there be any chemical spill out or over that it does not run into the surrounding areas.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	ii) Securely fence and lock the storage areas to accommodate all hazardous substances such as fuel, oils, and chemicals. The storage area must be roofed, and the floor must be an impermeable surface and suitably bunded as per the requirements outlined in SANS 10089-1 (2008). If storage capacity triggers licensing, required licences must be acquired.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	iii) Label all liquids (chemicals and hydrocarbons) stored onsite for easy identification. Material Safety Data Sheets (MSDS) for onsite chemicals, hydrocarbon materials and hazardous substances must be readily available. MSDS must include mitigation measures to ameliorate potential environmental impacts which may result from a spill, incorporating health and safety mitigation measures.	Contractor / cEO dEO & ECO (monitor)	Construction Operation

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	iv) Keep fuels, oils or other chemicals used outside of the bunded area to a minimum and use suitable secondary containment in the form of drip trays.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	v) Wooden poles should be pre-treated at an appropriate facility to ensure chemical fixation and prevent leaching, and to impede the formation of surface residues within the servitude.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
b) Health and Safety	i) Display “no smoking” and “no naked flame” signs in and around the project area, as well as near the hazardous material store.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	ii) Adequate fire-fighting equipment must be made available at all hazardous storage areas.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
<b>4. WASTE MANAGEMENT</b>			
<p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>— To ensure the correct handling, storage, transportation and disposal of general waste and hazardous waste.</li> </ul> <p><b>Indicator and Compliance Mechanisms:</b></p> <ul style="list-style-type: none"> <li>— Induction training and records.</li> <li>— Waste Management Plan (WMP).</li> <li>— Relevant SANS Codes of Practice.</li> <li>— Waste Manifests (all waste streams), waybills (general waste) and Safety disposal certificates (hazardous waste).</li> <li>— Emergency preparedness and response procedure.</li> <li>— Incident Classification and Reporting Management Procedure.</li> <li>— Health, safety, environmental and community incident and complaints management system register.</li> <li>— Monitoring and audit reports.</li> </ul>			
a) General Waste Management	i) General waste generated as a result of construction activities must be managed in accordance with a WMP (see Section 8.1 of this EMP). The procedure must be reviewed to ensure compliance with legislative amendments.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	ii) Train and inform all onsite personnel regarding general waste minimisation, management, and disposal as per the WMP.	Contractor / cEO	Construction

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
		dEO & ECO (monitor)	Operation
	iii) Prohibit littering and burning of waste onsite.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	iv) Place an adequate number of labelled or colour coded general waste bins around the laydown area and at the construction sites during construction activities in order to minimise littering. The bins must be removed from the site on a regular basis for disposal at a registered or licensed disposal facility.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	v) Refuse bins will be emptied when full and storage of domestic waste shall be in covered waste skips.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	vi) Retain records such as waybills and waste manifests associated with waste removal, transportation and disposal.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	vii) A minimum of one toilet must be provided per 10 persons.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	viii) Prohibit the mixing of general waste with hazardous waste. Should general waste be mixed with hazardous waste, it will be considered hazardous waste. See below for managing hazardous waste.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	ix) Recover, recycle and reuse waste where possible. Seek to use suppliers who reuse their packaging so that they can collect after initial unpacking onsite.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	x) It is recommended that all waste be removed from site immediately to prevent rodents and pests entering the site.	Contractor / cEO dEO & ECO (monitor)	Construction Operation

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	xi) No dumping of litter, rubble or cleared vegetation on site should be allowed. As such it is advised vegetation cuttings (especially AIP) to be carefully collected and disposed of at a separate waste facility.	Contractor / cEO dEO & ECO (monitor)	Construction
b) Hazardous Waste Management	i) Adequate sanitary facilities and ablutions (a minimum of one toilet per 10 persons) must be provided for all personnel throughout the Project area. Use of these facilities must be enforced (these facilities must be kept clean so that they are a desired alternative to the surrounding vegetation).	Contractor / cEO dEO & ECO (monitor)	Construction
	ii) Any recyclable material which is considered hazardous is to be collected and transferred by a permitted/trained waste contractor in accordance with the SANS 10228 for transport to the approved recycling/recovery facility.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	iii) Train and inform all onsite personnel regarding hazardous waste minimisation, management and disposal as per the WMP in Section 8.1 of this EMPr.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	iv) Clean areas where hazardous waste spills have occurred and dispose of the hazardous material appropriately. Key personnel must be trained on handling spillages.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	v) Retain records of appropriate safety disposal certificates associated with hazardous waste removal, transportation and disposal.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	vi) The emergency preparedness and response plan (Section 8.6 of this EMPr or the site specific one developed) must be implemented. The plan must be placed in key locations around the site, visible to all employees.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	vii) Ensure that waste manifest documentation (as per the Waste Classification and Management Regulations – GNR 634) is prepared and maintained for the generation, transportation and disposal of waste.	Contractor / cEO dEO & ECO (monitor)	Construction
	viii) Report any major spill incidents to the Department within 24 hours of occurrence.	Contractor / cEO dEO & ECO (monitor)	Construction Operation

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
<b>5. FRESHWATER MANAGEMENT</b>			
<p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>— To protect the integrity and ecological functioning and prevent pollution of freshwater sources in the vicinity of the project.</li> </ul> <p><b>Indicator and Compliance Mechanisms:</b></p> <ul style="list-style-type: none"> <li>— Induction training and records.</li> <li>— Monitoring and audit reports.</li> </ul>			
a) Protection of Watercourses	i) It is imperative that all construction works be undertaken during periods of low to no rainfall (thus preferably during the dry, winter months) when the flow/level of water is very low in the watercourses;	dPM Contractor / cEO dEO & ECO (monitor)	Construction
	ii) Due to the accessibility of the sites, no unnecessary crossing of the watercourses may be permitted and it is strongly recommended that the calculated 10 m construction buffer and 32m ZoR be considered a no-go area. This will limit edge effects, erosion and sedimentation of the watercourses during the construction phase;	Contractor / cEO dEO & ECO (monitor)	Construction
	iii) Contractor laydown areas, vehicle re-fuelling areas and material storage facilities to remain outside of the watercourse areas (including the cryptic wetlands identified within the larger investigation area) and their associated buffer zones;	Contractor / cEO dEO & ECO (monitor)	Construction
	iv) Any material stockpiled should be kept to a minimum. Should the vegetation not be suitable for reinstatement after the construction phase or be alien/invasive vegetation species, all material must be disposed of at a registered garden refuse site and may not be burned or mulched on site.	Contractor / cEO dEO & ECO (monitor)	Construction
	v) It is strongly recommended that all support structures associated with the proposed powerline infrastructure be located outside the delineated extent of the identified watercourses and their calculated 10 m construction buffer buffer and 32 m NEMA ZoR;	Contractor / cEO dEO & ECO (monitor)	Construction
	vi) The construction footprint and period should be kept as small and as short as possible, respectively; and construction activities within the delineated watercourses should be avoided;	Contractor / cEO dEO & ECO (monitor)	Construction

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	vii) Only a 5 m zone of disturbance should be permitted to be disturbed. This 5 m zone of disturbance will limit construction vehicles/personnel to disturb the surrounding area to watercourses, should the support structures be located in close proximity to a watercourse;	Contractor / cEO dEO & ECO (monitor)	Construction
	viii) Protect exposed stockpiles (if necessary) from wind and limit the time in which the stockpiled soil is exposed, by covering with a suitable geotextile such as hessian sheeting;	Contractor / cEO dEO & ECO (monitor)	Construction
	ix) During excavation of the foundation pits, soil must be stockpiled upgradient of the excavated foundation pit and away from the watercourses. Mixture of the lower and upper layers of the excavated soil should be kept to a minimum. The soil must be used to close off the pits, immediately after installation of the support structures;	Contractor / cEO dEO & ECO (monitor)	Construction
	x) The bedding layer (such as clean gravel) should be spread evenly and compacted uniformly to the required density using a hand tamper (one man operator) in order to minimise the use of large machinery within the watercourse or within close proximity to a watercourse; When the powerline is spun between the support structures, no vehicles may indiscriminately drive through the watercourses, use must be made of the dedicated access roads.	Contractor / cEO dEO & ECO (monitor)	Construction
	<u>Control measures for concrete mixing on site (where applicable):</u> xi) No mixed concrete may be deposited outside of the designated construction footprint; xii) As far as possible, concrete mixing should be restricted to the contractor laydown area. Additionally, batter / dagga board mixing trays and impermeable sumps should be provided, onto which any mixed concrete can be deposited while it awaits placing; and xiii) Any concrete potentially spilled outside of the demarcated area must be promptly removed and taken to a suitably licensed waste disposal site.	Contractor / cEO dEO & ECO (monitor)	Construction
	<u>With regards to backfilling of the excavated material and concrete encasing:</u> xiv) Soil removed for excavating the foundation pit should be used as backfill material; xv) All excavated foundation pits must be compacted to natural soil compaction levels to prevent the formation of preferential surface flow paths and subsequent erosion.	Contractor / cEO dEO & ECO (monitor)	Construction

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	<p>Conversely, areas compacted as a result of construction activities must be loosened to natural soil compaction levels to allow vegetation establishment;</p> <p>xvi) Any remaining soil following the completion of backfilling of the foundation pits is to be spread out thinly surrounding the constructed support structures (outside watercourses) to aid in the natural reclamation process; and</p> <p>xvii) The construction footprint must be limited to the foundation pit area associated with the support structures and recommended 5 m construction buffer (to allow for the stockpiling and movement of personnel). The area must be rehabilitated after the completion of the construction phase, including revegetation thereof with indigenous vegetation.</p> <p>xviii) In addition, alien vegetation eradication of the footprint area must be undertaken where applicable.</p>		
b) Access Route “Jeep Track”	i) All footprint areas must remain as small as possible and vegetation clearing to be limited to what is absolutely essential	Contractor / cEO dEO & ECO (monitor)	Construction
	ii) No vegetation clearing must take place in the watercourses	Contractor / cEO dEO & ECO (monitor)	Construction
	iii) No formal paving should be used for the access route. In situ compaction of soil for the “jeep-track” as proposed is preferred..	Contractor / cEO dEO & ECO (monitor)	Construction
c) Maintenance	i) Maintenance vehicles must make use of dedicated access roads and no indiscriminate movement in the watercourses may be permitted;	Contractor / cEO dEO & ECO (monitor)	Operation
	ii) During periodic maintenance activities of the powerline, monitoring for erosion should be undertaken;	Contractor / cEO dEO & ECO (monitor)	Operation
	iii) Should erosion be noted at the base of the support structures, the area must be rehabilitated by infilling the erosion gully and revegetation thereof with suitable indigenous vegetation;	Contractor / cEO dEO & ECO (monitor)	Operation

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	iv) Monitoring for the establishment of alien and invasive vegetation species must be undertaken, specifically where the support structures are within close proximity (within 32 m) to the watercourses and for access roads through or along the watercourses. Should alien and invasive plant species be identified, they must be removed and disposed of as and the area must be revegetated with suitable indigenous vegetation.	Contractor / cEO dEO & ECO (monitor)	Operation
<b>6. BIODIVERSITY MANAGEMENT</b>			
<p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>– Prevent the further loss and fragmentation of vegetation communities and the CBA 1 and CBA 2 areas in the vicinity of the project area (including water resource areas);</li> <li>– Follow the guidelines for interpreting SEI;</li> <li>– As far as possible, reduce the negative fragmentation effects of the development and enable safe movement of faunal species; and</li> <li>– Prevent the direct and indirect loss and disturbance of faunal species and community (including occurring and potentially occurring species of conservation concern).</li> </ul> <p><b>Indicator and Compliance Mechanisms:</b></p> <ul style="list-style-type: none"> <li>– Induction training and records.</li> <li>– Monitoring and audit reports.</li> </ul>			
a) Vegetation and Habitats	<p>i) The placement of pylons and support structures within High sensitivity areas must be avoided (as much is feasible). An ECO can advise should placement within a High sensitivity area be essential, applicable mitigation measures should be prescribed. The support structures associated with the proposed powerline must be located outside the episodic drainage line. The areas to be developed must be specifically demarcated to prevent movement into highly sensitive surrounding environments. The infrastructure outlines must be realigned within very low/ low and medium sensitivity areas.</p> <ul style="list-style-type: none"> <li>• Pylon placement within the Sandy Grassland need to be planned specifically in order to avoid placing structures footprints on the unstable dunes. This will not only avoid the loss of the unique habitat, but also provide a solid foundation for the infrastructure.</li> </ul>	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	ii) Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should under no circumstances be fragmented or disturbed further. Clearing of vegetation should be minimized and avoided where possible.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	iii) Existing access routes and walking paths must be made use of, and the development of new routes avoided, unless within very low/ low and / medium sensitivity areas within the approved project area.	Contractor / cEO dEO & ECO (monitor)	Construction Operation



ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	iv) All laydown areas, chemical toilets etc. should be restricted to low sensitivity areas. Construction materials may not be stored for extended periods of time and must be removed from the project area once the construction/closure phase has been concluded. No storage of vehicles or equipment will be allowed outside of the designated project areas. The storage of the transmission towers/pylons to be installed are not to be stored for extended periods of time and storage areas must be placed in low sensitivity areas.	Contractor / cEO dEO & ECO (monitor)	Construction
	v) Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood events. This will also reduce the likelihood of encroachment by alien invasive plant species.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	vi) All structure footprints to be rehabilitated and landscaped after installation is complete. Rehabilitation of the disturbed areas existing in the project area must be made a priority.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	vii) Progressive rehabilitation will enable topsoil to be returned more rapidly, thus ensuring more recruitment from the existing seedbank Any woody material removed can be shredded and used in conjunction with the topsoil to augment soil moisture and prevent further erosion.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	viii) A hydrocarbon spill management plan must be put in place to ensure that should there be any chemical spill out or over that it does not run into the surrounding areas. The Contractor shall be in possession of an emergency spill kit that must always be complete and available on site. Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use. No servicing of equipment on site unless necessary. All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers. Appropriately contain any generator diesel storage tanks, machinery spills (e.g. accidental spills of hydrocarbons oils, diesel etc.) in such a way as to prevent them leaking and entering the environment.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	ix) Leaking equipment and vehicles must be repaired immediately or be removed from project area to facilitate repair.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	x) It should be made an offence for any staff to take/bring any plant species into/out of any portion of the project area. No plant species whether indigenous or exotic should be	Contractor / cEO dEO & ECO (monitor)	Construction Operation

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	brought into/taken from the project area, to prevent the spread of exotic or invasive species or the illegal collection of plants.		
	xi) All removed soil and material must not be stockpiled within the drainage areas. Stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds.	Contractor / cEO dEO & ECO (monitor)	Construction
	xii) Enforcing of speed limits. Reducing the dust generated by the listed activities above, putting up signs to enforce speed limit in access roads.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	xiii) Any individual of the protected plants that are present needs a relocation or destruction permit in order for any individual that may be removed or destroyed due to the development. Hi visibility flags must be placed near any threatened/protected plants in order to avoid any damage or destruction of the species. If left undisturbed the sensitivity and importance of these species needs to be part of the environmental awareness program. Pylon infrastructure, development areas and routes where protected plants cannot be avoided, these plants many being geophytes or small succulents should be removed from the soil and relocated/ re-planted in similar habitats where they should be able to resprout and flourish again. All protected and red-data plants should be relocated, and as many other geophytic species as possible.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	xiv) For the threatened species that may not be destroyed, it is recommended that professional service providers that deal with plant search and rescue be used to remove such plants and use them either for later rehabilitation work other conservation projects.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
b) Fauna Management	i) The areas to be developed must be specifically demarcated to prevent unnecessary movement of staff or any individual into High sensitive areas and the surrounding environments.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	ii) Any holes/deep excavations must be dug and planted in a progressive manner and shouldn't be left open overnight Should the holes be left overnight they must be covered temporarily to ensure no small fauna species fall in.		
	iii) No trapping, killing, or poisoning of any wildlife is to be allowed.	Contractor / cEO dEO & ECO (monitor)	Construction Operation

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	iv) All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. Speed limits must be enforced to ensure that road killings /disturbance is limited.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	v) Schedule activities and operations during least sensitive periods, to avoid migration, nesting and breeding seasons. <ul style="list-style-type: none"> <li>• Driving on access roads close to highly and medium sensitive areas at night should be prevented in order to reduce; or prevent wildlife road mortalities which occur more frequently during this period.</li> </ul>	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	vi) All areas to be developed must be walked through prior to any activity to ensure no nests or birds area found in the area. Should any Species of Conservation Concern not move out of the area or their nest be found in the area a suitably qualified specialist must be consulted to advise on the correct actions to be taken.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	vii) For transmission towers in high sensitivity locations, it is recommended to install bird guard/spike structures (close to or along drainage features) to prevent birds from landing on and/or nesting on the towers. This has been linked with increases in corvid populations which can impact local reptile and avifauna species. Poles: The poles should be fitted with bird perches on top of the poles to draw birds, particularly vultures, away from the potentially risky insulators.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	viii) Appropriate bird mitigation measures should be put in place to avoid bird collisions and direct impacts to the infrastructure, as the likelihood of SCC being present in the area is confirmed. These mitigation measures should entail the installation of ‘bird-flappers’ and bird-friendly powerline structures. This is particularly relevant to the portions of the proposed powerline which crosses the drainage feature areas as well as the Sandy Grassland areas. Powerline: The span that crosses major drainage lines should be marked with Bird Flight Diverters on the earth wire of the line, five metres apart, alternating black and white.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	ix) Ensure that cables and connections are insulated successfully to reduce electrocution risk.	Contractor / cEO dEO & ECO (monitor)	Construction Operation

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	x) Any exposed parts must be covered (insulated) to reduce electrocution risk.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	xi) Monitoring of the OHL route must be undertaken to detect bird carcasses, to enable the identification of any potential areas of high impact to be marked with bird flappers if not already done so. Monitoring should be undertaken at least once a month for the first year of operation.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	xii) Heat generated from the substations must be monitored to ensure it does not negatively affect the local fauna.	Contractor / cEO dEO & ECO (monitor)	Operation
c) Alien Vegetation Management	i) An alien vegetation management plan is to be compiled and implemented.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	ii) The footprint area of the construction should be kept to a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas.	Contractor / cEO dEO & ECO (monitor)	Operation
	iii) Waste management must be a priority and all waste must be collected and stored adequately. It is recommended that all waste be removed from site immediately to prevent rodents and pests entering the site.	Contractor / cEO dEO & ECO (monitor)	Construction
	iv) Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood or high wind events	Contractor / cEO dEO & ECO (monitor)	Construction
d) Fire Management	i) A fire management plan needs to be compiled and implemented to restrict the impact fire might have on the habitats. No illicit fires must be allowed during the construction phase of the proposed development.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
<b>7. BAT MANAGEMENT</b>			
<b>Objectives:</b>			

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
-----------------	---	--------------------	--------------------

<ul style="list-style-type: none"> <li>To prevent any loss of diversity of indigenous bat communities and loss of important bat habitat.</li> </ul> <p><b>Indicator and Compliance Mechanisms:</b></p> <ul style="list-style-type: none"> <li>Induction training and records.</li> <li>Monitoring and audit reports.</li> </ul>			
a) Habitat Disturbance and Electrocutation	i) Minimize dust, erosion, and alien plant growth throughout the project footprint.	Contractor / cEO dEO & ECO (monitor)	Construction
	ii) Do not drain, abstract, contaminate, or otherwise disturb any (natural or artificial) water resource.	Contractor / cEO dEO & ECO (monitor)	Construction
	iii) Rehabilitate all disturbed natural areas a.s.a.p. based on advice from an appropriate specialist(s).	Contractor / cEO dEO & ECO (monitor)	Construction
	iv) Do not install powerline poles in High sensitive drainage lines.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	v) Avoid (where possible) installing powerline poles in Medium-High sensitive areas.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	vi) Minimize the number of powerline poles to be installed in Medium sensitive areas.	Contractor / cEO dEO & ECO (monitor)	Construction Operation

**8. SOIL AND LAND MANAGEMENT**

**Objectives:**

- To prevent any disturbance, erosion or contamination of soil resources.

**Indicator and Compliance Mechanisms:**

- Induction training and records.
- WMP.
- Incident Classification and Reporting Management Procedure.

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
<ul style="list-style-type: none"> <li>– Health, safety, environmental and community incident and complaints management system register.</li> <li>– Monitoring and audit reports.</li> <li>– Stormwater Management Plan.</li> </ul>			
a) Soil and Land Management	i) Implement stormwater and soil erosion management measures, where required, that will help to reduce the speed of the water runoff and ensure no erosion gullies form within the area under management. These measures must also assist with the prevention of water pollution, erosion and siltation.	Contractor / cEO dEO & ECO (monitor)	Construction
	ii) During periodic maintenance activities of the powerline, monitoring for erosion should be undertaken. iii) Should erosion be noted at the base of the pylon within close proximity to the watercourse (where applicable) the area must be rehabilitated by infilling the erosion gully and revegetation thereof with suitable indigenous vegetation.	Contractor / cEO dEO & ECO (monitor)	Construction
	iv) All excavations and foundations (if any) must be inspected regularly for any silting. If excavations or foundations fill up with stormwater, these areas must immediately be drained and measures to prevent access to these areas must be implemented.	Contractor / cEO dEO & ECO (monitor)	Construction
	v) Any exposed earth must be rehabilitated promptly, and this could include planting suitable indigenous vegetation to protect the exposed soil.	Contractor / cEO dEO & ECO (monitor)	Construction
	vi) Where bare soils are left exposed as a result of construction activities, they should be immediately rehabilitated.	Contractor / cEO dEO & ECO (monitor)	Construction
	vii) Rehabilitated efforts should continue to be monitored post construction, until natural processes will allow the ecological functioning and biodiversity of the area to be re-instated.	dEO & ECO	Post Construction
	viii) Keep adequate spill kits onsite and train personnel to use them appropriately.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	b) Wind Erosion	i) Limit earthworks and vehicle movement to demarcated paths and areas.	Contractor / cEO

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
		dEO & ECO (monitor)	Operation
	ii) Limit the duration of construction activities where possible, especially those involving earthwork / excavations.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	iii) Access roads associated with the development should have gradients or surface treatment to limit erosion, and road drainage systems should be accounted for.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	iv) Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces must be re-vegetated or stabilised as soon as is practically possible.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	v) During periods of strong winds, stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.).	Contractor / cEO dEO & ECO (monitor)	Construction Operation
c) Change in Land Use and Capability	vi) Limit earthworks and vehicle movement to demarcated paths and areas.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	vii) Limit removal of vegetation to demarcated areas only.	Contractor / cEO dEO & ECO (monitor)	Construction
	viii) Rehabilitate disturbed areas as soon as practicable following disturbance thereof.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
d) Soil Contamination	i) On-site vehicles should be well-maintained. All construction vehicles, plant, machinery and equipment must be checked daily to ensure hydrocarbon leaks (including fuel and hydraulic fluids) are not occurring.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	ii) Drip trays should be placed under stationary vehicles / plant;	Contractor / cEO dEO & ECO (monitor)	Construction Operation

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	iii) Drip trays are to be inspected daily for leaks and effectiveness and emptied when necessary. This is to be closely monitored during rain events to prevent overflow.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	iv) On-site pollutants/hazardous materials should be contained in a bunded area and on an impermeable surface;	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	v) Ensure proper control of dangerous substances entering the site;	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	vi) Adequate disposal facilities should be provided, and	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	vii) A non-polluting environment should be enforced.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
<b>9. WATER MANAGEMENT</b>			
<p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>— To implement measures to prevent the contamination on surface and groundwater resources.</li> <li>— To prevent erosion.</li> </ul> <p><b>Indicator and Compliance Mechanisms:</b></p> <ul style="list-style-type: none"> <li>— Induction training and records.</li> <li>— Incident Classification and Reporting Management Procedure.</li> <li>— Environmental awareness programme/toolbox talks.</li> <li>— Stormwater Management Plan.</li> </ul>			
a) Surface and Groundwater Management	i) A suitable stormwater management plan must be generated for the Project to control the movement of water on site, including separation of ‘clean’ and ‘dirty’ areas in the site camp as well as general management measures to be implemented on site.	Contractor / cEO dEO & ECO (monitor)	Construction



ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	ii) All stormwater generated by medium to high-risk contamination 'dirty' areas must not be allowed to discharge into the surrounding environment.	Contractor / cEO dEO & ECO (monitor)	Construction
	iii) Areas with the potential to contaminate the groundwater must be underlain by hardstanding of suitable integrity.	Contractor / cEO dEO & ECO (monitor)	Construction
	iv) Any cement mixing shall be completed on impervious hardstanding surfaces to prevent spillage to the environment	Contractor / cEO dEO & ECO (monitor)	Construction
b) Fire	i) Contractor shall compile and provide a Fire Plan to be implemented throughout the construction process. The Fire Plan is to be reviewed and approved by the dPM. Section 8.5 of the EMPr outlines minimum aspects to be included within the Fire Plan.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	ii) Training on fire prevention is to be undertaken as part of the Environmental Awareness Training issued to all staff.	ECO (initial training) cEO (continued training) dEO & ECO (monitor)	Construction
	iii) No illicit fires must be allowed during the construction phase of the proposed development.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
<b>10. SITES OF CULTURAL OR HERITAGE SIGNIFICANCE</b>			
<p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>— To ensure that sites/artefacts of heritage value are identified and protected.</li> </ul> <p><b>Indicator and Compliance Mechanisms:</b></p> <ul style="list-style-type: none"> <li>— Reporting as per Chance Find Procedure.</li> <li>— Monitoring and audit reports.</li> </ul>			

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
a) Cultural and/or Heritage Sites and Palaeontology	i) A Chance Find Procedure is to be developed and implemented to manage any heritage resources that may be encountered.	Contractor / cEO dEO & ECO (monitor)	Construction
	ii) If any human burials are found during construction, they should not be further disturbed until reported to the Heritage Authority for further action and mitigation.		
	iii) Site D008 & D009 must be avoided during construction. No towers can be placed in this area. Buffers of 15 meters diameter must be established around each site centerpoint (S-29.283590° E18.798683°) and (S-29.283717° E18.798695°). No disturbance of these areas must occur.	Contractor / cEO dEO & ECO (monitor) Heritage Specialist	Construction
	iv) Final pole positions must be presented to the heritage practitioner for desktop assessment and approval.		
<b>11. HEALTH AND SAFETY</b>			
<p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>— To ensure health and safety of staff and the public.</li> </ul> <p><b>Indicator and Compliance Mechanisms:</b></p> <ul style="list-style-type: none"> <li>— Health, safety, environmental and community incident and complaints management system register.</li> <li>— Incident Classification and Reporting Management Procedure.</li> <li>— Monitoring and audit reports.</li> </ul>			
a) Health and Safety	i) The appointed contractor will be responsible for the development of a comprehensive health and safety protocol, as well as safe work instruction method statements, that are to be used by employees in completing their tasks and which must be adhered to throughout the construction phase.	Contractor / cEO dEO & ECO (monitor)	Construction
	ii) The Contractor is to appoint a health and safety officer to monitor safety conditions during construction activities.		
	iii) All onsite personnel are required to undergo induction training and regular toolbox talks to raise awareness of health and safety.	Contractor / cEO dEO & ECO (monitor)	Construction Operation

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	iv) The contractor is to ensure all employees are properly trained to use specific equipment or machinery and provide all staff with appropriate PPE and ensure they are trained in proper use thereof.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	v) Train all onsite personnel handling chemical or hazardous substances in the use of such substances and the environmental, health and safety consequences of incidents.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	vi) Train personnel on how to deal with snake encounters, as well as encounters with other dangerous animals known to occur in the area	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	vii) Provide onsite personnel with sufficient potable water for drinking.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	viii) Live-wire work is to be conducted only by trained workers with strict adherence to specific safety and insulation standards.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	ix) Develop and implement a fall protection program that includes training in climbing techniques and use of fall protection measures; inspection, maintenance, and replacement of fall protection equipment; and rescue of fall-arrested workers, among others	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	x) Occupational Electric and magnetic fields (EMF) exposure should be prevented or minimized through the preparation and implementation of an EMF safety program.	Contractor / cEO dEO & ECO (monitor)	Construction Operation
	b) Public Safety	i) Restrict public access by ensuring fenced areas with gate access must remain locked after hours, during weekends and on holidays if staff is away from site.	Contractor / cEO dEO & ECO (monitor)
	ii) Should security personnel be engaged to safeguard Project equipment, these should be licenced service providers adequately trained on the use of minimal force.	Contractor / cEO dEO & ECO (monitor)	Construction Operation

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	iii) All visitors to active work areas are to undergo site induction and be made aware of the risks associated with the site.	Contractor / cEO dEO & ECO (monitor)	Construction
<b>12. SOCIO-ECONOMIC ENVIRONMENT</b>			
<b>Objectives:</b>			
<ul style="list-style-type: none"> <li>— To ensure that the negative socio-economic impacts are mitigated and managed.</li> <li>— To ensure that the positive socio-economic impacts are enhanced.</li> </ul>			
<b>Indicator and Compliance Mechanisms:</b>			
<ul style="list-style-type: none"> <li>— Employment records and community engagement local enterprise development records.</li> </ul>			
a) Labour Legislation	i) Ensure compliance with local and international labour legislation and good practice on the part of the contractors.	dPM Contractor	Construction Operation
b) Employment	i) Where reasonable and practical, the proponent should appoint local contractors and implement a 'locals first' policy, especially for semi and low-skilled job categories. However, due to the low skills levels in the area, the majority of skilled posts are likely to be filled by people from outside the area.	dPM	Construction Operation
	ii) Where feasible, efforts should be made to employ local contractors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria.	dPM	Construction Operation
	iii) Before the construction phase commences the proponent should meet with representatives from the Matzikama Municipality to establish the existence of a skills database for the area. If such as database exists it should be made available to the contractors appointed for the construction phase.	dPM	Pre-Construction
	iv) The local authorities, community representatives, and organisations on the interested and affected party database should be informed of the final decision regarding the project and the potential job opportunities for locals and the employment procedures that the proponent intends following for the construction phase of the project.	dPM & Contractor	Pre-Construction
	v) Where feasible, training and skills development programmes for locals should be initiated prior to the initiation of the construction phase.	dPM & Contractor	Pre-Construction

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	vi) The recruitment selection process should seek to promote gender equality and the employment of women wherever possible.	dPM & Contractor	Pre-Construction
c) Local Business Opportunities	<p>i) The proponent should liaise with the Local Municipality with regards the establishment of a database of local companies, specifically BBBEE companies, which qualify as potential service providers (e.g., construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process for construction service providers. These companies should be notified of the tender process and invited to bid for project-related work.</p> <p><i>Note that while preference to local employees and companies is recommended, it is recognised that a competitive tender process may not guarantee the employment of local labour for the construction phase.</i></p>	dPM & Contractor	Pre-Construction
d) Community Safety	i) Where possible, the Proponent should make it a requirement for contractors to implement a 'locals first' policy for construction jobs, specifically for semi and low-skilled job categories.	dPM & Contractor	Construction
	ii) The proponent and the contractor should implement an awareness programme for communicable diseases (including HIV/AIDS and COVID-19) for all construction workers at the outset of the construction phase.	dPM & Contractor dEO & ECO (monitor)	Construction
	iii) The proponent and the contractor(s) should develop a code of conduct for the construction phase. The code should identify which types of behaviour and activities are not acceptable. The Code of Conduct should be signed by the proponent, the Contractors and all workers before the contractors move onto site. Construction workers in breach of the code should be subject to appropriate disciplinary action and/or dismissed. All dismissals must comply with the South African labour legislation.	dPM & Contractor dEO & ECO (monitor)	Construction
	iv) The contractor should provide transport for workers to and from the site on a daily basis. This will enable the contractor to effectively manage and monitor the movement of construction workers on and off the site.	Contractor dEO & ECO (monitor)	Construction

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	v) The contractor must ensure that all construction workers from outside the area are transported back to their place of residence within 2 days for their contract coming to an end.	Contractor dEO & ECO (monitor)	Construction
	vi) No construction workers, with the exception of security personnel, should be permitted to stay over-night on the site.	Contractor dEO & ECO (monitor)	Construction
e) Protection of Livestock and Infrastructure	i) The proponent should enter into an agreement with the local farmers in the area whereby damages to farm property etc. during the construction phase will be compensated for. The agreement should be signed before the construction phase commences.	dPM & Contractor	Construction
	ii) All farm gates must be closed after passing through.	Contractor dEO & ECO (monitor)	Construction
	iii) Contractors appointed by the proponent should provide daily transport for low and semi-skilled workers to and from the site.	Contractor dEO & ECO (monitor)	Construction
	iv) The proponent should consider the establishment of a Monitoring Forum (MF) to monitor the construction phase and the implementation of the recommended mitigation measures. The MF should be established before the construction phase commences, and should include key stakeholders, including representatives from local farmers and the contractor(s). The MF should also address issues associated with damage to roads and other construction related impacts.	dPM & dEO	Pre-Construction
	v) The proponent should hold contractors liable for compensating farmers and communities in full for any stock losses and/or damage to farm infrastructure that can be linked to construction workers. This should be contained in the Code of Conduct to be signed between the proponent, the contractors, and neighbouring landowners. The agreement should also cover losses and costs associated with fires caused by construction workers or construction related activities.	dPM & Contractor dEO & ECO (monitor)	Construction
	vi) Contractors appointed by the proponent must ensure that all workers are informed at the outset of the construction phase of the conditions contained in the Code of Conduct, specifically consequences of stock theft and trespassing on adjacent farms.	dPM & Contractor dEO & ECO (monitor)	Construction

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	vii) Contractors appointed by the proponent must ensure that construction workers who are found guilty of stealing livestock and/or damaging farm infrastructure are dismissed and charged. This should be contained in the Code of Conduct. All dismissals must be in accordance with South African labour legislation.	dPM & Contractor dEO & ECO (monitor)	Construction
f) Heavy Vehicle Management / Grievances	i) Ongoing communication with landowners and road users during construction period.	dEO / cEO ECO (monitor)	Construction
	ii) A complaints register is to be maintained and all complaints received are to be addressed in line with the Grievance Redress Mechanism (GRM). The GRM provides local farmers and other road users with an effective and efficient mechanism to address issues related to construction related impacts, including damage to local gravel farm roads.	dEO / cEO ECO (monitor)	Construction
	iii) Implementation of a road maintenance programme throughout the construction phase to ensure that the affected roads maintained in a good condition.	Contractor / cEO dEO & ECO (monitor)	Construction
	iv) Repair of all affected road portions at the end of construction period where required.	Contractor / cEO dEO & ECO (monitor)	Construction
	v) All vehicles must be roadworthy, and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits.	Contractor / cEO dEO & ECO (monitor)	Construction
g) Energy Security	i) Maximise the number of employment opportunities for local community members.	dPM / dEO	Operation
	ii) Implement training and skills development programs for members from the local community.	dPM / dEO	Operation
	iii) Maximise opportunities for local content and procurement.	dPM / dEO	Operation
h) Farming Operations	i) Affected property owners should be notified in advance of the timing and duration of maintenance activities.	dPM / dEO	Operation

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	ii) Maintenance teams must ensure that all farm gates must be closed after passing through.	dPM / dEO	Operation
	iii) Property owners should be compensated for damage to farm property and or loss of livestock or game associated maintenance related activities.	dPM / dEO	Operation
	iv) Movement of traffic and maintenance related activities should be strictly contained within designated areas associated with transmission lines and substations.	dPM / dEO	Operation
	v) Strict traffic speed limits must be enforced.	dPM / dEO	Operation
	vi) No maintenance workers should be allowed to stay over-night on the affected properties	dPM / dEO	Operation
<b>13. AIR QUALITY</b>			
<p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>— To ensure that air quality impacts to the surrounding area is kept to a minimum or mitigated as far as possible.</li> <li>— To ensure that odour impacts to the surrounding environment are minimal or mitigated</li> </ul> <p><b>Indicator and Compliance Mechanisms:</b></p> <ul style="list-style-type: none"> <li>— Maintenance records.</li> <li>— Incident reporting system.</li> <li>— Induction training and records.</li> <li>— Health, safety, environmental and community incident and complaints management system register.</li> <li>— Monitoring and audit reports.</li> <li>— Odour Management Plan.</li> <li>— Air Quality Impact Assessment.</li> <li>— Records of PPE.</li> </ul>			
a) Dust and Particulate Matter	i) When required, dust suppression methods such as water suppression must be used, especially during dry and windy periods. Dust must be visually monitored on a daily basis and reasonable measures implemented to ensure emissions are minimised.	Contractor / cEO dEO & ECO (Monitor)	Construction
	ii) All stockpiles (if any) must be restricted to designated areas and must not exceed a height of two (2) metres.	Contractor / cEO dEO & ECO (Monitor)	Construction



ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
	iii) All materials transported to, or from, site must be transported in such a manner that they do not fly or fall off the vehicle. This may necessitate covering or wetting friable materials.	Contractor / cEO dEO & ECO (Monitor)	Construction
	iv) Ensure that all vehicles and machines are adequately maintained to minimise emissions.	Contractor / cEO dEO & ECO (Monitor)	Construction Operation
	v) All issues/complaints received must be recorded in the complaints register	Contractor / cEO dEO & ECO (Monitor)	Construction Operation
	vi) No burning of waste, such as plastic bags, cement bags litter is permitted.	Contractor / cEO dEO & ECO (Monitor)	Construction Operation
	vii) It is recommended that the clearing of vegetation from the site be selective and done just before construction so as to minimise erosion and dust. Should construction in areas that have been stripped not be commencing within a short period of time the exposed areas shall be re-vegetated with indigenous plants or stabilised.	Contractor / cEO dEO & ECO (Monitor)	Construction
<b>14. VISUAL LANDSCAPE</b>			
<p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>— To ensure that impacts to the surrounding visual landscape is kept to a minimum or mitigated as far as possible.</li> </ul> <p><b>Indicator and Compliance Mechanisms:</b></p> <ul style="list-style-type: none"> <li>— Maintenance records.</li> <li>— Incident reporting system.</li> <li>— Induction training and records.</li> <li>— Health, safety, environmental and community incident and complaints management system register.</li> <li>— Monitoring and audit reports.</li> </ul>			
a) Protection of Sensitive Visual Receptors	i) Retain and maintain natural vegetation immediately adjacent to the development footprint/servitude	Contractor / cEO dEO & ECO (monitor)	Construction
	ii) Ensure that vegetation is not unnecessarily removed during the construction phase.	Contractor / cEO	Construction

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
		dEO & ECO (monitor)	
	iii) Plan the placement of lay-down areas and temporary construction equipment camps in order to minimise vegetation clearing (i.e. in already disturbed areas) wherever possible.	Contractor / cEO dEO & ECO (monitor)	Construction
	iv) Restrict the activities and movement of construction workers and vehicles to the immediate construction area and existing access roads.	Contractor / cEO dEO & ECO (monitor)	Construction
	v) Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed of regularly at licensed waste facilities.	Contractor / cEO dEO & ECO (monitor)	Construction
	vi) Reduce and control construction dust using approved dust suppression techniques as and when required (i.e. whenever dust becomes apparent).	Contractor / cEO dEO & ECO (monitor)	Construction
	vii) Restrict construction activities to daylight hours whenever possible in order to reduce lighting impacts.	Contractor / cEO dEO & ECO (monitor)	Construction
	viii) Retain/re-establish and maintain natural vegetation immediately adjacent to the power line servitude.	Contractor / cEO dEO & ECO (monitor)	Operation
	ix) Maintain the general appearance of the infrastructure.	Contractor / cEO dEO & ECO (monitor)	Operation
<b>15. REHABILITATION</b>			
<b>Objectives:</b>			
— To return disturbed sites to a natural state characteristic to the area.			
<b>Indicator and Compliance Mechanisms:</b>			
— Rehabilitation Plan			

ACTIVITY/ASPECT	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURE	RESPONSIBLE PERSON	PRIORITY TIMEFRAME
a) Rehabilitation and Landscaping	i) A rehabilitation plan should be compiled by a suitable specialist. This rehabilitation plan should consider all development phases of the project indicating rehabilitation actions to be undertaken during, and once construction has been completed as well as ongoing rehabilitation during the operational phase of the project to ensure habitat for avifauna is restored	Contractor / cEO dEO & ECO (Monitor)	All phases
	ii) All areas disturbed by the construction activities must be suitably rehabilitated, as a priority, by means of revegetation with indigenous vegetation.	Contractor / cEO dEO & ECO (Monitor)	Post Construction
	iii) Remove infrastructure not required for the post-decommissioning use.	Contractor / cEO dEO & ECO (Monitor)	Post Construction
	iv) All areas disturbed by construction activities must be inspected for contamination, remediated if necessary and then maintained/landscaped to ensure efficient stormwater drainage.	Contractor / cEO dEO & ECO (Monitor)	Post Construction

# 8 METHOD STATEMENTS / MANAGEMENT PLANS

As defined in the generic EMPr various method statements are to be compiled and implemented throughout the construction phase (refer to Part A: Section 4.5 of the generic EMPr attached as **Appendix A**).

This section provides an overview of various aspects / thematic areas and requirements whereby the Method Statements / management plans must be developed and followed throughout the proposed construction and operation of the 22kV OHPL. It must be noted that these method statement / management plans can be updated at any stage depending on any changes that may occur on the site.

This section provides an overview of the following aspects:

- Waste Management
- Vegetation / Alien Invasive Plant Management;
- Plant Rescue and Protection;
- Re-vegetation and Habitat Rehabilitation;
- Fire Management;
- Emergency Preparedness and Response
- Stormwater Management;
- Erosion Management;
- COVID-19; and
- Chance Find Procedure.

---

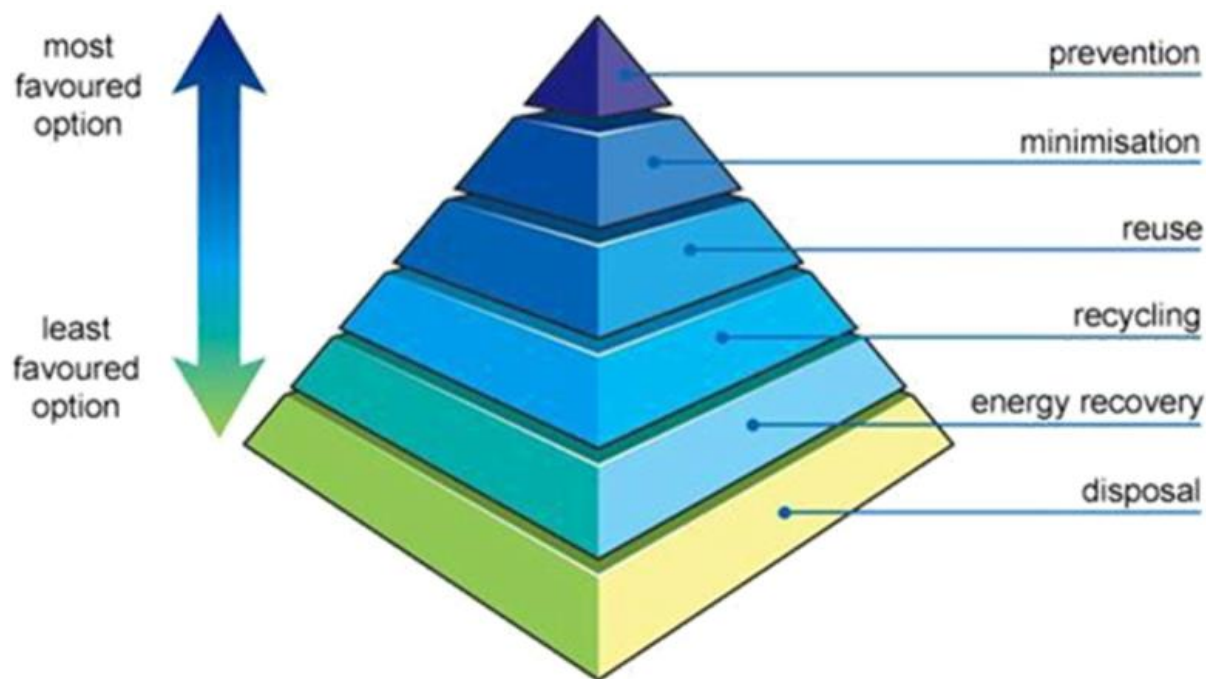
## 8.1 WASTE MANAGEMENT

---

### 8.1.1 WASTE HIERARCHY

A waste is any solid, liquid or contained gaseous material that is being discarded by, disposal, recycling, burning or incineration. Waste management options for a particular waste need to be considered according to the Waste Management Hierarchy (**Figure 8-1**) which reflects the relative sustainability of each of the options. One of the key principles underlying the waste management hierarchy is to ensure that waste is dealt with as high up the waste hierarchy as possible. Since all waste disposal options have some impact on the environment, the only way to avoid impact is not to produce waste in the first place, and waste reduction is therefore at the top of the hierarchy. Re-use, followed by recovery techniques (recycling, composting and generating energy from waste) follow, while disposal to landfill or by incineration (the worst options) are at the bottom of the hierarchy.

In deciding on the most appropriate disposal route, both environmental and economic costs and benefits need to be considered. This decision must be reached taking into account all the costs and impacts associated with waste disposal, including those associated with the movement of waste.



**Figure 8-1: Waste Hierarchy**

### 8.1.2 PROJECT STAGES

The purpose of this section is to assess the construction and operational processes of the proposed Sol Invictus OHPL in order to identify short comings, like raw materials procurement, infrastructure, employee training, health and safety, transportation, storage, compliance with legislative requirements, emergency preparedness and waste streams arising from an operation and its related activities, as well as the current waste management practices per waste stream. The assessment serves as the baseline against which any problem areas or gaps in waste management practises, process technology and environmental authorisations are identified and against which future performance objectives, activities and targets can be set.

The project stages are described below with the waste generation and management methods described in the corresponding tables below them including:

- Details on how waste will be managed during the construction and operational phases taking into consideration the waste management hierarchy;
- Details of the procedure for the separation of non-recyclable and recyclable waste;
- Details of the management of non-recyclable waste i.e. how waste will be stored on site during construction and operational phases, including the frequency for the removal of waste from the site and an indication of the landfill site where it will be disposed;
- Details for the management of recyclable waste e.g. the type of waste materials that will be recycled on site and the details pertaining to the offloading, sorting, handling, storage and collection procedures for the waste types (e.g. compaction and bailing, breaking of glass etc.); and
- The frequency for the removal of waste from the proposed development to where it will be finally managed must be included.

Waste Management at the project site is to be undertaken in line with the EMPr to consider the correct disposal of general and hazardous waste generated on the project. **Table 8-1** describes different waste products that the proposed project will likely produce, as well as the various options to dispose of them. Waste will mainly be generated during the construction phase. During operation, contractors are anticipated to only be on the site for limited amounts of time, as and when maintenance is required.

**Table 8-1: Waste Management Options**

WASTE	TYPE OF WASTE	MANAGEMENT OPTIONS
Hydrocarbons / Contaminated soils / water	Hazardous	<p>Fuel and oil spillages can be a source of contamination of water sources and the soil. Management options include:</p> <ul style="list-style-type: none"> <li>— Using spill kits to clean any spillages;</li> <li>— Ensure storage facilities are maintained and meet industry regulations;</li> <li>— Transportation and storage of fuel must be regulated and correctly managed according to the EMPr;</li> <li>— Waste generated along servitude to be taken to the contractor laydown area at the end of each day;</li> <li>— Co-ordinate waste removal with the removal of waste from the contractor laydown area; and</li> <li>— All hazardous waste is to be disposed of at a registered hazardous landfill (safe disposal certificates must be obtained).</li> </ul>
Contaminated Personal Protective Equipment (PPE)	Hazardous	<p>PPE can be contaminated during handling of hydrocarbons. Management options include:</p> <ul style="list-style-type: none"> <li>— Store contaminated PPE in hazardous waste skips along the servitude;</li> <li>— Waste generated along servitude to be taken to the contractor laydown area at the end of each day;</li> <li>— Co-ordinate waste removal with the removal of waste from the contractor laydown area; and</li> <li>— Ensure contaminated PPE is disposed of at a registered hazardous landfill (safe disposal certificates must be obtained).</li> </ul>
General waste	General	<p>General waste (inorganic matter) can be disposed of as per normal and form part of the municipal waste management system. Management options include:</p> <ul style="list-style-type: none"> <li>— Ensure waste is stored securely in covered / sealable refuse bins;</li> <li>— Waste generated along servitude to be taken to the contractor laydown area at the end of each day;</li> <li>— Co-ordinate waste removal with the general removal of waste from the contractor laydown area.</li> </ul>
Food waste	General	<p>Food waste is generated as site personnel take their meals on the construction site. Management options include:</p> <ul style="list-style-type: none"> <li>— Store any waste and packaging into a sealable, labelled food waste bin;</li> <li>— Waste generated along servitude to be taken to the contractor laydown area at the end of each day;</li> <li>— Co-ordinate waste removal with the removal of waste from the contractor laydown area.</li> </ul>

### 8.1.3 WASTE MANAGEMENT ROLES AND RESPONSIBILITIES

To facilitate effective waste management, the relevant authorities, roles, and responsibilities shall be defined, documented and communicated within, and through implementation of, the Waste Management Method Statement / Waste Management plan (WMP). Management shall provide resources essential to the implementation and control of the Waste Management Method Statement / WMP, including human resources, technology, and financial resources.

The different role players in the waste management process include:

- Developer Project Manager

- Site Manager;
- EO;
- Construction Contractor;
- Waste contractors; and
- Workers.

**Table 8-2** provides an overview of the roles and responsibilities of individuals on site related to construction and operational activities.

**Table 8-2: Roles and Responsibilities**

<b>ROLE PLAYER</b>	<b>RESPONSIBILITIES</b>
Developer Project Manager	<ul style="list-style-type: none"> <li>– Review and authorise Waste Management Method Statement / WMP and updates thereto;</li> <li>– Ensure resource allocation for implementation of the WMP requirements;</li> <li>– Ensure that waste management requirements are integrated into project plans, work method statements, tender and contract documents;</li> <li>– Ensure necessary support to the Developer EO for oversight and implementation of the waste measures; and</li> <li>– Participate in incident investigations (as required).</li> </ul>
Developer Environmental Control Officer	<ul style="list-style-type: none"> <li>– Review and authorise updates where necessary;</li> <li>– Ensure that waste management measures are implemented on the site during construction;</li> <li>– Facilitate environmental induction of all project staff and either deliver or coordinate delivery of all such training that would be required for the effective implementation of the waste management measures. This includes identifying additional project training requirements and implementing the training programme;</li> <li>– Ensure maintenance of site document control requirements;</li> <li>– Report significant incidents internally and externally as required by law and the conditions of EA upon receipt;</li> <li>– Investigate incidents and recommend corrective and preventative actions;</li> <li>– Undertake environmental system reviews, site inspections, audits and other verification activities to assure that implementation is at an optimal level;</li> <li>– Participate in environmental performance verification activities to verify the level of compliance with the method statement / WMP in delivering the legal and environmental obligations;</li> <li>– Provide support and advice to the contractor and all sub-contractors in the implementation of WMP procedures and corrective actions; and</li> <li>– Ensure that contractors use the appropriate disposal methods and facilities.</li> </ul>
Contractor & Contractor EO	<ul style="list-style-type: none"> <li>– Develop Waste Management Method Statement / WMP</li> <li>– Ensure communication of waste management requirements to all personnel and sub-contractor personnel;</li> <li>– Implement waste management measures on the site during construction;</li> <li>– Ensure all personnel are appropriately trained in waste management measures;</li> <li>– Maintain training records for all project personnel including sub-contractors;</li> <li>– Maintain environmental incidents and complaints register for construction;</li> <li>– Ensure all waste contractors are appropriately certified as waste transporters;</li> <li>– Maintain disposal slips.</li> </ul>
Waste contractors	<ul style="list-style-type: none"> <li>– Adhere to WMP requirements;</li> <li>– Use the appropriate disposal methods and licensed facilities;</li> <li>– Provide the required waste manifests and safe disposal certificates; and</li> <li>– Ensure that personnel are appropriately trained in waste handling and transporting.</li> </ul>

ROLE PLAYER	RESPONSIBILITIES
Contractor personnel / sub-contractors	<ul style="list-style-type: none"><li>– Attend training; and</li><li>– Follow waste management measures including waste separation and recycling appropriately.</li></ul>



## 8.2 VEGETATION / ALIEN INVASIVE PLANT MANAGEMENT

The following provides a framework for the management of alien and invasive plant species during the construction and operation of the project, which in turn serves to manage open spaces, as required. The broad objectives of the plan include the following:

- Ensure alien plants do not become dominant in parts or the whole site through the control and management of alien and invasive species presence, dispersal and encroachment.
- Managing and maintaining the ecosystem in a near-natural state and restoring and/or rehabilitating the ecosystems to such a state.
- Develop and implement a monitoring and eradication programme for alien and invasive species.
- Promote the natural re-establishment and planting of indigenous species in order to retard erosion and alien plant invasion.

Mitigation and management measures include, but are not limited to the following:

- Stockpiles must be kept clear of weeds and alien vegetation growth by regular weeding.
- Alien vegetation and the spread of exotic species on the site will need to be controlled.
- The contractor must be responsible for implementing a programme of weed control (particularly in areas where soil has been disturbed); and grassing of any remaining stockpiles to prevent weed invasion.
- The use of pesticides and herbicides on the site must be discouraged as these can impact on important pollinator species of indigenous vegetation.
- Herbicide use shall only be allowed according to contract specifications. The application shall be according to set specifications and under supervision of a qualified technician. The possibility of leaching into the surrounding environment shall be properly investigated and only environmentally friendly herbicides shall be used.
- Mitigation measures mentioned for the construction phase above must be implemented for any maintenance of the development that is undertaken during the operation phase.
- Correct rehabilitation with locally indigenous species.
- Monitoring programme to ensure that rehabilitation efforts are successful to ensure that risks such as erosion, spread of exotic species and the edge effect are avoided.
- Constant maintenance of the area to ensure re-colonisation of floral species.
- Regular removal of alien species which may jeopardise the proliferation of indigenous species.

## 8.3 PLANT RESCUE AND PROTECTION

The purpose of plant rescue and protection is to implement avoidance and mitigation measures, in addition to the mitigation measures included in the EMP, to reduce the impact of the development of the project on listed and protected plant species and their habitats, and to provide guidance on search and rescue of species of conservation concern.

Mitigation and management measures include, but are not limited to the following:

- Vegetation clearing must only commence after a walk down has been conducted by a suitably qualified person and the necessary permits obtained.
- Vegetation clearing to be kept to a minimum. No unnecessary vegetation to be cleared.
- Vegetation removal must be limited to the construction site and must be removed only as it becomes necessary rather than removing all the vegetation throughout the site at once.



- Materials must not be delivered to the site prematurely which could result in additional areas being cleared or affected.
- No vegetation to be used for firewood.
- Gathering of firewood, fruit, medicinal plants, or any other natural material onsite or in areas adjacent to the site is prohibited.
- Construction site office and laydown areas must be clearly demarcated, and no encroachment must occur beyond demarcated areas.
- All natural areas impacted during construction must be rehabilitated with locally indigenous plant / grass species.
- A buffer zone must be established in areas where construction will not take place to ensure that construction activities do not extend into these areas.
- Soil stockpiles must not become contaminated with oil, diesel, petrol, waste or any other material, which may inhibit the later growth of vegetation in the soil. Spillage can result in a loss of soil functionality thus limiting the re-establishment of flora.

---

## 8.4 RE-VEGETATION AND HABITAT REHABILITATION

The purpose of the rehabilitation is to ensure that areas cleared or impacted during construction activities are rehabilitated with a plant cover that reduces the risk of erosion from these areas as well as restores some ecosystem function. The purpose of rehabilitation for the site can be summarised as follows:

- Achieve long-term stabilisation of all disturbed areas to minimise erosion potential.
- Re-vegetate all disturbed areas with suitable local/indigenous plant species or grasses.
- Minimise visual impact of disturbed areas.
- Ensure that disturbed areas are safe for future uses.

Mitigation and management measures include, but are not limited to the following:

- Re-vegetation must aim to accelerate the natural succession processes so that the plant community develops in the desired way, i.e. promote rapid vegetation establishment.
- Re-vegetation of disturbed surfaces must occur immediately after construction activities are completed. This must be done through seeding with locally indigenous species typical of the representative botanical unit.
- Re-vegetation of the disturbed site is aimed at approximating as near as possible the natural vegetative conditions prevailing prior to construction.
- Seeds from surrounding seed banks can be used for re-seeding.
- Rehabilitation must be executed in such a manner that surface run-off will not cause erosion of disturbed areas.
- Planting of indigenous tree species in areas not to be cultivated or built on must be encouraged.
- Monitoring programme to ensure that rehabilitation efforts are successful to ensure that risks such as erosion, spread of exotic species and the edge effect are avoided.

---

## 8.5 FIRE MANAGEMENT

The purpose of fire management is to address firefighting requirements throughout the construction of the project and to preserve and protect human life as well as tangible goods and equipment in the event of a fire.

Mitigation and management measures include, but are not limited to the following:

- All construction camps shall be provided with portable fire extinguishing equipment, in accordance with all relevant legislation and must be readily accessible.
- The Contractor shall take specific measures to prevent the spread of veld fires, caused by activities at the campsites. These measures must include appropriate instruction of employees about fire risks and designated smoking areas.

- Fire prevention equipment must be present at all storage facilities.
- No open fires shall be allowed on site under any circumstance. No cooking shall be done onsite to prevent runaway fires.
- The Contractor shall have operational fire-fighting equipment available on site at all times. The level of firefighting equipment must be assessed and evaluated through a typical risk assessment process.
- Emergency numbers for local police and fire department etc. must be placed in a prominent area.
- Firefighting equipment must be placed in prominent positions across the site where it is easily accessible. This includes fire extinguishers, a fire blanket as well as a water tank.
- All construction staff must be trained in fire hazard control and firefighting techniques. Translators are to be used where necessary.
- All flammable substances must be stored in dry areas which do not pose an ignition risk to the said substances.
- Smoking must only be conducted in demarcated areas.
- An appropriate company must regularly maintain firefighting equipment.

## 8.6 EMERGENCY PREPAREDNESS AND RESPONSE

Appropriate resources must be provided to respond to accidental and emergency situations for operations and activities during construction and operation phases. The procedures will include plans for addressing training, resources, responsibilities, communication and all other aspects required to effectively respond to emergencies associated with their respective hazards.

The purpose of emergency preparedness and response plan (EPRP) / method statement is to ensure that the relevant parties are adequately prepared and able to respond effectively to potential emergency situations that may arise during project activities. These potential emergency situations include medical emergencies and fires.

All activities associated with the project will require site-specific emergency response plans to mitigate impacts, which meet or exceed all applicable regulations.

The objectives of this plan are as follows:

- Protect the workers, communities and the environment through the development of emergency response strategies and capabilities;
- Set out the framework for hazard identification in order to define procedures for response to the situations including the development of contingency measures;
- Structure a process for rapid and efficient response to, and manage emergency situations during, the construction and operational phases of the project; and
- Assign responsibilities for responding to emergency situations.

The EPRP must take the incident procedures referred to in Section 30 of NEMA into account.

### ROLES AND RESPONSIBILITIES

Roles, responsibility and authority shall be defined, documented and communicated in order to facilitate effective emergency response through implementation of the EPRP.

The table below outlines roles and responsibilities related to each position.

<b>Emergency Response representative(s)</b>
<ul style="list-style-type: none"> <li>– Actively participate in the facilities planning, implementation and reviewing of the sites EPRP.</li> <li>– Ensure all staff members are aware of the procedures outlined in the EPRP.</li> <li>– Setting up regular practical training schedules (drills) to ensure that all staff are prepared encase of an emergency.</li> <li>– Report any incidents that occur to senior management staff and/or the relevant authorities.</li> <li>– Appoint an Emergency Response (ER) team which includes an appropriate first aid representative and a fire warden.</li> <li>– Ensure that the appointed ER team undergo the correct training.</li> <li>– Appoint an appropriate Emergency Coordinator.</li> </ul>
<b>First Aid representative(s)</b>

- Ensuring the first aid box is properly stocked to meet all foreseeable incidents which may occur.
- Ensure that the boxes are properly safeguarded, and that First Aiders name appears on the box.
- Should any activity involve hazardous chemical substances, or any other specific first aid emergencies, this must be brought to the attention of the emergency coordinator.
- Ensure the first aid certificate is current.
- Ensure that there is always a first aider available at each shift.

#### **Fire warden(s)**

- Ensure that the firefighting equipment is regularly serviced.
- Attend the relevant firefighting training.
- Report any unserviceable or damaged fire-fighting equipment to the ER.
- Ensure the firefighting certificate is current.
- Ensure that there is always a firefighter available at each shift.

#### **Emergency Co-ordinator**

- Ensure that an update of the EPRP is kept on file and is easily accessible in case of an emergency.
- Ensure that all staff have been issued with the correct Personal Protective Equipment (PPE).
- Ensure that a list of emergency telephone numbers, including those of the Emergency Response team, are visible to all staff at a number of locations around the facility.
- In the case of an emergency, the emergency coordinator is responsible for undertaking roll call at the designated Assembly points.

## **EMERGENCY COMMUNICATIONS AND COORDINATION PLAN**

In an emergency situation where there is an immediate threat to communities, personnel or the environment, the Project Manager will be notified immediately. The Project Manager will dispatch the Emergency Response Coordinator who will determine the appropriate plan of action depending on the severity of the emergency, the people affected, and the need to evacuate.

If there is a developing emergency or unusual situation, where an emergency is not imminent, but could occur if no action is taken, the Project Manager (or if the Project Manager is absent the Environmental Officer) is to be informed immediately.

If an emergency situation poses a direct threat to communities in the area, the Environmental Officer and/or Social Officer (if relevant) will advise persons in the vicinity of the emergency to evacuate due to the potential risk. The appropriate government authorities will immediately be notified of such an emergency evacuation. The Emergency Response Coordinator will be tasked with responding to the potential risk. Should the emergency situation be such that it can be managed by the Project Company, equipment and personnel will be deployed to the maximum extent necessary, so as to prevent/minimise potential risks.

## **RESPONSE TO INCIDENTS**

An incident is any occurrence that has caused, or has the potential to cause, a negative impact on people, the environment or property (or a combination thereof). It also includes any significant departure from standard operating procedures. The reporting and investigation of all potential and actual incidents that could have a detrimental impact on human health, the natural environment or property is required so that remedial and preventive steps must be taken to reduce the potential or actual impacts because of all such incidents.

Any incident must immediately be reported to the relevant authorities and all the necessary documentation must be completed and submitted to the relevant authorities within the prescribed timeframes.

The actions resulting from any formal or informal investigations will be used to update the EMPr.

## **VERIFICATION**

An environmental emergency response system will be developed for the execution of emergency drills that will include the following, inter alia:

- Fire Drills;
- Emergency Evacuation Drills; and

- Environmental Drills.

Reporting and monitoring requirements for the plan will include:

- Monthly inspections and audits;
- Reporting at the time of the incident and monthly spill reporting developed by the Environmental and Quality, Health and Safety departments; and
- Bi-annual emergency response drills.

Emergency response drills and reporting will be maintained by the Project Manager and will provide information regarding required revisions to training or the emergency response actions. Each incident reported will be reviewed and investigated upon occurring. Actions will be identified where possible to improve the site’s overall response to emergencies. Updates/revisions that are necessary to protect worker or community health and safety will be implemented immediately after approval by the Project Manager.

This plan will be amended periodically in light of operational changes, learning experienced during its implementation and other activities that can affect the risk profiles.

## POTENTIAL RISKS

The following emergency situations have been identified as potential threats at the proposed powerline route:

- Fire;
- Spills (hazardous chemicals / dangerous goods).

It must be noted that there is a minor risk associated with these risks as only a very small quantity of chemicals or hazardous substances are anticipated to be stored on site.

Fire	Responsibility
– Raise the alarm	Employee who detected/caused the fire
– Switch of all automated systems within the facility	ER Team
– Evacuate all personnel in the building	ER Team
– Contact all relevant emergency services	Emergency Coordinator
– Report to the emergency Assembly Point and await further instructions	All Staff
– Remove all vehicles from the premises	ER Team and security
– Undertake roll call and report all missing staff to the ER team	ER Coordinator
– Evacuate remaining staff to a safe location outside the site boundaries	ER Team
– Contain fire until Emergency services arrives	Fire warden
– Provide First Aid, if required	First Aid representative
Spill	Responsibility
– Contain the spillage using an onsite spill kit	Employee who discovered/caused the spill
– Advice emergency services (if required)	Emergency coordinator
– Provide First Aid (if required)	First Aid representative
– Determine if there is any soil, groundwater, or other environmental impact	Emergency coordinator
– Ensure that all absorbents used from the spill kits are disposed of in the correct manner.	Emergency coordinator
– Inform the DFFE and DWS of any major spillages.	Emergency coordinator
– Ensure that the incident is recorded in the incidents register.	Emergency coordinator

The following emergency centres were identified along with the corresponding emergency telephone numbers.

Emergency Centre	Telephone Number
– Emergency Services	10177 (Ambulance / Fire Brigade)
– Police Emergency Services	10111
– SAPS Aggeneys	054 983 2437

Emergency Centre	Telephone Number
– Suicide Crisis Line	0800 12 13 14
– COVID-19 Public Hotline	0800 029 999

## 8.7 STORMWATER MANAGEMENT

The main principles in stormwater management include:

- Confine or divert any unpolluted water to a ‘clean’ water system, and polluted water to a ‘dirty’ water system;
- ‘Clean’ and ‘dirty’ water systems must be designed and constructed to prevent cross-contamination between the ‘clean’ and ‘dirty’ water systems; and
- Appropriate maintenance and management of storm water related infrastructure.

The proposed water systems or infrastructure are to be designed to prevent any potential contamination of natural water resources in the area.

Currently, there is no existing water management system at the proposed powerline route as it is bare ground.

## 8.8 COVID -19

### PREVENTION AND RESPONSE

A dedicated team with responsibilities to identify and implement actions to mitigate the effects of COVID-19 on the company and community should be appointed.

### INFORMATION

Information dissemination and training are an effective way to reduce the risk for both the company and the general public.

COVID-19 symptoms include: fever, tiredness, difficulty breathing, dry cough, chills, repeated shaking with chills, muscle pain, headache, sore throat, and new loss of taste or smell. Some patients may have nasal congestion, runny nose, or diarrhoea. Symptoms may appear two to 14 days after exposure to the virus.

### EMPLOYEE QUESTIONNAIRE

To prevent potentially infected staff from entering the workplace and infecting co-workers, a short questionnaire could be used. Workers should only report to work if they answer “no” to all the questions.

The following is an example:

- Have you, in the last two weeks, been in close contact with a person who has COVID-19?
- Have you, in the last two weeks, been in a country/region with a high number of cases of COVID-19?
- Do you have a fever?
- Have you used medications such as paracetamol or aspirin to suppress fever in the last 24 hours?
- Are you coughing (even mildly)?
- Do you currently experience shortness of breath?

### PREVENTION METHODS

#### SICK PERSONS TO STAY HOME

Workers requested to stay away from work in cases where they exhibit any COVID-19 symptoms or have been in close contact with a confirmed COVID-19 patient during the previous 14 days.

Workers who do not feel well should seek immediate medical advice. An employee who works while evidencing mild COVID-19 symptoms can risk spreading this infectious disease to others.

## COUGH HYGIENE

To reduce the risk of infected persons spreading the virus by coughing and sneezing, workers are to be instructed to follow the cough etiquette outlined below:

- Cover the mouth and nose with a tissue when coughing or sneezing, and dispose of the used tissue in a wastebasket.
- When no tissue is available, cough or sneeze into the upper sleeve or elbow, not into the hands.
- Clean hands after coughing or sneezing, preferably by thorough water-soap handwashing, following the recommendations of health organizations. If soap and water are not available, use a hand sanitizing gel.

## SOCIAL DISTANCING

To prevent person-to-person infection, it is important to minimize direct contact as much as possible. The contractor is to inform workers about the hazards of close contacts, including with direct co-workers, and promote alternative behaviours, such as maintaining safe distances and using alternatives for handshakes.

## HAND SANITATION

Promote frequent and thorough water-soap hand washing and provide enough places for workers to wash their hands. If soap and running water are not immediately available, provide alcohol-based hand rubs containing at least 60% alcohol. Ensure that these facilities are sufficient in number and are available close to the work area.

## CLEANING AND DISINFECTING

Frequently – and at least daily - clean touched surfaces, such as tables, light switches, appliances, countertops, handles, desks, phones, keyboards, toilets, taps, sinks, and so forth. Use the cleaning agents that are routinely used in these areas and follow the directions on the labels. For multiuse equipment, clean after every use.

Workers are to be instructed to clean their work areas and equipment at the end of each shift. Equipment and instructions on how to do this are to be provided.

---

## 8.9 EROSION MANAGEMENT

Exposed and unprotected soils are the main cause of erosion in most situations. Therefore, erosion management and revegetation / rehabilitation are closely linked to one another and must not operate independently, but must rather be seen as complementary activities within the broader environmental management of the site and must therefore be managed together. Erosion management addresses the management and mitigation of potential impacts relating to soil erosion, including:

- Material stockpiled for long periods (2 weeks) must be retained in a bermed area.
- Stockpiles not used in three (3) months after stripping must be seeded to prevent dust and erosion.
- Sensitive areas need to be identified prior to construction so that the necessary precautions must be implemented.
- Vegetation clearance must be phased to ensure that the minimum area of soil is exposed to potential erosion at any one time.
- Areas to be cleared must be clearly demarcated and this footprint strictly maintained.
- Areas which are not to be constructed on within two months must not be cleared to reduce erosion risks.
- Silt fences and erosion control measures must be implemented in areas where these risks are more prevalent.
- Wind screening and stormwater control must be undertaken to prevent soil loss from the site.
- Other erosion control measures that must be implemented are as follows:
  - Brush packing with cleared vegetation;
  - Mulch or chip packing;
  - Planting of vegetation; and
  - Hydroseeding / hand sowing.
- All erosion control mechanisms need to be regularly maintained.

- Seeding of topsoil and subsoil stockpiles to prevent wind and water erosion of soil surfaces. Re-vegetation of disturbed surfaces must occur immediately after construction activities are completed. This must be done through seeding with indigenous grasses.
- No impediment to the natural water flow other than approved erosion control works is permitted.

---

## 8.10 CHANCE FIND PROCEDURE

The following procedure must be considered in the event that previously unknown heritage resources, including burial grounds or graves, are exposed or found during the life of the project.

### **CULTURAL HERITAGE, STRUCTURES, ARCHAEOLOGY, PALAEOLOGY, METEORS AND PUBLIC MONUMENTS**

- The heritage resource must be avoided and all activities in the immediate vicinity temporarily ceased;
- The DPM/dEO and/or cEO must be notified of the discovery;
- A qualified specialist must be deployed to consider the heritage resource, either via communicating with the dEO/cEO via telephone or email, or based on a site visit and recommend appropriate mitigation measures;
- Should the specialist conclude that the find is a heritage resource protected in terms of the NHRA, the dEO/cEO will notify SAHRA/NCHRA; and
- SAHRA/NCHRA may require that a HIA in terms of NHRA Section 38 must take place that may include rescue excavations.

### **BURIAL GROUNDS AND GRAVES**

- In the event that human remains are accidentally exposed, the cEO/dEO must immediately be notified of the discovery in order to take the required further steps:
  - The local SAPS will be notified;
  - A suitably qualified specialist will be deployed to inspect the exposed burial and determine in consultation with the SAPS the temporal context of the remains, (i.e. authentic burial grave (informal or older than 60 years) or archaeological (older than 100 years)) and if any additional graves may exist in the vicinity;
- Should the specialist conclude that the find is a heritage resource protected in terms of the NHRA, the cEO/dEO will notify SAHRA/NCHRA;
- SAHRA/NCHRA may require that an identification of interested parties, consultation and /or grave relocation take place;
- Consultation must take place in terms of Regulations 39, 40 and 42 of NHRA; and
- Grave relocation must take place in terms of Regulation 34 of NHRA.

# 9 GRIEVANCE MECHANISM

---

## 9.1 GRIEVANCE MECHANISM - EXTERNAL

A grievance mechanism is a tool used to address affected communities' concerns and complaints and is an important pillar of the stakeholder engagement process, since it creates opportunities for companies and communities to identify problems and discover solutions together. The Project proponent can benefit from understanding community concerns and complaints and addressing them through all stages of project development.

Where it is anticipated that a new project will involve ongoing risk and adverse impacts on surrounding communities, the project proponent is required to establish a grievance mechanism to receive and facilitate resolution of the affected communities' concerns and complaints about the proponent's environmental and social performance. The grievance mechanism should be scaled to risks and adverse impacts of the project, address concerns promptly, use an understandable and transparent process that is culturally appropriate and readily accessible to all segments of the affected communities, and do so at no cost to communities and without retribution. The mechanism should not impede access to judicial and administrative remedies.

The grievance mechanism described in this section includes both complaints and grievances (hereinafter referred to only as 'grievances') raised by stakeholders.

### **PURPOSE**

The grievance mechanism describes the way the Proponent and community can work together to find solutions to grievances.

### **OBJECTIVES**

The objectives of the grievance mechanism include:

- To be respectful of complainant culture, values, traditions and views;
- To resolve grievances at the local level and in a timely manner;
- To identify the root causes of grievances and address systemic issues;
- To provide a process that is dialogue based, with the complainant and the Proponent cooperating in the investigation, discussion, resolution and announcement of the grievance and result;
- To ensure fair, equitable and consistent outcomes to resolve grievances;
- To enhance and continuously improve the ability of the Proponent to fairly address community concerns.

### **SCOPE AND RESPONSIBLE PARTIES**

A grievance mechanism is primarily for the community to raise relevant concerns about the Project / Proponent's activities and is to be implemented throughout the life cycle of the Project (i.e. throughout assessment, construction, and implementation phases).

WSP will only be involved in the stakeholder engagement and grievance management process for the assessment phase. The Project proponent and the Contractor will be responsible for implementation of the grievance mechanism throughout the construction phase. Once established, the Project infrastructure is to be handed over to Eskom for operation and maintenance, who will be responsible for managing grievances in line with their existing complaint handling process (not covered herein).

### **GRIEVANCE REDRESS PROCEDURE**

This grievance mechanism sets out the following steps to be taken to resolve grievances.



## 1. Register grievance

- A grievance can be submitted in a written letter, e-mail, fax, or raised verbally in person or via telephone.
- Grievances raised during the assessment process are to be submitted to the EAP via the details provided as per the stakeholder engagement notifications. The EAP will notify the Proponent of the grievance.
- Grievances raised during the implementation process are to be submitted to the Proponent / Contractor via the relevant details, which are to be made available to registered stakeholders prior to commencement of onsite activities, as well as via site notice boards.
- In the event that a complaint is raised verbally, the responsible person must obtain the approval of the complainant as to the documented complaint (by way of signature of the Receipt of Grievance Form). Should the complainant have literacy issues, the responsible person may request that a third party (friend / relative of complainant) is available to verify / approve the contents of the documented complaint to the satisfaction of the complainant.
- The submission should include the nature of the grievance, the date when it occurred and the name and contact details of the complainant.
- Grievances will be accepted anonymously or through a third party (e.g. unions, NGOs, local authorities, community representatives, etc.).
- Individuals have the right to request that their name be kept confidential throughout the grievance process.
- As men and women may communicate their grievances differently, and also have different types of grievances, the complainant may request that their grievance is processed by a female / male representative. In the event that such a request is made, the Proponent, as far as reasonably practicable, will accommodate this request.

## 2. Within a Week (7 days) of receiving the grievance the Proponent will:

- Enter the grievance into the Proponent's records that track grievances;
- Assess the grievance according to specific criteria and if necessary, develop an appropriate approach for the particular grievance;
- Provide a written acknowledgement of the grievance including the name of the responsible person to contact about progress, an explanation of the steps that will be taken to investigate, discuss and resolve the grievance, and an anticipated timetable for processing the grievance.

## 3. Processing the Grievance:

The responsible person will:

- Identify the parties involved;
- Clarify issues and concerns raised by the grievance through direct dialogue;
- Classify the grievance in terms of seriousness according to the gravity of the allegation, the potential impact on an individual's or a group's welfare and safety, or the public profile of the issue;
- Convene a staff group with expertise relative to the grievance;
- Determine the method for resolving the grievance – the most common approaches, not excluding others, will be:
  - i. The Proponent proposes a solution;
  - ii. The Proponent and aggrieved party decide together the solution;
  - iii. The Proponent and aggrieved party defer to a third party for mediation / arbitration.
- Gather views of other stakeholders, including those of the Proponent and if necessary, an agreed neutral technical opinion;

- Determine initial options that parties have considered and explore various approaches for settlement;
- Conduct the process as agreed;
- Close the grievances by signing the Complaint Close-Out Form (i.e. that the grievance has been resolved satisfactory to both parties).
- The Proponent may “close” the grievance even if the complainant is not satisfied with the outcome. This option can be pursued by the Proponent in the case that the complainant is unable to substantiate a grievance, or if there is an obvious speculative or fraudulent attempt. In such situations, the Proponent’s efforts to investigate the grievance and to arrive at a conclusion will be well documented and the complainant advised of the situation. The Proponent (or contractors working for the Proponent) will not dismiss grievances based on a cursory review and close them in their grievance record unless the complainant has been notified and had the opportunity to provide supplementary information / evidence;
- Keep a record that tracks the progress and communications for each grievance.

#### **4. Processing Timeline**

- The Proponent will aim to bring the grievance to a resolution within 30 days of receiving the grievance. The grievance shall be acknowledged within 7 days by the responsible person, and responded to within 30 days. If the matter takes longer than 30 days to resolve, the complainant will be informed through dialogue and in writing, of the reason for the delay, any advances or difficulties encountered and the anticipated new resolution date.

### **RECOURSE**

If the complainant is not satisfied with the outcome of the grievance process the aggrieved party has the right to address the grievance via the judicial system.

### **MANAGING, TRACKING, RECORDING GRIEVANCES – INTERNALLY**

In terms of managing grievances the Proponent will:

- appoint a senior manager to oversee the Grievance Mechanism. Another member of staff will be appointed to carry out the day-to-day work in this area and involve specialist staff and external parties, where required, who may need to be consulted to resolve a grievance.
- maintain a register of grievances. All activities, including registration of the grievance and the progress through to outcome will be recorded.
- ensure that grievances and resolutions are communicated internally to all staff through monthly reports.
- launch the Grievance Mechanism and regularly remind communities that it is available to use.

Contractors are expected to follow this Grievance Procedure. Contractor shall be proactive and available to participate in the grievance resolution processes. Contractor participation is intended to allow for specific contractor grievances to be addressed efficiently.

Contractors shall ensure that all individual contractor employees are aware of the Grievance Procedure. Contractors will receive any grievance from an individual or community and notify the Proponent thereof immediately.

Contractors shall not make any direct agreements or resolution with local communities without prior coordination of such actions with the Proponent.

The Contractor’s community relations team (or equivalent) will attend all coordination meetings requested by the Proponent, as required. The contractor community relations management (or equivalent) will report to the Proponent’s management team on a regular basis – in regards to social incidents and community relations issues. The Proponent, or their representative, will conduct regular audits on contractors to ascertain compliance with this Grievance Procedure.

## **DISCLOSURE OF THE GRIEVANCE MECHANISM**

The grievance mechanism will be made public through:

- Stakeholder engagement during the BA assessment; and
  - Stakeholder engagement during the implementation phase.
- 

## **9.2 GRIEVANCE MECHANISM - INTERNAL**

The Proponent will establish a Grievance Mechanism that will set out the process for workers to communicate their grievances. The grievance mechanism will be available to workers of the Proponent, Contractors and subcontractors.

A Code of Conduct will set out practice measures that the construction workers will have to adhere to, to ensure a positive relationship is built and maintained with the landowners and local communities.

# 10 CONCLUSION

In terms of NEMA, everyone (i.e. all persons engaging in any component of this project) is required to take reasonable measures to ensure that they do not pollute the environment. 'Reasonable measures' includes informing and educating employees about the environmental risks associated with their work and training them to operate in an environmentally responsible manner.

Sol Invictus also recognises that, in terms of NEMA, the cost to repair any environmental damage will be borne by the person responsible for the damage. Should the above-mentioned environmental guidelines and mitigation measures be adopted, it is anticipated that the negative environmental impacts of the proposed OHPL will be mitigated adequately. Sol Invictus and the selected Contractor shall appoint relevant personnel, as well as an independent ECO, to monitor the site periodically throughout construction to ensure that the required environmental controls are in place and working effectively. During operation and maintenance the area specific Environmental Manager and EO, with the support of the maintenance supervisor, will monitor environmental controls.

If you have any further enquiries, please feel free to contact:

**WSP Group Africa (Pty) Ltd**  
Attention: Jennifer Green  
PO Box 2613, Cape Town, 8000  
Tel: +27 21 481 8639  
Fax: +27 21 481 8799  
E-mail: [Jennifer.Green@wsp.com](mailto:Jennifer.Green@wsp.com)

# APPENDIX

## A EAP CV



# APPENDIX

## **B** EAP DECLARATION





# APPENDIX

## C LAYOUT MAP





# APPENDIX

## **D** POWERLINE GENERIC EMPR



# APPENDIX

## **E** SUBSTATION GENERIC EMPR





# APPENDIX

