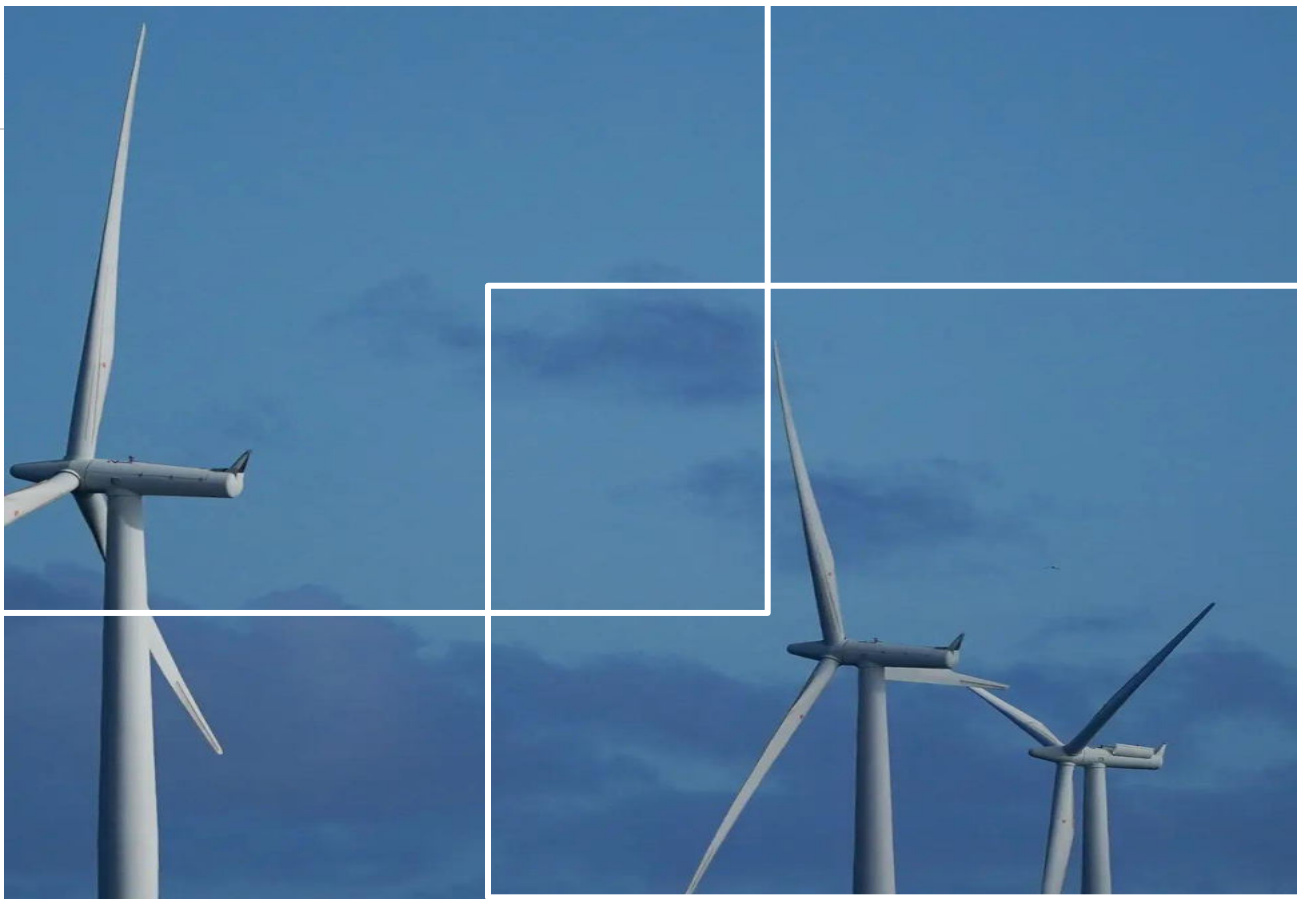

Submitted to: #Oab Energy (Pty) Ltd
Attention: Mr. Israel Shihepo
PO Box 27527
Windhoek
Namibia

REPORT:

COMPLIANCE REPORT FOR THE #OAB 8 MW WIND FARM, //KARAS REGION, NAMIBIA

PROJECT NUMBER: ECC-43-528-REP-02-D

REPORT VERSION: REV 01

DATE: 29 JULY 2024

ECC ENVIRONMENTAL COMPLIANCE CONSULTANCY

TITLE AND APPROVAL PAGE

Project Name:	Compliance report for the #Oab 8 MW Wind farm, //Karas Region, Namibia
Client Company Name:	#Oab Energy (Pty) Ltd
Client Name:	Mr. Israel Shihepo
Ministry Reference:	APP-004471
Status of Report:	Final for Government Submission
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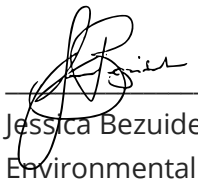

Jessica Bezuidenhout
Environmental Compliance Consultancy

Approved By:

Jessica Bezuidenhout **Stephan Bezuidenhout**
Environmental Compliance Consultancy

The Proponent:

Israel Shihepo
InnoSun Energy Holding (Pty) Ltd

DISCLAIMER

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ABBREVIATIONS

Abbreviation	Description
%	Percent
#Oab Energy	#Oab Energy (Pty) Ltd
CO	carbon monoxide
EBAY	Elizabeth Bay
ECB	Electricity Control Board
ECC	Environmental Compliance Consultancy
EHS	environmental health and safety
EIA	environmental impact assessment
EMF	Electric and Magnetic Fields
EMP	environmental management plan
EPA	Environmental Protection Agency
EPC	Engineering, procurement and construction
ER	employer's requirements
HIV/AIDS	human immunodeficiency virus / acquired immunodeficiency syndrome
HSE	Health, safety and environment
I&APs	interested and affected parties
ICNIRP	Commission of Non-Ionizing Radiation Protection
IEEE	Institute of Electrical and Electronics Engineers
IFC	International Finance Corporation
InnoSun	InnoSun Energy Holding (Pty) Ltd
IPP	independent power producer
ISO	International Organization for Standardization
Ltd.	Limited
m	Metre
MEFT	Ministry of Environment, Forestry and Tourism
ML	Mining Licence
MME	Ministry of Mines and Energy
MSDS	material safety data sheets
MW	Megawatts
No	Number
NOx	nitrogen oxides
OHS	Occupational Health and Safety
PCB	Polychlorinated Biphenyls
PM	particulate matter
PM	Project Manager
PPE	personnel protective equipment
PS	Performance Standard
Pty	Proprietary
PV	photovoltaic

Abbreviation	Description
Reg	Registration
SF6	Sulphur hexafluoride
SO_2	sulphur dioxide
STDs	sexually transmitted diseases
VOC	Volatile Organic Compounds

1 INTRODUCTION

1.1 BACKGROUND INFORMATION

#Oab Energy (Pty) Ltd is a Namibian registered company fully owned by InnoSun Energy Holding (Pty) Ltd (herein referred to as the proponent or 'InnoSun'). InnoSun is the largest independent power producer (IPP) that was established in Namibia in 2012 and is specialised in the development, construction, operation and maintenance of renewable generation plants making use of solar and wind technologies.

#Oab Energy (Pty) Ltd propose to develop an 8MW wind farm, located next to Sperrgebiet Diamond Mining's Elizabeth Bay (EBay) Mine, Mining Licence (ML) No. 45 Tsau //Khaeb (Sperrgebiet) National Park near Lüderitz, //Karas Region, Namibia. Figure 1 provides a locality map of the proposed project. The proposed wind farm comprises of four (4) turbines of 2 MW each with rotor of 93 m diameter and 90 m tower height. The project is vital to the energy security, sustainable and renewable green energy development for Namibia with potential to greatly support the short and long-term energy needs of EBay Mine and reduce pressures on the national electricity grid, and potentially export power to Southern Africa.

An Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) was compiled by Risk- Based Solutions cc and submitted in October 2016, in order to support the application for an environmental clearance certificate for an 8 MW Wind Farm. The environmental management plan (EMP) (Appendix A) was approved for the Wind Farm in line with the approved environmental clearance certificate issued on 20 July 2018. The environmental clearance certificate was renewed by the Ministry of Environment, Forestry and Tourism (MEFT) on 07 of June 2021 (ECC-001385) (Appendix B).

The project is yet to commence, and no additional impacts are expected at all stages of the project apart from those that have been previously identified in the EIA and EMP submitted in 2016. Therefore, the original EMP submitted to MEFT still applies to the proposed project.

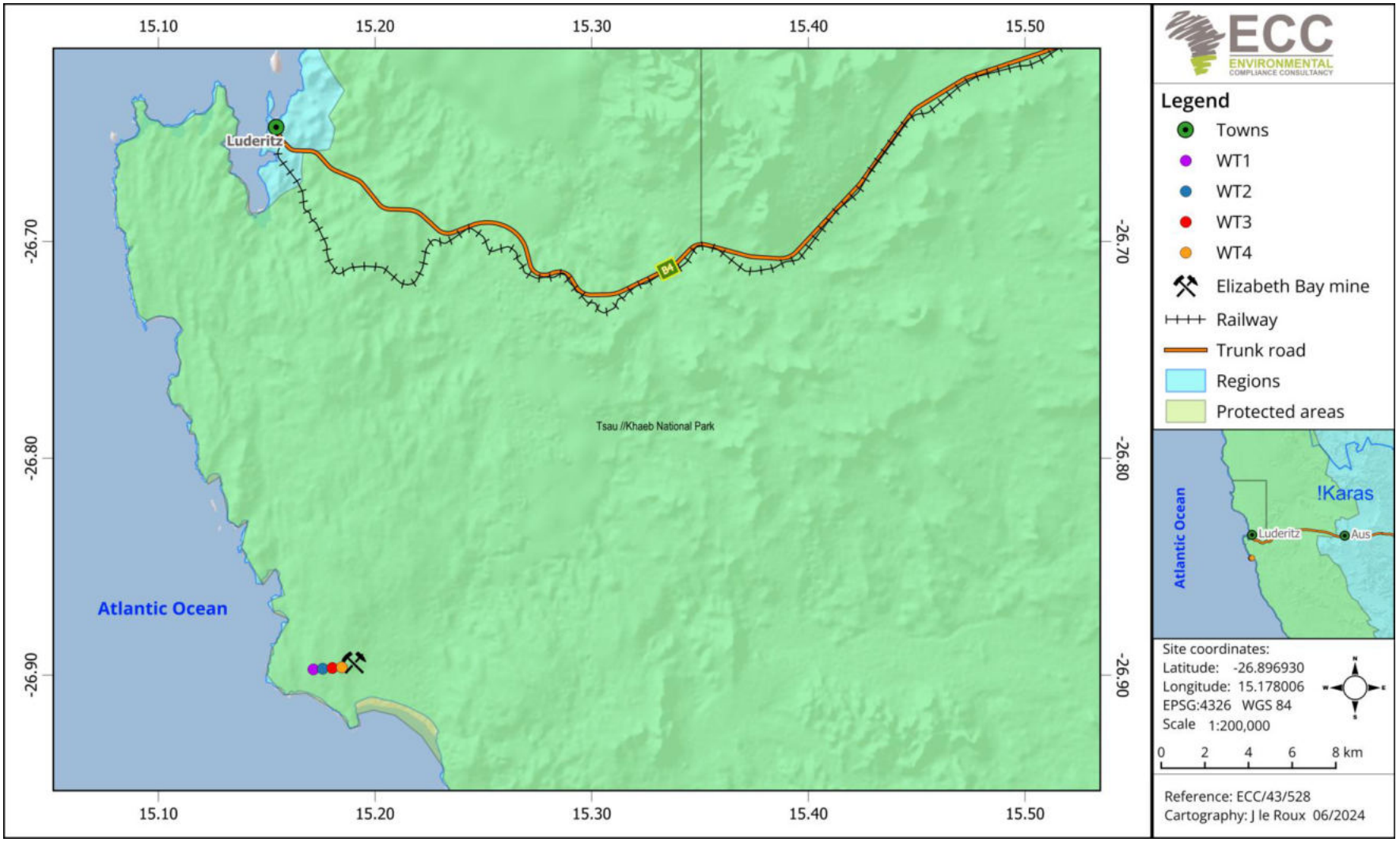


Figure 1 – Locality map of the proposed #Oab 8 MW Wind Farm, located next to Sperrgebiet Diamond Mining's Elizabeth Bay (EBay) Mine, //Karas Region, Namibia.

1.2 PURPOSE OF THIS DOCUMENT

Environmental Compliance Consultancy (Pty) Ltd (ECC) has been engaged by InnoSun, on behalf of #Oab Energy (Pty) Ltd, to prepare the application to renew the environmental clearance certificate for the wind farm. As part of this application, an environmental compliance desktop audit has been undertaken to determine the status of compliance with the EMP from June 2021 to May 2024.

1.3 PROPONENT DETAILS

The Proponent's details are set out in Table 1.

Table 1 – Proponent details

Contact	Postal Address	Email Address	Telephone
Mr. Israel Shihepo Asset Manager	P.O. Box 27527 Windhoek Namibia	ishihepo@innosun.org	Tel: +264 61 254 700

1.4 ENVIRONMENTAL ASSESSMENT PRACTITIONER

Environmental Compliance Consultancy (Pty) Ltd (ECC) (Reg. No. 2022/0593) has prepared this renewal report and on behalf of the Proponent.

This report has been authored by employees of ECC, who have no material interest in the outcome of this report, nor do any of the ECC team have any interest that could be reasonably regarded as being capable of affecting their independence in the preparation of this report. ECC is independent from the proponent and has no vested or financial interest in the project, except for fair remuneration for professional fees rendered based upon agreed commercial rates. Payment of these fees is in no way contingent on the results of this report or the assessment, or a record of decision issued by Government. No member or employee of ECC is, or is intending to be, a director, officer, or any other direct employee InnoSun. No member or employee of ECC has, or has had, any shareholding in InnoSun.

All compliance and regulatory requirements regarding this report should be forwarded by email or posted to the following address:

Environmental Compliance Consultancy
PO Box 91193, Klein Windhoek, Namibia
Tel: +264 81 669 7608
Email: info@eccenvironmental.com

2 BACKGROUND TO THE PROJECT

#Oab Energy (Pty) Ltd is a Namibian registered company striving towards generation of renewable power in Namibia. The proposed EBAY Wind Farm site is situated in an ideal windy area of Lüderitz. This created an opportunity to develop a wind farm providing benefits such as energy security, reduced energy reliance on neighbouring counties, sustainable and renewable energy which will in turn reduce Namibia's carbon footprint. The four (4) turbines of 2 MW each will be connected to each other using two (2) underground cables connected to a switch station. An overhead powerline will connect the switch station to the nearby substation which is ready to evacuate the generated green energy to the nearby off taker, the Elizabeth Bay (EBAY) Diamond mine.

2.1 RENEWAL ACTIVITIES

The location of the wind turbines may be slightly moved, as the previous proposed locations could potentially lead to numerous bird-turbine mortalities as it is located on various flight paths to and from EBay and various other coastal bays and the Lüderitz feeding grounds. The new locations and coordinates for the 4 wind turbines are indicated in Appendix C. There are no further new proposed activities for the project that should be considered for this environmental clearance certificate renewal.

The following is the summary of the activities associated with the 8MW Wind Farm:

Pre-construction and construction Phases

- Access roads preparation;
- Site/Turbine Locations levelling and preparation;
- Access roads upgrading/construction;
- Foundation preparation;
- Turbines Installations and Mounting;
- Underground Trenching/Overhead Cable;
- Electrical Equipment Installation;
- Testing;
- Fencing around each Turbine (Optional);

Operational Phase

- Commissioning – wind energy generation and maintenance (for 25 years);

Decommissioning and closure Phase

- Decommissioning (After 25 Years) / Upgrade of Facility.

3 ENVIRONMENTAL COMPLIANCE AUDIT

3.1 ACTIVITIES FOR THE MONITORING PERIOD

No activities were carried out during the period for which the environmental clearance certificate was issued to the Proponent.

3.2 ENVIRONMENTAL MANAGEMENT PLAN AND AUDITING

The approved EMP covers all adverse environmental impacts, including any additional potential impacts that may result from the #Oab Wind Farm. The EMP provides the technical details for each mitigation, monitoring and institutional measure, including the impact(s) to which it relates and the conditions when required, together with designs, equipment descriptions and operating procedures as granted.

3.3 COMPLIANCE AUDIT FINDINGS

This section outlines the findings of environmental audits (physical or desktop) during the period of review of the #Oab wind farm. It addresses obligations in terms of the key Acts that govern the activities on site, the commitments made in the EMP, and present the findings and recommended corrective actions where applicable (Table 2, Table 3, Table 4 and Table 5).
The EMP therefore:

- Identifies all operation activities that could cause environmental damage (aspects and potential impacts) and provides a summary of actions required;
- Identifies institutions responsible for ensuring compliance with the EMP and provides their contact information;
- Provides standard procedures to avoid, minimise and mitigate the identified negative environmental impacts and to enhance the positive impact of the proposed activities on the environment;
- Forms a written record of procedures, responsibilities, requirements and rules for contractor/s, their staff and any other person who must comply with the EMP;
- Ensure zero pollution incidents; protect local flora, fauna, and water resources; and water use and other natural resources effectively and efficiently;
- Provides a monitoring and auditing programme to track and record compliance and identify and respond to any potential or actual negative environmental impacts;
- Provides a monitoring programme to record any mitigation measures that are implemented;
- Ensure that regular environmental audits are carried out by an experienced environmental control officer where appropriate; and
- Once operations have ceased, any impacts shall be rehabilitated.

3.4 ISSUES OF NON-COMPLIANCE

No activities were carried out, therefore no issues of non-compliance were identified.

4 EMP COMPLIANCE AUDIT

Table 2, Table 3 and Table 4 - Operational phase EMP audit

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
1) All activities	– Management and monitoring	– Social and environmental performance	– Ensure that all aspects related to the EMP are implemented during the operations phase.	– Non-applicable	– The Proponent did not conduct activities that triggered the need for this component of the EMP during the reporting period, however this will be relevant in the renewal of the Project.
2) All activities	– Consultation and disclosure	– Social and environmental performance	– Consult with project affected communities in a structured and culturally appropriate manner throughout the operations phase. Consultation should be “free” (of external manipulation, interference or coercion, and intimidation), “prior” (timely disclosure of information) and “informed” (relevant, understandable and accessible information).	– Non-applicable	– This aspect of the EMP has not been triggered during the reporting period but will be relevant in the renewal of the project.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Adequately incorporate project affected communities' concerns.		
3) All activities	– Grievance mechanisms (EP 6)	– Social and environmental performance	– Ensure a mechanism for receiving and resolving any concerns and grievances related to the project's social and environmental performance during the operations phase. – Address concerns promptly and transparently and in a culturally appropriate manner.	– Non-applicable	– This aspect of the EMP has not been triggered during the reporting period but will be relevant in the renewal of the project.
4) All activities	– Training (IFC PS 1), including awareness and inductions	– Social and environmental performance	– Train employees and contractors in matters related to the project's social and environmental performance, Namibia's regulatory requirements, and the requirements of the IFC Performance Standards. – Ensure adequate environmental awareness training for all personnel. – Give environmental induction presentations to all site personnel prior to work commencement.	– Non-applicable	– The Proponent did not carry out activities that triggered the need for this component of the EMP during the reporting period, however this will be relevant in the renewal of the Project.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
5) All activities	– Labour and working conditions (IFC PS 2)	– Social and environmental performance	– Establish, maintain and improve the worker-management relationship. Base the employment relationship on equal opportunity and fair treatment and no discrimination to be allowed. – Comply with Namibia's labour and employment laws and prevent unacceptable forms of labour, i.e. harmful child and forced labour. – Promote safe and healthy working conditions and the protection and promotion of worker health. – Document and communicate the Working Conditions and Terms of Employment. – Respect Collective Agreements and the right of workers to organize and bargain collectively	– Non-applicable	– This aspect was not triggered during the reporting period; however, it will be applied in the renewal of the Project.
6) All activities	– Employment and procurement opportunities	– Socio-economic	– Ensure local recruitment (of registered contractors or qualified and certified personnel, registered and certified with the appropriate statutory as per Electricity Control Board (ECB) licensee duty) and procurement to maximize benefit to region.	– Non-applicable	– This activity was not triggered during the reporting period, however, the Proponent will ensure that

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
					local recruitment is done fairly and according to the legal provisions in the Labour Act as set out in the EMP.
7) All activities	– Occupational health and safety	– Social and environmental performance	– Adhere to all Namibian Health and Safety Regulations. – Occupational Health and Safety Training to be provided to all employees. – Ensure that qualified first aid can be provided at all times. – Provide and ensure the active use of Personal Protective Equipment (PPE).	– Non-applicable	– Although not triggered during the reporting period, the National health and safety regulations will be adhered to during operations.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
8) All activities	– Community health and safety (IFC PS 4)	– Social and Environmental Performance	– Prevent communicable disease (e.g sexually transmitted diseases (STDs) such as HIV/AIDS transmission): provide surveillance and active screening and treatment of employees; prevent illness among employees in local communities (through health awareness and education initiatives); ensure ready access to medical treatment, confidentiality and appropriate care, particularly with respect to migrant workers; and promote immunisation.	– Non-applicable	– The Proponent will ensure mitigation measures are in place as per the EMP in the renewal of the Project.
9) All activities	– Unauthorised public access	– Community safety	– Use gates on the access road(s), or the entire site, or individual turbines, can be fenced off. – Turbine tower ladders should not be accessible to anyone from the public should they wish to climb the towers. – Notice or information boards relating public safety hazards and emergency contact details should be put up at the gate(s) and at the wind farm. – Create a viewpoint area, possibly including an information centre, for the public/tourists.	– Non-applicable	– The Proponent will ensure that the area is fenced off and public safety notice boards will be displayed as per the EMP.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
10) All activities	– Increased traffic/vehicle movement	– Air quality (dust or Particulate Matter (PM) pollution)	– Maintain the road surface to preserve surface characteristics (e.g. texture and roughness). – Use dust control/suppression methods, such as applying water or non-toxic chemicals to minimise dust (oil and oil by-products is not a recommended measure to control road dust).	– Non-applicable	– This aspect was not triggered during the reporting period; however, it will be applied in the renewal of the Project.
11) All activities	– Increased traffic/vehicle movement (exhaust from diesel engines)	– Air quality & Occupational and Community Health and Safety	– Fleet owners/operators to implement manufacturer recommended engine maintenance programs (to control vehicle emissions: Carbon Monoxide (CO), Nitrogen Oxide (NOx), Sulphur Dioxide (SO_2), Particulate Matter (PM) and Volatile Organic Compounds (VOCs)).	– Non-applicable	– Manufacturer recommended engine maintenance programs will be implemented during operations as per the EMP.
12) All activities	– Increased traffic/vehicle movement	– Occupational and Community Safety	– Adopt best transport safety practices by implementing the following measures: emphasize safety aspects among drivers; improve driving skills and require licensing of drivers; adopt limits for trip duration; avoid dangerous routes and times of day; and use speed control devices.	– Non-applicable	– This aspect was not triggered during the reporting period.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Regularly maintain vehicles and use manufacturer approved parts. – Use locally sourced materials (where possible) to minimise transport distances. – Employ safe traffic control measures, including the use of traffic and safety warning signs and flag persons to warn of dangerous conditions.		
13) All activities	– Storm water management	– Attraction of species (birds and bats) to the area due to open water and subsequent injury, disturbance or mortality of species	– Implement appropriate storm water management measures so as to avoid the presence of open water in the area.	– Non-applicable	– The Proponent will ensure mitigation measures are in place as per the EMP.
14) Operational turbines	– Moving turbine blades	– Species injury, disturbance (and potential alteration of behaviour), or mortality	– Implement monitoring programmes to study the potential impact(s) of the wind turbines on birds and bats.	– Non-applicable	– The Proponent will ensure mitigation measures are in place as per the EMP.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
		– Bird injury, disturbance (and potential alteration of behaviour), or mortality	– Use a radar system that can detect (any migrating) birds and simultaneously analyse the existing weather conditions. Turbines should be shut down (and would automatically re-start once the birds have passed) during unfavourable weather conditions, especially at night time.	– Non-applicable	– The Proponent will ensure mitigation measures are in place as per the EMP.
		– Bat injury or mortality	– Increased turbine speed, or change the wind turbine cut-in speed to drive bats away. – Use a stationary antenna transmitting two different radar signals at different pulse lengths to reduce bat activity. – Reduce the operational hours during low wind periods.	– Non-applicable	– This aspect has not been triggered during the reporting period.
	– Noise	– Occupational and Community Health	– Insulate the gearbox of each turbine.	– Non-applicable	– This aspect has not been triggered during the reporting period.
	– Inoperative turbines	– Visual	– Remove inoperative turbines.	– Non-applicable	– This will be applied during the operational phase of the

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
					project which is still to come.
	– Hazardous waste management	– Pollution of biophysical environment (soil and water)	– Wind turbines to be equipped with oil absorption and collection systems.	– Non-applicable	– This aspect has not been triggered during the reporting period.
	– Aircraft navigation safety (potential collision or the alteration of flight paths)	– Community safety	– Install anti-collision lighting and marking systems on the towers and blades.	– Non-applicable	– The Proponent will ensure mitigation measures are in place as per the EMP.
	– Malfunctioning rotor blades (and subsequent blade throw)	– Community safety	– Put up notice or information boards at the gate(s) and at the wind farm to alert the public of the potential risk. – Regularly maintain wind turbines. – Equip wind turbines with vibration sensors that can detect an imbalance in the rotor blades and shut down the turbines. – Implement safety setbacks of around 300 m, depending on the turbine height	– Non-applicable	– The Proponent will ensure mitigation measures are in place as per the EMP.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			and the speed, size, shape and weight of the rotor blades.		
	– Electromagnetic interference (television broadcasts)	– Community Health and Safety	– Install a higher quality or directional antenna or relocate/direct the antenna towards an alternative broadcast transmitter; or install an amplifier; or construct a new repeater station if a wide area is affected.	– Non-applicable	– The Proponent will ensure mitigation measures are in place as per the EMP.
15) General turbine maintenance	– Washing of the rotor blades (with water) to prevent dust and insect build-up	– Resource use / depletion of natural resources	– Ensure all wash water is recycled. Ensure there are no leaks from all taps, pipes and fittings.	– Non-applicable	– The Proponent will ensure mitigation measures are in place as per the EMP.
	– Periodic painting of tower structures	– Pollution of biophysical environment (soil and water)	– Conform to ISO 12944:1998 Paints and varnishes - Corrosion protection of steel structures by protective paint systems- Part 4: Types of surface and surface preparation.	– Non-applicable	– The Proponent will ensure mitigation measures are in place as per the EMP.
	– Working at heights	– Occupational Safety	– Test integrity of structure(s) before work commences. – Implement a fall protection program (including training in climbing techniques and the use of fall protection measures; inspection, maintenance, and	– Non-applicable	– The Proponent will ensure that the mitigation measures for working at heights are

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			replacement of fall protection equipment; and rescue of fall-arrested workers). – Establish criteria for use of 100% fall protection (the system should be fitting for the tower structure and movements (ascent, descent, and moving from point to point)). – Install fixtures on tower components to facilitate the use of fall protection systems. – Provide an adequate work-positioning device system to workers (with connectors on positioning systems compatible with the tower components to which they are attached). – Ensure proper rating and maintenance of hoisting equipment and training of hoist operators. – Use safety belts of not less than 15.8 mm two in one nylon or material of equivalent strength; replace rope safety belts before signs of aging or fraying of fibres become evident. – Workers to use a second (backup) safety strap when operating power tools at height.		complied with during operations.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Remove signs/other obstructions from poles/structures before work commences. – Use approved tool bags for lowering/ raising tools/materials to workers on elevated structures. – Avoid conducting maintenance during poor weather conditions (especially where there is a risk lightning strikes).		
16) Power transmission and distribution	– Electric and Magnetic Fields (EMF)	– Occupational and Community Health	– Ensure that average and peak exposure levels remain below the reference levels developed by the Commission of Non-Ionizing Radiation Protection (ICNIRP). – Reduce the EMF (from power lines, substations, or transformers) by applying engineering techniques (if levels are expected or confirmed above the recommended levels): shielding with specific metal alloys; burying transmission lines; increasing the height of the transmission towers; or modifications to size, spacing and configuration of conductors.	– Non-applicable	– All operational activities will be done in accordance with the EMP to ensure occupational and community health at all times.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
17) Power transmission and distribution	– Hazardous materials management (insulating oils / gases (Polychlorinated Biphenyls (PCB) and sulphur hexafluoride (SF6)) and fuels)	– Pollution of biophysical environment (soil and water)	– Minimise the use of SF6 (greenhouse gas). – The use of PCBs has largely been discontinued (see IFC EHS Guidelines for Electric Power Transmission and Distribution for the management of PCBs should it be used). – See All activities, Hazardous materials management. – Wood preservatives? Needed?	– Non-applicable	– All measures to reduce Namibian carbon footprint will be maintained.
18) Power transmission and distribution	– Live power lines	– Occupational Health and Safety	– Allow only trained/certified employees to install, maintain, and repair electrical equipment. – Deactivate and properly ground live power distribution lines before work is conducted on, or close to, distribution lines. – Ensure that live-wire work is conducted by qualified workers and in accordance to the specific safety and insulation standards. – Do not approach an exposed energized or conductive part (even if the worker is trained) unless: the person is properly	– Non-applicable	– The Proponent will maintain all occupational health and safety procedures during the operational activities.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			insulated from the energized part (e.g. gloves) and vice versa; the worker is properly isolated and insulated from any other conductive part (live-line work). – Implement a Health and Safety Plan, detailing specific training, safety measures , personal safety devices and other precautions, where maintenance and operation is required within minimum setback distances		
19) Power transmission and distribution	– Working at heights on poles/structures	– Occupational Health and Safety	– See General turbine maintenance, working at heights.	– Non-applicable	– The Proponent will maintain safety procedures during operational activities that involved working at heights.
20) Power transmission and distribution	– EMF	– Occupational Health and Safety	– Prepare and implement an EMF Safety Program containing information on: potential exposure levels in the workplace and the use of personal monitors; training of workers to identify EMF levels and hazards; the	– Non-applicable	– This aspect has not been triggered during the reporting period, but

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			identification and establishment of safety zones (areas acceptable for public exposure vs. those with expected elevated EMF levels and that only properly trained workers may access); action plans dealing with potential or confirmed exposure of levels that exceed those developed by the ICNIRP and Institute of Electrical and Electronics Engineers (IEEE).		these mitigation measures will be enforced during operations.
21) Power transmission and distribution	– Electrocution	– Community Health and Safety	– Use signs, barriers, and education to prevent public contact with potentially dangerous equipment. – Ground conducting objects installed near power lines.	– Non-applicable	– This aspect has not been triggered during the reporting period but will be applied during operations.
22) All activities	– Water management	– Resource use/depletion of natural resources	– Implement a water conservation program, promoting the continuous reduction in water consumption and achieving savings in water pumping, treatment and disposal costs, commensurate with the magnitude and cost of water use.	– Non-applicable	– Water conservation programs will be initiated during operations as per the EMP.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
23) All activities	– Hazardous materials management (mainly fuels and lubricating and hydraulic oils for operating vehicles and equipment; substation transformer insulating oil; equipment coolants and maintenance chemicals such as solvent cleaners and paints)	– Pollution of biophysical environment (soil and water)	– Implement prevention and control measures for the use, handling and storage of hazardous materials. – Train workers on the correct transfer and handling of fuels and chemicals and the response to spills. – Immediately report and clean up any accidental hydrocarbon spill: Spill-Sorb, Drizzat Pads, Enretech Powder or Peat Moss can be used to clean up small spills; in case of larger spills, the spill together with the polluted soil should be removed and disposed of at e.g. a biological remediation site.	– Non-applicable	– All hazardous materials will be stored in safe bunded containers on an impermeable surface.
		– Occupational Health and Safety	– Implement hazard communication and training programs (including information on Material Safety Data Sheets (MSDS)) to make employees aware of workplace chemical hazards and how to respond to these. – Provide and ensure the active use of Personal Protective Equipment (PPE).	– Non-applicable	– This aspect has not been triggered during the reporting period.
24) All activities	– Waste management: solid	– Air quality	– Avoid the open burning of waste (whether hazardous, or non-hazardous).	– Non-applicable	– This aspect has not been triggered during the

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
					reporting period.
25) All activities	– Waste management: non-hazardous and hazardous	– Pollution of biopysical environment	– As per Waste Management Plan. – Institute and maintain good housekeeping and operating practices; littering is not allowed. – Non-hazardous and hazardous waste to be collected and stored separately: – Non-hazardous waste to be transported to and disposed of, with prior permission from the Lüderitz Town Council, at the waste disposal site at Lüderitz. – Hazardous waste: recycle petroleum (fuels and lubricants) waste products and collect and recycle batteries and print cartridges. The remainder to be transported to a recognized hazardous waste disposal site (Lüderitz), with prior permission from the Lüderitz Town Council.	– Non-applicable	– This aspect has not been triggered during the reporting period.
26) All activities	– Waste management sanitary	– Pollution of biophysical environment	– Portable toilets (1 toilet per 30 employees; preferred 1:15) to be provided on the site; contents to be collected by an approved contractor and disposed of at an approved sewage site.	– Non-applicable	– This aspect has not been triggered during the reporting

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			Unless there will be a sewage plant linked to EBay Mine?		period, however the proponent will ensure portable toilets are provided to employees as per the EMP.
27) All activities	– Waste water Management – wastewater treatment	– Pollution of biophysical environment	– Ensure that the discharge of process wastewater and/or sanitary wastewater and/or wastewater from utility operations and/or storm water to land conform to the regulatory requirements.	– Non-applicable	– This aspect has not been triggered during the reporting period but will be enforced during operations.

Table 5 provides an overview of the compliance with EMP requirements as depicted in the approved EMP for the construction, operational and decommissioning phase of the #Oab Wind Farm (Appendix A).

Table 2 – Pre-construction phase of EMP compliance audit

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
– Management and monitoring	– Social and environmental performance	– In consultation with Namdeb EBay Management and Ministry of Environment and Tourism Park Directorate, ensure that all aspects related to the	– Compliant	– Although the Proponent did not do any

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
		EMP are implemented during the upgrade/construction and rehabilitation of access road(s). – Hold regular site meetings/inspections. Make provision in the minutes of the meetings for reporting on all aspects of the EMP related to the upgrade/construction and rehabilitation of the access road(s).		activities, the proponent continues to ensure all aspects related to the EMP are implemented with regards to access roads.
– Consultation and disclosure	– Social and environmental performance	– PM, EPC, Project HSE, Contractor HSE and Contractor to maintain open and direct lines of communication between the Employer and I&APs with regards to environmental matters. – Consult with project affected parties and institutions (MME, MET and Namdeb) in a structured and culturally appropriate manner throughout the project process. Consultation should be “free” (of external manipulation, interference or coercion, and intimidation), “prior” (timely disclosure of information) and “informed” (relevant, understandable and accessible information). – Adequately incorporate project affected parties concerns.	– Compliant	– Ongoing communications are maintained between the Proponent and the affected communities.
– Grievance mechanisms	– Social and environmental performance	– Implement a grievance mechanism for receiving and resolving any concerns and grievances related	– Compliant	– A platform is provided to address

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
		to the project's social and environmental performance throughout the project life cycle. – Inform the affected communities about the mechanism in the course of the community engagement process; it must be readily accessible to all segments of the affected communities. – Address concerns promptly and transparently and in a culturally appropriate manner.		concerns from affected communities throughout project.
– Training including awareness and inductions	– Social and environmental performance	– Train employees and contractors in matters related to the project's social and environmental performance, Namibia's regulatory requirements, and the requirements of the IFC Performance Standards. – Ensure adequate environmental awareness training for all senior site personnel. – Give environmental induction presentations to all site personnel prior to work commencement.	– Non-applicable	– The Proponent did not conduct activities that triggered the need for this component of the EMP during the reporting period, however this will be relevant in the renewal of the Project.
– Labour and working conditions	– Social and Environmental Performance	– Establish, maintain and improve the worker-management relationship. Base the employment relationship on equal opportunity and fair treatment and no discrimination to be allowed.	– Non-applicable	– Relationships among workers will be managed according to Namibian labour regulations.

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
		– Comply with Namibia's labour and employment laws and prevent unacceptable forms of labour practices. – Promote safe and healthy working conditions and the protection and promotion of worker health. – Prepare a Human Resource Policy and document and communicate the Working Conditions and Terms of Employment. – Respect Collective Agreements and the right of workers to organize and bargain collectively. – Prepare a retrenchment plan – Implement a grievance mechanism.		
– Occupational health and safety	– Social and environmental performance	– Prepare and submit an Emergency Preparedness and Response Plan – Adhere to all Namibian health and safety regulations. – Occupational health and safety training to be provided to all employees. – Ensure that qualified first aid can be provided to all employees. – Ensure that qualified first aid can be provided at all times. – Provide and ensure the active use of Personal Protective Equipment (PPE).	– Non-applicable	– The Proponent did not conduct activities that triggered the need for this component of the EMP during the reporting period. – The National health and safety regulations will be adhered to.

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
– Community health and safety	– Social and environmental performance	– Prevent communicable disease (e.g sexually transmitted diseases (STDs) such as HIV/AIDS transmission): provide surveillance and active screening and treatment of employees; prevent illness among employees in local communities (through health awareness and education initiatives); ensure ready access to medical treatment, confidentiality and appropriate care, particularly with respect to migrant workers; and promote immunisation.	– Non-compliance	– The Proponent did not conduct activities that triggered the need for this component of the EMP during the reporting period, however this will be relevant to the renewal of the project.
– Construction on site (at construction site) and Construction Lüderitz Camp (In Lüderitz Town) as may be required	– Tsau //Khaeb (Sperrgebiet) National Park (MET) and Diamond Protected Resources Area Mining License (MME) land Use Restrictions	– Selection of camp site for equipment and material storage ONLY at a construction site must be done in consultation with EBay Mine Management (Mining License -ML) Area; – No camping / overnighting is allowed at the construction onsite camp due to the diamonds security and national park access restrictions; – The construction onsite camp shall only be used during the day and for overnight storage of equipment and materials – Adhere to the provisions of your security and access permits at all times – Minimise the size of the onsite construction camp and provide / demarcate all onsite parking.	– Compliant	– The Proponent adhered to this component of the EMP.

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
	– Construction Lüderitz Camp in Lüderitz Town	– The EPC contractor to seek approval from Lüderitz Town Council for the location of the construction camp within the municipal area. Factors to consider during siting of construction camps include location of local residents and/or ecologically sensitive areas, including wind impact and slip/unstable zones. If the EPC contractor chooses to locate the camp site on private land, he must get prior permission from both the Project Manager and respective landowner; – Minimise the size of both the construction camp and the onsite construction; – Provide adequate parking for site staff and visitors. This should not inconvenience or serve as a nuisance for neighbours.	– Compliant	– The Proponent adhered to this component of the EMP.
	– Disturbance of fauna and flora and habitat alteration at the construction site camp	– The planning and design to ensure minimum impact to the environment. – No natural vegetation may be removed for the making of fires. – No animal may be injured, fed, trapped, hunted or harmed in any way. – No off-road / offsite driving is allowed. – No trespassing off the access road or beyond the construction site is allowed and no game or vegetation are to be interfered with.	– Compliant	– All planning and designs are aligned with the mitigation measures related to this aspect.
	– Pollution of biophysical environment (air,	– No fires will be allowed. – Vehicle maintenance/servicing/washing not to be allowed anywhere on site/at the camp.	– Non-applicable	– This activity was not triggered during the

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
	soil and water) at the construction site camp	– Portable toilets to be provided and used at the camp. – Sanitary wastewater to be released into a French drain system. – Use bio-degradable detergents on site. – Enforce proper waste (hazardous and non-hazardous) management practices (as per Waste Management Plan) – waste and litter to be disposed of in scavenger and weatherproof bins and the refuse to be collected by the contractor and disposed off at the Lüderitz Waste Disposal Site at least once a week.		reporting period, however, this will be relevant to the renewal of the project.
	– Occupational Health and Safety (OHS) at the construction site and Lüderitz Town camps	– No fires will be allowed, unless a specific area has been identified and set aside by the ER for the cooking of food. – Ensure that employees are trained in the use of appropriate firefighting equipment and ensure that such equipment is on hand at all times. – Comply with all safety regulations for electricity supply. – Supply potable water for human consumption and other domestic uses; – Make suitable arrangements, as far as practicable, for the maintenance of health, the prevention and overcoming of outbreaks of disease and of adequate first aid services. – Ensure that security arrangements are in place at all times. Store all hazardous materials such as	– Non-applicable	– This activity was not triggered during the reporting period, however, this will be relevant to the renewal of the project.

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
		blasting materials, oils, paints, thinners, fuels, chemicals, etc. in properly constructed and impermeable bunded areas at both camps. Hazardous materials must not be allowed to soak into the soil. Siting of hazardous material storage areas must be approved by the Project Manager. – The EPC contractor to acquire Material Safety Data Sheets (MSDSs) for all chemicals and hazardous substances used on site. Training on environmental impacts of chemicals and hazardous substances and Personal Protective Clothing (PPE) required to be worn must be provided to the workers and visitors as may be required. – Hazardous material storage areas must be signposted clearly. – Use a licensed waste handler for disposal of all used oils from the camp sites. A waste tracking sheet must be completed whenever used oils are being disposed. – Dispose off any excess concrete mixes in consultation with the Project Manager. – Immediately contain, recover and cleanup any spillages that may occur during the construction phase. All spillages must be reported to the HSE Officer and Project Manager.		

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
– Levelling of areas for road upgrade/Camp site area/ construction	– Disturbance of fauna and flora and habitat alteration	– Restrict road upgrade/construction activities to previously demarcated areas (borrow pits, haul and access roads (20 m from the center line of the road), construction camp, etc.); all other areas will be regarded as "no go" zones in order to minimise the impact on the surrounding land. – Minimise the removal of native plant species; no vegetation may be removed/damaged without direct instruction. – No off-road driving will be allowed. – No animal may be injured, fed, trapped, hunted or harmed in any way.	– Non-applicable	– This activity was not triggered during the reporting period, however, this will be relevant to the renewal of the project.
	– Soil erosion	– Sediment mobilisation and transport: reduce or prevent soil erosion – Road design: Provide adequate road drainage based on road width, surface material, compaction and maintenance. – Structural (slope) stability: provide effective short-term measures for slope stabilisation, sediment and subsidence control until long-term measures (during operations) can be implemented.	– Non-applicable	– This activity was not triggered during the reporting period, however, this will be relevant to the renewal of the project.
	– Possible loss of the seed bank in the topsoil	– The upper layer of soil (10-20 cm), where alluvial, to be stripped and stockpiled separately (1-2 m high piles to allow for proper aeration). Install drainage to protect the topsoil pile and cover it to protect it from (wind) erosion.	– Non-applicable	– This activity was not triggered during the reporting period, however, this will be relevant to

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
				the renewal of the project.
– Blasting along the access road, Camp site, construction site or barrow pit areas (Blasting at All Areas of the Proposed Project Activities)	– Vibrations, noise, dust, HSE	– Blasting operations shall only be done by a qualified person who must at all times adhere to the required blasting protocol; – Prior warning shall be given to all persons including EBay management before the blasting takes place; – Careful planning and timing of the blast program to minimise the size of the charge; – Where practicable, use of explosive products with lower detonation velocities, but noting that this would require more explosives to achieve the same blast result; – Use of detonating caps with built-in time delays, as this effectively reduces each detonation into a series of small explosions; – Use of a procedure ("decking the charge") which subdivides the charge in one blast hole into a series of smaller explosions, with drill patterns restricted to a minimum separation from any other loaded hole; – Over-drilling the holes to ensure fracturing of the rock;	– Non-applicable	– This activity was not triggered during the reporting period, however, this will be relevant to the renewal of the project.

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
		– Staggering the detonation for each blast hole in order to spread the explosive's total overpressure over time; – Matching, to the extent possible, the energy needed in the "work effort" of the borehole to the rock mass to minimise excess energy vented into the receiving environment.		
– Borrow pit siting	– Visual, pollution (traffic, noise and air), and land use	– Extraction of construction materials outside the construction area is strictly prohibited (Diamond Mining License Area) and must be approved by EBay Mine management; – With permission from EBay Mine management, the current tailings at EBay Mine could potential source of construction material; – Consider, in addition to material quality and quantity, the visual impact, potential traffic, noise and air pollution, and the potential loss of pristine high value conservation land when borrow pits are sited.	– Non-applicable	– This activity was not triggered during the reporting period, however, this will be relevant to the renewal of the project.
– Borrow pit management	– Disturbance of fauna and flora and habitat alteration	– Limit the number of borrow pits as far as possible. – The progression of stripping and excavation to allow for rehabilitation once the areas have been fully utilized.	– Non-applicable	– This activity was not triggered during the reporting period, however, this will be relevant to the renewal of the project.

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
	– Possible loss of the seed bank in the topsoil	– The upper layer of soil (10-20 cm), where alluvial, to be stripped and stockpiled separately (1-2 m high piles to allow for proper aeration). Install drainage to protect the topsoil pile from (water) erosion and cover it to protect it from (wind) erosion.	– Non-applicable	– All pre-construction and construction activities will be done in accordance with the EMP.
	– Occupational and Community Safety	– Cut slopes not to be steeper than 30 degrees. – No under-cutting of the sides to be allowed. – Undertake excavations in a safe manner and in compliance with the relevant safety regulations.	– Non-applicable	– This activity was not triggered during the reporting period, however, this will be relevant to the renewal of the project.
	– Social and Environmental Performance	– Cut slopes not to be steeper than 30 degrees. – Use excess rock spoil to fill borrow pits; material to be neatly shaped and no loose material to be left inside the borrow pits. – No waste are allowed to be dumped in borrow pits. – Evenly spread top soil over the entire area to allow for the re-growth of vegetation. – Replant previously removed native plant species in disturbed areas.	– Non-applicable	– This activity was not triggered during the reporting period, however, this will be relevant to the renewal of the project.

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
– Increased traffic, presence and movement of machinery, and the establishment of soil stockpiles	– Air quality (dust or Particulate Matter (PM) pollution)	– Minimise the area in which the movement of construction machines will take place to reduce the effects of dust pollution. – Minimise dust from material handling sources (e.g. conveyors and bins) by using covers and/or control equipment (e.g. water suppression). – Minimise dust from open area sources, including storage piles, by using control measures (install enclosures and covers, and increase the moisture content). – Avoid the excavation, handling and transport of erodible materials under high wind conditions or when a visible dust plume is present.	– Non-applicable	– This activity was not triggered during the reporting period, however all actions and mitigation measures will be adhered to as practically possible in accordance with the EMP.
– Increased traffic/vehicle movement	– Air quality (dust or Particulate Matter (PM) pollution)	– Maintain the road surface to preserve surface characteristics (e.g. texture and roughness). – Use dust control/suppression methods, such as applying water or non-toxic chemicals to minimise dust (oil and oil by-products is not a recommended measure to control road dust).	– Non-applicable	– The Proponent will ensure all road characteristics and dust control measures are maintained during pre-construction and construction.

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
– Increased traffic, presence and movement of machinery (exhaust from diesel engines)	– Air quality and Occupational and Community Health and Safety	– Fleet owners/operators to implement manufacturer recommended engine maintenance programs (to control vehicle emissions: Carbon Monoxide (CO), Nitrogen Oxide (NOx), Sulphur Dioxide (SO_2), Particulate Matter (PM) and Volatile Organic Compounds (VOCs)).	– Non-applicable	– This activity was not triggered during the reporting period.
– Presence of machinery, construction workers, and associated equipment	– Visual and noise	– Avoid critical habitats (for access roads) through using existing access roads where possible.	– Compliant	– Although no activities were undertaken, the Proponent adhered to this component of the EMP with regard to potential surveys that were done on the proposed site.
– Increased traffic, movement of machinery	– Occupational and Community Safety	– Adopt best transport safety practices by implementing the following measures: emphasize safety aspects among drivers; improve driving skills and require licensing of drivers; adopt limits for trip duration; avoid dangerous routes and times of day; and use speed control devices.	– Compliant	– The Proponent will maintain traffic/ vehicle safety measures during the renewal period of the project.

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
		– Regularly maintain vehicles and use manufacturer approved parts. – Use locally sourced materials (where possible) to minimise transport distances. – Employ safe traffic control measures, including the use of traffic and safety warning signs and flag persons to warn of dangerous conditions.		
– Water Management	– Resource use / depletion of natural resources	– Implement a water conservation program, promoting the continuous reduction in water consumption and achieving savings in water pumping, treatment and disposal costs, commensurate with the magnitude and cost of water use.	– Non-applicable	– This activity was not triggered during the reporting period.
– Hazardous materials management	– Social and Environmental Performance	– Establish hazardous materials management priorities (based on hazard analysis of risky operations). – Avoid, or minimise the use of hazardous materials. – Prevent uncontrolled releases of hazardous materials to the environment or uncontrolled reactions that may result in fire or explosion. – Make us of engineering controls (containment, automatic alarms and shut-off systems); implement management controls (procedures, inspections and training, communication and drills) to address residual risks not prevented or controlled through engineering controls.	– Non-applicable	– This activity was not triggered during the reporting period.

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
– Hazardous materials management	– Pollution of biophysical environment (soil and water)	Implement prevention and control measures for the use, handling and storage of hazardous materials: o Materials transfer: regularly inspect, maintain and repair fittings/pipes/hoses; make use of drip trays/other drip containment measures at connection/possible overflow points; o Overfill protection: use trained filling operators; install gauges on tanks to measure the volume inside; make use of dripless hose connections (vehicle tanks) and fixed connections (storage tanks); use a catch basin/drip tray around the fill pipe to collect spills; o Reaction, fire, and explosion prevention: hazardous materials to be stored in marked containers and separate (from non-hazardous materials); incompatible hazardous materials (acids, bases, flammables, oxidizers, reactive chemicals) to be stored in separate areas and with containment facilities separating material storage; smoking or working with open flames not to be permitted in the presence of these substances; limit access to hazardous waste storage areas and clearly label and demarcate the area; conduct regular inspections of the areas and document the findings; prepare and implement spill response and emergency plans; train employees in the use of appropriate firefighting equipment and ensure that such equipment is on hand at all times.	– Non-applicable	– This activity was not triggered during the reporting period.

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
		○ Secondary containment: use bunding (made of impervious, chemically resistant material) that can contain the larger of 110% of the largest tank or 25% of the combined tank volumes for above-ground tanks with a total storage volume equal or greater than 1,000 liters. – Train workers on the correct transfer and handling of fuels and chemicals and the response to spills. – Immediately report and clean up any accidental hydrocarbon spill: Spill-Sorb, Drizzat Pads, Enretech Powder or Peat Moss can be used to clean up small spills; in case of larger spills, the spill together with the polluted soil should be removed and disposed of at e.g. a biological remediation site in consultation with Namdeb EBay Management.		
– Hazardous materials management	– Occupational Health and Safety	– Implement hazard communication and training programs (including information on Material Safety Data Sheets (MSDS)) to make employees aware of workplace chemical hazards and how to respond to these. – Provide and ensure the active use of Personal Protective Equipment (PPE).	– Non-applicable	– This activity was not triggered during the reporting period, however it is relevant to the renewal of the project.

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
– Waste management: solid	– Air quality	– Avoid the open burning of waste (whether hazardous, or non-hazardous).	– Non-applicable	– This activity was not triggered during the reporting period, however it is relevant to the renewal of the project.
– Waste management: non-hazardous and hazardous	– Pollution of biophysical environment	– Prepare and submit a Waste Management Plan before construction commences. The generation of waste should be avoided or minimised as far as practicable; where it cannot be avoided, but has been minimised, waste should be recovered and reused; where waste cannot be recovered/reused, it should be treated, destroyed and disposed of in an environmentally sound manner. – Institute and maintain good housekeeping and operating practices; littering is not allowed. – Non-hazardous and hazardous waste to be collected and stored separately: – Non-hazardous waste to be transported to and disposed of, with prior permission from Namdeb EBay Management and Lüderitz Town Council for the use of their facility. – Hazardous waste: Recycle petroleum (fuels and lubricants) waste products and collect and recycle batteries and print cartridges. The remainder to be	– Non-applicable	– This activity was not triggered during the reporting period, however a waste management plan will be available on site.

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
		transported to a recognized hazardous waste disposal site (Windhoek or Walvis Bay), with prior permission from the Municipalities of Walvis Bay or Windhoek.		
– Waste management: sanitary	– Pollution of biophysical environment	– Portable toilets (1 toilet per 30 employees; preferred 1:15) to be provided and transported along the route; contents to be collected by an approved contractor and disposed of at an approved sewage site.	– Non-applicable	– This activity was not triggered during the reporting period, however it is relevant to the renewal of the project.
– Waste water management - waste water treatment	– Pollution of biophysical environment	– Ensure that the discharge of process wastewater and/or sanitary wastewater and/or wastewater from utility operations and/or storm water to land conform to the regulatory requirements in line with the conditions of waste water discharge permit issued by the Department of Water Affairs, Ministry of Water, Agriculture and Forestry	– Non-applicable	– This activity was not triggered during the reporting period, however it is relevant to the renewal of the project.
– Waste water management - storm water management	– Soil erosion	– Regular inspection and maintenance of permanent erosion and runoff control features.	– Non-applicable	– This activity was not triggered during the reporting period, however it is relevant to the

Aspect	Potential Impact	Management/mitigation measures	Compliance	Comments
				renewal of the project.
– Continuous Rehabilitation	– Social and environmental performance	– Remove all equipment, waste, temporary structures, etc. from the camp and work sites. – Reshape all disturbed areas (including stockpiles, borrow pits, and temporary detours and turnouts) to their original contours. – Cover disturbed areas with previously collected topsoil and spread evenly. – Manually rip disturbed areas, where compaction has taken place, and cover the areas with previously collected topsoil. – Replant any previously removed native plant species in disturbed areas.	– Non-applicable	– This aspect has not been triggered during the reporting period.

Table 3 – Construction phase EMP audit

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
1) All activities	– Management and monitoring	– Social and environmental performance	– Ensure that all aspects related to the EMP are implemented during the construction phase. – Hold regular site meetings/inspections. Make provision in the minutes of the meetings for reporting on all aspects of the EMP related to the construction of the wind farm	– Compliant	– Although the Proponent did not do any activities, the Proponent continues to ensure all aspects related

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
					to the EMP are implemented.
2) All activities	– Consultation and disclosure	– Social and environmental performance	– PM, EPC, Project HSE, Contractor HSE and Contractor to maintain open and direct lines of communication with the Employer, and I&APs with regards to environmental matters. – Consult with project affected communities in a structured and culturally appropriate manner. Consultation should be "free" (of external manipulation, interference or coercion, and intimidation), "prior" (timely disclosure of information) and "informed" (relevant, understandable and accessible information). – Adequately incorporate project affected communities' concerns.	– Non-applicable	– This aspect has not been triggered during the review period. – The Proponent ensures that a communication record will be available to keep track of any consultation with stakeholders.
3) All activities	– Grievance mechanisms (EP 6)	– Social and environmental performance	– Ensure a mechanism for receiving and resolving any concerns and grievances related to the project's social and environmental performance during the construction phase. – Address concerns promptly and transparently and in a culturally appropriate manner.	– Non-applicable	– This aspect has not been triggered during the review period. – A record of concerns and grievances will be kept on-site.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
4) All activities	– Training including awareness and inductions	– Social and environmental performance	– Train employees and contractors in matters related to the project's social and environmental performance, Namibia's regulatory requirements, and the requirements of the IFC Performance Standards. – Ensure adequate environmental awareness training for all personnel. – Give environmental induction presentations to all site personnel prior to work commencement.	– Non-applicable	– The Proponent will provide training and awareness to staff associated with environmental impacts and mitigations, the EMP and emergency training during construction.
5) All activities	– Labour and working conditions	– Social and environmental performance	– Establish, maintain and improve the worker-management relationship. Base the employment relationship on equal opportunity and fair treatment and no discrimination to be allowed. – Comply with Namibia's labour and employment laws and prevent unacceptable forms of labour, i.e. harmful child and forced labour. – Promote safe and healthy working conditions and the protection and promotion of worker health. – Prepare a Human Resources Policy and document and communicate the	– Non-applicable	– This aspect has not been triggered during the review period. – Professional relationships will be strengthened and aligned with the Namibian labour regulations.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			Working Conditions and Terms of Employment. – Respect Collective Agreements and the right of workers to organize and bargain collectively. – Prepare a Retrenchment Plan. – Implement a Grievance Mechanism.		
6) All activities	– Employment and procurement opportunities	– Socio-economic	– Ensure local recruitment (of registered contractors or qualified and certified personnel, registered and certified with the appropriate statutory as per Electricity Control Board (ECB) licensee duty) and procurement to maximize benefit to region.	– Non-applicable	– This aspect has not been triggered during the review period. – The Proponent will ensure that local recruitment is done fairly and according to the legal provisions in the Labour Act as set out in the EMP.
7) All activities	– Occupational health and safety	– Social and environmental performance	– Prepare and submit an Emergency Preparedness and Response Plan. – Adhere to all Namibian Health and Safety Regulations. – Occupational Health and Safety Training to be provided to all employees.	– Non-applicable	– This aspect has not been triggered during the review period.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Ensure that qualified first aid can be provided at all times. – Provide and ensure the active use of Personal Protective Equipment (PPE).		– The National health and safety regulations will be adhered to in the renewal of the project.
8) All activities	– Community health and safety	– Social and Environmental Performance	– Prevent communicable disease (e.g sexually transmitted diseases (STDs) such as HIV/AIDS transmission): provide surveillance and active screening and treatment of employees; prevent illness among employees in local communities (through health awareness and education initiatives); ensure ready access to medical treatment, confidentiality and appropriate care, particularly with respect to migrant workers; and promote immunisation.	– Non-applicable	– This aspect has not been triggered during the review period, however this is relevant to the renewal of the project.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
9) All activities	– Unauthorised public access	– Community safety	– Fencing of the Wind Farm is not recommended and not necessary because the site falls in a protected area with public access restrictions. – Turbine tower ladders should not be accessible to anyone from the public should they wish to climb the towers. – Notice or information boards relating public safety hazards and emergency contact details should be put up at the gate(s) and at the wind farm. – Create a viewpoint area, possibly including an information centre, for the public/tourists.	– Non-applicable	– This aspect has not been triggered during the review period, however this is relevant to the renewal of the project.
10) All activities	– Construction of wind farm	– Change in land use from “conservation”	– Restrict construction activities to demarcated areas; all other areas will be regarded as "no go" zones in order to minimise the impact on the surrounding land and unique vegetation.	– Non-applicable	– This aspect has not been triggered during the review period, however this is relevant to the renewal of the project.
11) All Excavations in pristine areas suspected of	– Construction of wind farm and all associated	– Destruction of archaeological resources / artefact	– The proponent should consider appointing an archaeologist during the preconstruction and construction to avoid negative impacts on archaeological resources;	– Non-applicable	– This aspect has not been triggered during the review period, however

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
having archaeological Resources / artefact	infrastructures		– Construction managers/foremen should be informed before construction starts on the possible types of archaeological resources / artefacts that may be encountered onsite and the procedures to follow when such archaeological resources / artefacts are found; – Sufficient time must be allowed to remove/collect any archaeological resources / artefacts found on the site; – If archaeological material already identified during the archaeological impact assessment will be impacted upon by the wind turbine footprint, mitigation in the form of test pits, systematic excavation and sampling must be undertaken before trenching		this is relevant to the renewal of the project.
		– Desruction of hyenas dens and disturbance of the local population	– The actual den locations must be avoided because the actual footprints of the turbines only requires a limited specific area. – The proponent to work with the local experts from the Brown Hyena Research Project in making sure that the exiting local hyena dens are not disturbed and that the communal hyena population is not exposed to potential	– Non-applicable	– This aspect has not been triggered during the review period, however this is relevant to the renewal of the project.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			illegal killings once the dens localities known. – Den localities should not be made public or known to the contractors or local community / workers. – No construction activities shall take place if there are cubs around the dens in close proximity to the turbines. – Continuous monitoring.		
12) Wind farm layout planning	– Wind farm layout	– Visual	– Minimise the presence of secondary structures: avoid fencing the site, minimise access roads, and bury intra-project power lines.	– Non-applicable	– This aspect has not been triggered during the review period, however the mitigation measures will be adhered to as per the EMP.
13) Wind turbine sitting and layout	– Electromagnetic interference (aviation radar and telecommunications)	– Community Health and Safety	<u>Aviation radar:</u> – Consider the designs of the components, i.e. the shape of the turbine towers and the shape and materials of the nacelles (in order to minimise radar interference); – Investigate the use of radar-absorbent surface treatments (to minimise electrical disturbance);	– Non-applicable	– This aspect has not been triggered during the review period, however the mitigation measures will be adhered to as per the EMP.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Consider the geometric layout and location of the wind turbines in relation to air traffic routes; – Consider radar design alterations, i.e. relocation of the affected radar, radar blanking of the affectedarea, or the use of alternative radar systems to cover the affected area. <u>Telecommunication systems:</u> – Avoid direct physical interference of point-to-point communication systems; – Modify the existing aerial; – Install a directional antenna; – Boost the signal by installing an amplifier. <u>Television broadcast:</u> – Site the turbines away from the line-of-sight of the broadcaster transmitter; – Make use of non-metallic turbine rotor blades.		

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
	– Configuration of turbine arrays	– Species (birds and bats) injury, disturbance (and potential alteration of behaviour), or mortality.	– Wind turbines to be grouped (rather than spreading the turbines widely), and/or place rows of turbines parallel to known bird movement/migration routes.	– Non-applicable	– All construction activities will be conducted in accordance with the EMP to ensure minimal species disturbance.
	– Aircraft navigation safety (potential collision or the alteration of flight paths)	– Community safety	– Consult the air traffic authorities so that the installation of the wind turbines will conform to air traffic safety regulations (15 km) craw flies from the Wind Farm (NOTE: The Wind Farm is about 22 km away from Lüderitz Airport).	– Non-applicable	– This aspect has not been triggered during the review period, however the mitigation measures will be adhered to as per the EMP.
14) Wind turbine design specifications	– Wind turbine appearance	– Visual	– Turbine type, height, colour and direction of rotation must be kept uniform; – Wind turbines are to be painted a light grey or pale blue (dependent on air navigational marking regulations) and with a non-reflective coating to avoid reflection from the towers; – Avoid using graphics or lettering on the turbines.	– Non-applicable	– This aspect has not been triggered during the review period, however this is relevant to the renewal of the project.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
15) Wind turbine acoustic design specifications	– Wind turbine acoustics	– Noise pollution	– Adhere to national or international acoustic design standards for wind turbines. – Implement engineering design standards to prevent or control noise (e.g. the use of variable speed turbines or pitched blades (resulting in lower rotational speed) may control broadband noise).	– Non-applicable	– This aspect has not been triggered during the review period. – The Proponent will ensure the that the national and international acoustic standards are adhered to.
16) Infrastructure construction	– Increased traffic, presence and movement of machinery, and the establishment of soil stockpiles	– Air quality (dust or Particulate Matter (PM) pollution)	– Minimise the area in which the movement of construction machines will take place to reduce the effects of dust pollution. – Minimise dust from material handling sources (e.g. conveyors and bins) by using covers and/or control equipment (e.g. water suppression). – Minimise dust from open area sources, including storage piles, by using control measures (install enclosures and covers, and increase the moisture content). – Avoid the excavation, handling and transport of erodible materials under	– Non-applicable	– This activity did not occur during the review period. – Minimal dust pollution measures will be taken during construction.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			high wind conditions or when a visible dust plume is present.		
	– Increased traffic/vehicle movement	– Air quality (dust or Particulate Matter (PM) pollution)	– Maintain the road surface to preserve surface characteristics (e.g. texture and roughness). – Use dust control/suppression methods, such as applying water or non-toxic chemicals to minimise dust (oil and oil by-products is not a recommended measure to control road dust).	– Non-applicable	– This aspect has not been triggered during the review period, however the Proponent will ensure mitigations related to this aspect are complied to.
	– Increased traffic, presence and movement of machinery (exhaust from diesel engines)	– Air quality & Occupational and Community Health and Safety	– Fleet owners/operators to implement manufacturer recommended engine maintenance programs (to control vehicle emissions: Carbon Monoxide (CO), Nitrogen Oxide (NOx), Sulphur Dioxide (SO2), Particulate Matter (PM) and Volatile Organic Compounds (VOCs)).	– Non-applicable	– This aspect has not been triggered during the review period, however mitigations as per the EMP will be complied to.
	– Presence of machinery, construction workers,	– Visual and noise	– Avoid critical habitats (for site transmission and distribution rights of way, lines, towers and substations) through using existing utility and	– Non-applicable	– This aspect has not been triggered during the review

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
	infrastructure (wind turbines and transmission towers) and associated equipment		transport corridors (transmission and distribution) where possible.		period, however this is relevant to the renewal of the project.
	– Increased traffic, movement of machinery	– Occupational and Community Safety	– Adopt best transport safety practices by implementing the following measures: emphasize safety aspects among drivers; improve driving skills and require licensing of drivers; adopt limits for trip duration; avoid dangerous routes and times of day; and use speed control devices. – Regularly maintain vehicles and use manufacturer approved parts. – Use locally sourced materials (where possible) to minimise transport distances. – Employ safe traffic control measures, including the use of traffic and safety warning signs and flag persons to warn of dangerous conditions.	– Non-applicable	– This aspect has not been triggered during the review period, however best transport safety measures will be adopted.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
	– Turbine foundations	– Occupational Safety	– Ensure that all excavations are properly performed and in accordance with Occupational, Health and Safety (OH&S) regulations. Blasting shall be undertaken in accordance with EMP No. 10 under Preconstruction Section of this EMP. – Ensure that the handling of concrete follow health and safety precautions (as per Material Safety Data Sheets (MSDS)). – Environmental Protection Agency (EPA) Environmental Guidelines for the Concrete Batching Industry could be followed (Best Practice Environmental Management).	– Non-applicable	– This aspect has not been triggered during the review period. – All construction activities will be aligned with Occupational, Health and Safety (OH&S) regulations.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
17) Assembly of wind tower components	– Working at heights	– Occupational Safety	– Test integrity of structure(s) before work commences. – Implement a fall protection program (including training in climbing techniques and the use of fall protection measures; inspection, maintenance, and replacement of fall protection equipment; and rescue of fall-arrested workers). – Establish criteria for use of 100% fall protection (the system should be fitting for the tower structure and movements (ascent, descent, and moving from point to point)). – Install fixtures on tower components to facilitate the use of fall protection systems. – Provide an adequate work-positioning device system to workers (with connectors on positioning systems compatible with the tower components to which they are attached). – Ensure proper rating and maintenance of hoisting equipment and training of hoist operators. – Use safety belts of not less than 15.8 mm two in one nylon or material of	– Non-applicable	– This aspect has not been triggered during the review period. – All construction activities will be aligned with Occupational, Health and Safety (OH&S) regulations.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			equivalent strength; replace rope safety belts before signs of aging or fraying of fibres become evident. – Workers to use a second (backup) safety strap when operating power tools at height. – Remove signs/other obstructions from poles/structures before work commences. – Use approved tool bags for lowering/raising tools/materials to workers on elevated structures. – Avoid conducting tower installation during poor weather conditions (especially where there is a risk lightning strikes).		
18) Turbines	– Avifauna collision with turbines. Based on the results of the long-term monitoring implemented as part of the EIA process for this	– Increased mortality of avifauna at the site.	– The use a real time Avian Radar System for birds and bats monitoring and risk mitigation. These systems uses software combined with radar technology and other sensor data inputs, including weather and visibility information to deliver a real-time radar-based curtailment or deterrence to prevent bird mortality while maximizing energy production;	– Non-applicable	– This aspect has not been triggered during the review period. – Avifauna collisions will be prevented as far as possible.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
	project, the likely impact on avifauna collision with the turbines is likely to be associated with the Cape and pied crows with flight paths extending inland and inclusive of the proposed Wind Farm area.		– Installation of a light reflective discs on the rotating components of the turbine in order to force the flamingos and other birds from coming closer to the turbines (hopefully change their commuting daily / migrating route over time); – Coating of the spinning components of the turbines with reflective paint in order to force the flamingos and other birds from coming closer to the turbines (hopefully change their commuting daily / migrating route); – Continuous monitoring with the aim of evaluating the level of impacts and development of appropriate and effective mitigation measures.		
19) Power transmission and distribution	– Underground cables (turbines to transformer station; transmission lines)	– Habitat alteration & Occupational and Community Health	– Restrict excavation activities to previously demarcated areas; all other areas will be regarded as "no go" zones in order to minimise the impact on the surrounding land. – Ensure that all excavations are properly performed and in accordance with Occupational, Health and Safety (OH&S) regulations.	– Non-applicable	– This aspect has not been triggered during the review period, however this is relevant to the renewal of the project.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Restrict trench excavation to a pace that matches cable installation and backfill. No more than 300 m of open trench to exist at any time.		
20) Power transmission and distribution	– Habitat alteration	– Bird and bat collisions and electrocutions	– Align transmission corridors to avoid critical habitats. – Maintain 1.5 m spacing between, or cover energized components and grounded hardware. – Consider the installation of underground transmission and distribution lines (sensitive areas). – Install visibility enhancement object (marker balls, bird deterrents, or diverters).	– Non-applicable	– This aspect has not been triggered during the review period. – Bird and bat collisions will be prevented as far as possible.
21) Power transmission and distribution	– Electric and Magnetic Fields (EMF)	– Occupational and Community Health	– Ensure that average and peak exposure levels remain below the reference levels developed by the Commission of Non-Ionizing Radiation Protection (ICNIRP). – Reduce the EMF (from power lines, substations, or transformers) by applying engineering techniques (if levels are expected or confirmed above the recommended levels): shielding with specific metal alloys; burying transmission lines; increasing the height of the transmission towers; or	– Non-applicable	– This aspect has not been triggered during the review period. – The Proponent will ensure EMF exposure levels are below the ICNIRP specifications.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			modifications to size, spacing and configuration of conductors.		
22) Power transmission and distribution	– Hazardous materials management (insulating oils / gases (Polychlorinated Biphenyls (PCB) and sulphur hexafluoride (SF6)) and fuels) Also products for wood preservation; I assume that no wooden poles would be used?	– Pollution of biophysical environment (soil and water)	– Minimise the use of SF6 (greenhouse gas). – The use of PCBs has largely been discontinued (see IFC EHS Guidelines for Electric Power Transmission and Distribution for the management of PCBs should it be used). – See all activities, Hazardous materials management. – Wood preservatives? Needed?	– Non-applicable	– This activity did not occur during the review period. – Preventative measures will be taken to minimise pollution.
23) Power transmission and distribution	– Live power lines	– Occupational Health and Safety	– Allow only trained/certified employees to install, maintain, and repair electrical equipment. – Deactivate and properly ground live power distribution lines before work is	– Non-applicable	– This aspect has not been triggered during the review period.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			conducted on, or close to, distribution lines. – Ensure that live-wire work is conducted by qualified workers and in accordance to the specific safety and insulation standards. – Do not approach an exposed energized or conductive part (even if the worker is trained) unless: the person is properly insulated from the energized part (e.g. gloves) and vice versa; the worker is properly isolated and insulated from any other conductive part (live-line work). – Implement a Health and Safety Plan, detailing specific training, safety measures, personal safety devices and other precautions, where maintenance and operation is required within minimum setback distances.		– The Proponent will ensure all occupational health and safety measures are in place during construction.
24) Power transmission and distribution	– Working at heights on poles/structures	– Occupational health and safety	– See Assembly of wind turbine components, working at heights.	– Non-applicable	– This aspect has not been triggered during the review period, however this is relevant to

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
					the renewal of the project.
25) Power transmission and distribution	– Electric and Magnetic Fields (EMF)	– Occupational Health and Safety	– Prepare and implement an EMF Safety Program containing information on: potential exposure levels in the workplace and the use of personal monitors; training of workers to identify EMF levels and hazards; the identification and establishment of safety zones (areas acceptable for public exposure vs. those with expected elevated EMF levels and that only properly trained workers may access); action plans dealing with potential or confirmed exposure of levels that exceed those developed by the Commission of Non-Ionizing Radiation Protection (ICNIRP) and Institute of Electrical and Electronics Engineers (IEEE).	– Non-applicable	– This aspect has not been triggered during the review period. – An EMF safety program will be implemented during the construction phase.
26) Power transmission and distribution	– Electrocution	– Community health and safety	– Use signs, barriers, and education to prevent public contact with potentially dangerous equipment. – Ground conducting objects installed near power lines.	– Non-applicable	– This aspect has not been triggered during the review period.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
					– Preventative measures will be provided to inform the public of dangers in the vicinity.
27) All activities	– Wastewater Management	– Resource use / depletion of natural resources	– Implement a water conservation program, promoting the continuous reduction in water consumption and achieving savings in water pumping, treatment and disposal costs, commensurate with the magnitude and cost of water use.	– Non-applicable	– A wastewater management plan will be provided and made available on-site.
28) All activities	– Hazardous materials management – Maybe this can come out; important, but more to do with overall hazardous materials management	– Social and Environmental Performance	– Establish hazardous materials management priorities (based on hazard analysis of risky operations). – Avoid, or minimise the use of hazardous materials. – Prevent uncontrolled releases of hazardous materials to the environment or uncontrolled reactions that may result in fire or explosion. – Make us of engineering controls (containment, automatic alarms and shut-off systems); implement management controls (procedures, inspections and training,	– Non-applicable	– This aspect has not been triggered during the review period, however this is relevant to the renewal of the project.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			communication and drills) to address residual risks not prevented or controlled through engineering controls.		

Table 4 - Operational phase EMP audit

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
1) All activities	– Management and monitoring	– Social and environmental performance	– Ensure that all aspects related to the EMP are implemented during the operations phase.	– Non-applicable	– The Proponent did not conduct activities that triggered the need for this component of the EMP during the reporting period, however this will be relevant in the renewal of the Project.
2) All activities	– Consultation and disclosure	– Social and environmental performance	– Consult with project affected communities in a structured and culturally appropriate manner throughout the operations phase. Consultation should be "free" (of external manipulation, interference or	– Non-applicable	– This aspect of the EMP has not been triggered during the reporting

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			coercion, and intimidation), "prior" (timely disclosure of information) and "informed" (relevant, understandable and accessible information). – Adequately incorporate project affected communities' concerns.		period but will be relevant in the renewal of the project.
3) All activities	– Grievance mechanisms (EP 6)	– Social and environmental performance	– Ensure a mechanism for receiving and resolving any concerns and grievances related to the project's social and environmental performance during the operations phase. – Address concerns promptly and transparently and in a culturally appropriate manner.	– Non-applicable	– This aspect of the EMP has not been triggered during the reporting period but will be relevant in the renewal of the project.
4) All activities	– Training (IFC PS 1), including awareness and inductions	– Social and environmental performance	– Train employees and contractors in matters related to the project's social and environmental performance, Namibia's regulatory requirements, and the requirements of the IFC Performance Standards. – Ensure adequate environmental awareness training for all personnel. – Give environmental induction presentations to all site personnel prior to work commencement.	– Non-applicable	– The Proponent did not carry out activities that triggered the need for this component of the EMP during the reporting period, however this

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
					will be relevant in the renewal of the Project.
5) All activities	– Labour and working conditions (IFC PS 2)	– Social and environmental performance	– Establish, maintain and improve the worker-management relationship. Base the employment relationship on equal opportunity and fair treatment and no discrimination to be allowed. – Comply with Namibia's labour and employment laws and prevent unacceptable forms of labour, i.e. harmful child and forced labour. – Promote safe and healthy working conditions and the protection and promotion of worker health. – Document and communicate the Working Conditions and Terms of Employment. – Respect Collective Agreements and the right of workers to organize and bargain collectively	– Non-applicable	– This aspect was not triggered during the reporting period; however, it will be applied in the renewal of the Project.
6) All activities	– Employment and procurement opportunities	– Socio-economic	– Ensure local recruitment (of registered contractors or qualified and certified personnel, registered and certified with the appropriate statutory as per Electricity Control Board (ECB) licensee	– Non-applicable	– This activity was not triggered during the reporting period,

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			duty) and procurement to maximize benefit to region.		however, the Proponent will ensure that local recruitment is done fairly and according to the legal provisions in the Labour Act as set out in the EMP.
7) All activities	– Occupational health and safety	– Social and environmental performance	– Adhere to all Namibian Health and Safety Regulations. – Occupational Health and Safety Training to be provided to all employees. – Ensure that qualified first aid can be provided at all times. – Provide and ensure the active use of Personal Protective Equipment (PPE).	– Non-applicable	– Although not triggered during the reporting period, the National health and safety regulations will be adhered to during operations.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
8) All activities	– Community health and safety (IFC PS 4)	– Social and Environmental Performance	– Prevent communicable disease (e.g sexually transmitted diseases (STDs) such as HIV/AIDS transmission): provide surveillance and active screening and treatment of employees; prevent illness among employees in local communities (through health awareness and education initiatives); ensure ready access to medical treatment, confidentiality and appropriate care, particularly with respect to migrant workers; and promote immunisation.	– Non-applicable	– The Proponent will ensure mitigation measures are in place as per the EMP in the renewal of the Project.
9) All activities	– Unauthorised public access	– Community safety	– Use gates on the access road(s), or the entire site, or individual turbines, can be fenced off. – Turbine tower ladders should not be accessible to anyone from the public should they wish to climb the towers. – Notice or information boards relating public safety hazards and emergency contact details should be put up at the gate(s) and at the wind farm. – Create a viewpoint area, possibly including an information centre, for the public/tourists.	– Non-applicable	– The Proponent will ensure that the area is fenced off and public safety notice boards will be displayed as per the EMP.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
10) All activities	– Increased traffic/vehicle movement	– Air quality (dust or Particulate Matter (PM) pollution)	– Maintain the road surface to preserve surface characteristics (e.g. texture and roughness). – Use dust control/suppression methods, such as applying water or non-toxic chemicals to minimise dust (oil and oil by-products is not a recommended measure to control road dust).	– Non-applicable	– This aspect was not triggered during the reporting period; however, it will be applied in the renewal of the Project.
11) All activities	– Increased traffic/vehicle movement (exhaust from diesel engines)	– Air quality & Occupational and Community Health and Safety	– Fleet owners/operators to implement manufacturer recommended engine maintenance programs (to control vehicle emissions: Carbon Monoxide (CO), Nitrogen Oxide (NOx), Sulphur Dioxide (SO_2), Particulate Matter (PM) and Volatile Organic Compounds (VOCs)).	– Non-applicable	– Manufacturer recommended engine maintenance programs will be implemented during operations as per the EMP.
12) All activities	– Increased traffic/vehicle movement	– Occupational and Community Safety	– Adopt best transport safety practices by implementing the following measures: emphasize safety aspects among drivers; improve driving skills and require licensing of drivers; adopt limits for trip duration; avoid dangerous routes and times of day; and use speed control devices.	– Non-applicable	– This aspect was not triggered during the reporting period.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Regularly maintain vehicles and use manufacturer approved parts. – Use locally sourced materials (where possible) to minimise transport distances. – Employ safe traffic control measures, including the use of traffic and safety warning signs and flag persons to warn of dangerous conditions.		
13) All activities	– Storm water management	– Attraction of species (birds and bats) to the area due to open water and subsequent injury, disturbance or mortality of species	– Implement appropriate storm water management measures so as to avoid the presence of open water in the area.	– Non-applicable	– The Proponent will ensure mitigation measures are in place as per the EMP.
14) Operational turbines	– Moving turbine blades	– Species injury, disturbance (and potential alteration of behaviour), or mortality	– Implement monitoring programmes to study the potential impact(s) of the wind turbines on birds and bats.	– Non-applicable	– The Proponent will ensure mitigation measures are in place as per the EMP.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
		– Bird injury, disturbance (and potential alteration of behaviour), or mortality	– Use a radar system that can detect (any migrating) birds and simultaneously analyse the existing weather conditions. Turbines should be shut down (and would automatically re-start once the birds have passed) during unfavourable weather conditions, especially at night time.	– Non-applicable	– The Proponent will ensure mitigation measures are in place as per the EMP.
		– Bat injury or mortality	– Increased turbine speed, or change the wind turbine cut-in speed to drive bats away. – Use a stationary antenna transmitting two different radar signals at different pulse lengths to reduce bat activity. – Reduce the operational hours during low wind periods.	– Non-applicable	– This aspect has not been triggered during the reporting period.
	– Noise	– Occupational and Community Health	– Insulate the gearbox of each turbine.	– Non-applicable	– This aspect has not been triggered during the reporting period.
	– Inoperative turbines	– Visual	– Remove inoperative turbines.	– Non-applicable	– This will be applied during the operational phase of the

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
					project which is still to come.
	– Hazardous waste management	– Pollution of biophysical environment (soil and water)	– Wind turbines to be equipped with oil absorption and collection systems.	– Non-applicable	– This aspect has not been triggered during the reporting period.
	– Aircraft navigation safety (potential collision or the alteration of flight paths)	– Community safety	– Install anti-collision lighting and marking systems on the towers and blades.	– Non-applicable	– The Proponent will ensure mitigation measures are in place as per the EMP.
	– Malfunctioning rotor blades (and subsequent blade throw)	– Community safety	– Put up notice or information boards at the gate(s) and at the wind farm to alert the public of the potential risk. – Regularly maintain wind turbines. – Equip wind turbines with vibration sensors that can detect an imbalance in the rotor blades and shut down the turbines. – Implement safety setbacks of around 300 m, depending on the turbine height	– Non-applicable	– The Proponent will ensure mitigation measures are in place as per the EMP.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			and the speed, size, shape and weight of the rotor blades.		
	– Electromagnetic interference (television broadcasts)	– Community Health and Safety	– Install a higher quality or directional antenna or relocate/direct the antenna towards an alternative broadcast transmitter; or install an amplifier; or construct a new repeater station if a wide area is affected.	– Non-applicable	– The Proponent will ensure mitigation measures are in place as per the EMP.
15) General turbine maintenance	– Washing of the rotor blades (with water) to prevent dust and insect build-up	– Resource use / depletion of natural resources	– Ensure all wash water is recycled. Ensure there are no leaks from all taps, pipes and fittings.	– Non-applicable	– The Proponent will ensure mitigation measures are in place as per the EMP.
	– Periodic painting of tower structures	– Pollution of biophysical environment (soil and water)	– Conform to ISO 12944:1998 Paints and varnishes - Corrosion protection of steel structures by protective paint systems- Part 4: Types of surface and surface preparation.	– Non-applicable	– The Proponent will ensure mitigation measures are in place as per the EMP.
	– Working at heights	– Occupational Safety	– Test integrity of structure(s) before work commences. – Implement a fall protection program (including training in climbing techniques and the use of fall protection measures; inspection, maintenance, and	– Non-applicable	– The Proponent will ensure that the mitigation measures for working at heights are

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			replacement of fall protection equipment; and rescue of fall-arrested workers). – Establish criteria for use of 100% fall protection (the system should be fitting for the tower structure and movements (ascent, descent, and moving from point to point)). – Install fixtures on tower components to facilitate the use of fall protection systems. – Provide an adequate work-positioning device system to workers (with connectors on positioning systems compatible with the tower components to which they are attached). – Ensure proper rating and maintenance of hoisting equipment and training of hoist operators. – Use safety belts of not less than 15.8 mm two in one nylon or material of equivalent strength; replace rope safety belts before signs of aging or fraying of fibres become evident. – Workers to use a second (backup) safety strap when operating power tools at height.		complied with during operations.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Remove signs/other obstructions from poles/structures before work commences. – Use approved tool bags for lowering/ raising tools/materials to workers on elevated structures. – Avoid conducting maintenance during poor weather conditions (especially where there is a risk lightning strikes).		
16) Power transmission and distribution	– Electric and Magnetic Fields (EMF)	– Occupational and Community Health	– Ensure that average and peak exposure levels remain below the reference levels developed by the Commission of Non-Ionizing Radiation Protection (ICNIRP). – Reduce the EMF (from power lines, substations, or transformers) by applying engineering techniques (if levels are expected or confirmed above the recommended levels): shielding with specific metal alloys; burying transmission lines; increasing the height of the transmission towers; or modifications to size, spacing and configuration of conductors.	– Non-applicable	– All operational activities will be done in accordance with the EMP to ensure occupational and community health at all times.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
17) Power transmission and distribution	– Hazardous materials management (insulating oils / gases (Polychlorinated Biphenyls (PCB) and sulphur hexafluoride (SF6)) and fuels)	– Pollution of biophysical environment (soil and water)	– Minimise the use of SF6 (greenhouse gas). – The use of PCBs has largely been discontinued (see IFC EHS Guidelines for Electric Power Transmission and Distribution for the management of PCBs should it be used). – See All activities, Hazardous materials management. – Wood preservatives? Needed?	– Non-applicable	– All measures to reduce Namibian carbon footprint will be maintained.
18) Power transmission and distribution	– Live power lines	– Occupational Health and Safety	– Allow only trained/certified employees to install, maintain, and repair electrical equipment. – Deactivate and properly ground live power distribution lines before work is conducted on, or close to, distribution lines. – Ensure that live-wire work is conducted by qualified workers and in accordance to the specific safety and insulation standards. – Do not approach an exposed energized or conductive part (even if the worker is trained) unless: the person is properly	– Non-applicable	– The Proponent will maintain all occupational health and safety procedures during the operational activities.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			insulated from the energized part (e.g. gloves) and vice versa; the worker is properly isolated and insulated from any other conductive part (live-line work). – Implement a Health and Safety Plan, detailing specific training, safety measures , personal safety devices and other precautions, where maintenance and operation is required within minimum setback distances		
19) Power transmission and distribution	– Working at heights on poles/structures	– Occupational Health and Safety	– See General turbine maintenance, working at heights.	– Non-applicable	– The Proponent will maintain safety procedures during operational activities that involved working at heights.
20) Power transmission and distribution	– EMF	– Occupational Health and Safety	– Prepare and implement an EMF Safety Program containing information on: potential exposure levels in the workplace and the use of personal monitors; training of workers to identify EMF levels and hazards; the	– Non-applicable	– This aspect has not been triggered during the reporting period, but

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			identification and establishment of safety zones (areas acceptable for public exposure vs. those with expected elevated EMF levels and that only properly trained workers may access); action plans dealing with potential or confirmed exposure of levels that exceed those developed by the ICNIRP and Institute of Electrical and Electronics Engineers (IEEE).		these mitigation measures will be enforced during operations.
21) Power transmission and distribution	– Electrocution	– Community Health and Safety	– Use signs, barriers, and education to prevent public contact with potentially dangerous equipment. – Ground conducting objects installed near power lines.	– Non-applicable	– This aspect has not been triggered during the reporting period but will be applied during operations.
22) All activities	– Water management	– Resource use/depletion of natural resources	– Implement a water conservation program, promoting the continuous reduction in water consumption and achieving savings in water pumping, treatment and disposal costs, commensurate with the magnitude and cost of water use.	– Non-applicable	– Water conservation programs will be initiated during operations as per the EMP.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
23) All activities	– Hazardous materials management (mainly fuels and lubricating and hydraulic oils for operating vehicles and equipment; substation transformer insulating oil; equipment coolants and maintenance chemicals such as solvent cleaners and paints)	– Pollution of biophysical environment (soil and water)	– Implement prevention and control measures for the use, handling and storage of hazardous materials. – Train workers on the correct transfer and handling of fuels and chemicals and the response to spills. – Immediately report and clean up any accidental hydrocarbon spill: Spill-Sorb, Drizzat Pads, Enretech Powder or Peat Moss can be used to clean up small spills; in case of larger spills, the spill together with the polluted soil should be removed and disposed of at e.g. a biological remediation site.	– Non-applicable	– All hazardous materials will be stored in safe bunded containers on an impermeable surface.
		– Occupational Health and Safety	– Implement hazard communication and training programs (including information on Material Safety Data Sheets (MSDS)) to make employees aware of workplace chemical hazards and how to respond to these. – Provide and ensure the active use of Personal Protective Equipment (PPE).	– Non-applicable	– This aspect has not been triggered during the reporting period.
24) All activities	– Waste management: solid	– Air quality	– Avoid the open burning of waste (whether hazardous, or non-hazardous).	– Non-applicable	– This aspect has not been triggered during the

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
					reporting period.
25) All activities	– Waste management: non-hazardous and hazardous	– Pollution of biopysical environment	– As per Waste Management Plan. – Institute and maintain good housekeeping and operating practices; littering is not allowed. – Non-hazardous and hazardous waste to be collected and stored separately: – Non-hazardous waste to be transported to and disposed of, with prior permission from the Lüderitz Town Council, at the waste disposal site at Lüderitz. – Hazardous waste: recycle petroleum (fuels and lubricants) waste products and collect and recycle batteries and print cartridges. The remainder to be transported to a recognized hazardous waste disposal site (Lüderitz), with prior permission from the Lüderitz Town Council.	– Non-applicable	– This aspect has not been triggered during the reporting period.
26) All activities	– Waste management sanitary	– Pollution of biophysical environment	– Portable toilets (1 toilet per 30 employees; preferred 1:15) to be provided on the site; contents to be collected by an approved contractor and disposed of at an approved sewage site.	– Non-applicable	– This aspect has not been triggered during the reporting

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			Unless there will be a sewage plant linked to EBay Mine?		period, however the proponent will ensure portable toilets are provided to employees as per the EMP.
27) All activities	– Waste water Management – wastewater treatment	– Pollution of biophysical environment	– Ensure that the discharge of process wastewater and/or sanitary wastewater and/or wastewater from utility operations and/or storm water to land conform to the regulatory requirements.	– Non-applicable	– This aspect has not been triggered during the reporting period but will be enforced during operations.

Table 5 - Decommissioning and closure phase EMP audit

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
1) Decommissioning and closure	– Decommissioning	– Social and environmental	– Isolate (electrically) the turbines from the substation.	– Non-applicable	– This aspect has not been triggered during

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
		performance and visual	– Dismantle the blades, nacelle and towers, load onto trucks and remove from the site for disposal/recycling. – Disassemble the steel tower sections and cut off at the top of the foundation concrete; rehabilitate the hardstand area. – Remove all above-ground substation infrastructure and re-use, recycle or dispose of it. – Conduct a site contamination assessment; remove any contaminated material and dispose of at an appropriate disposal facility. – Break up foundations in the substation and remove for disposal. – Dig up below-ground substation infrastructure and remove. – Conduct a validation survey to ensure that all contaminated material at the substation has been removed; remove any contaminated material and dispose of at an appropriate disposal facility. – Rehabilitate access tracks not required for ongoing land use activities. – Remove all other equipment, waste, etc. from the area.		the reporting period. – This will be applied should the Project undergo a decommissioning phase.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Reshape all disturbed areas to their original contours. – Cover disturbed areas with previously collected topsoil and spread evenly. – Manually rip disturbed areas, where compaction has taken place, and cover the areas with previously collected topsoil. – Replant any previously removed native plant species in disturbed areas.		
2) Closure	– Loss of jobs and income	– Socio-economic	– Implement a skills training programme during the operations phase.	– Non-applicable	– This aspect has not been triggered yet.

5 CONCLUSION

No activities were carried out during the period for which the environmental clearance certificate was issued to the Proponent. All proposed activities shall be carried out in compliance with the relevant requirements and conditions of the granted licence in accordance with the approved EMP. It is recommended that the Proponent continues to adhere to all environmental legislation and company standards to ensure that best practical environmental protection continues as the project progresses.

APPENDIX A –ENVIRONMENTAL MANAGEMENT PLAN

APPENDIX B – CURRENT ENVIRONMENTAL CLEARANCE CERTIFICATE

ECC – 001385 Serial: 9YTsR31385

REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM

OFFICE OF THE ENVIRONMENTAL COMMISSIONER

ENVIRONMENTAL CLEARANCE CERTIFICATE

ISSUED

In accordance with Section 37(2) of the Environmental Management Act (Act No. 7 of 2007)

TO

#Oab Energy (Pty) Ltd
P.O. Box 27527 Windhoek Namibia

TO UNDERTAKE THE FOLLOWING LISTED ACTIVITY

Management and Operations of the 8MW wind farm next to Sperrgebiet Diamond Mining's Elizabeth Bay (EBay) mine, Mining Licence (ML) No. 45, //Karas Region,

09 JUN 2021

ENVIRONMENTAL COMMISSIONER

Issued on the date: 2021-06-07

Expires on this date: 2024-06-07

(See conditions printed over leaf)

Reduce
Reuse

ECC –

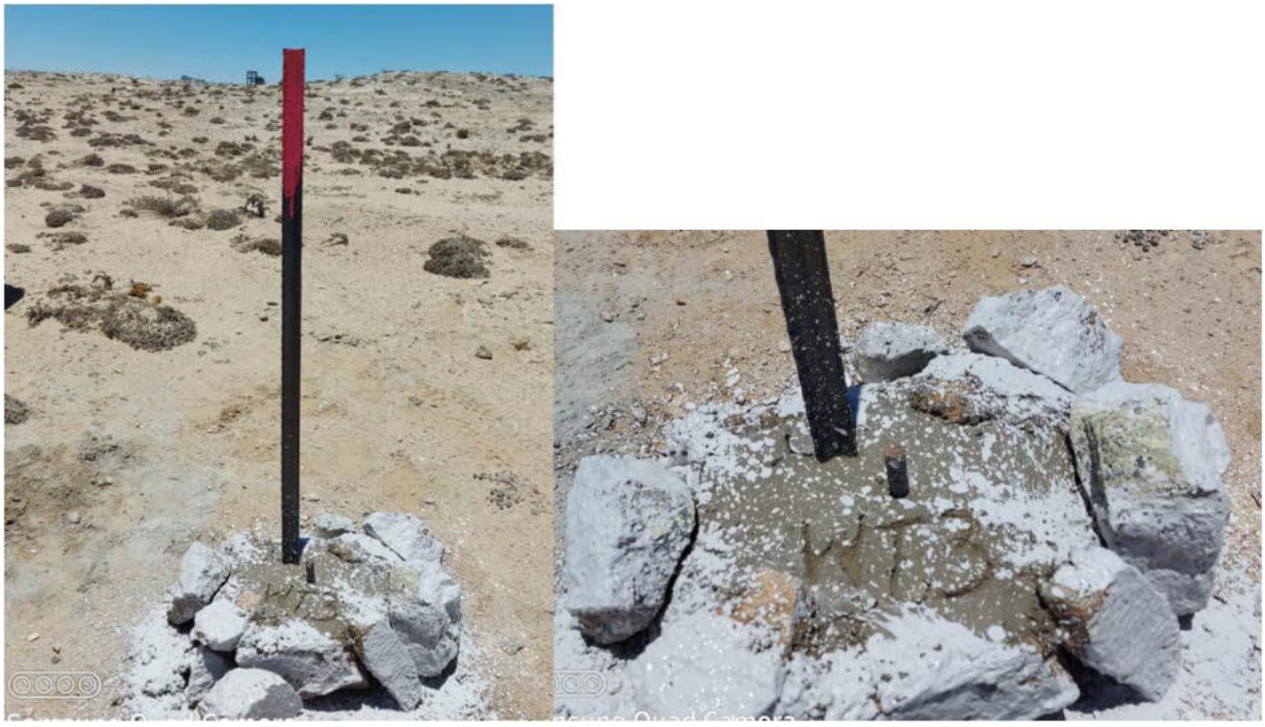
CONDITIONS OF APPROVAL

1. This environmental clearance is valid for a period of 3 (three) years, from the date of issue unless withdrawn by this office
2. This certificate does not in any way hold the Ministry of Environment and Tourism accountable for misleading information, nor any adverse effects that may arise from these activities. Instead, full accountability rests with the proponent and its consultants
3. This Ministry reserves the right to attach further legislative and regulatory conditions during the operational phase of the project
4. All applicable and required permits are obtained and mitigation measures stipulated in the EMP are applied particularly with respect to management of ecological impacts.
5. Strict compliance with conditions attached to the consent received from National Heritage Council is expected throughout the life-span of the proposed activity, therefore any new archaeological finds must be reported to the National Heritage Council for appropriate handling of such.
6. A six monthly report on project progress and environmental management profile, starting from date of commencement of operations, must be submitted by the Proponent to Office of Environmental Commissioner.
7. Conditions applicable to Environmental Clearance Certificate in Proclaimed Protected Areas applies.

APPENDIX C – THE 4 TURBINES NEW LOCATIONS

POINT I.D	WT1		DATE:	11 – 12 - 2020
COORDINATES	UTM		LO 22/15	
	East	South	Y	X
WT1	517035	7024923	-17106.123	542411.004

POINT I.D	WT2		DATE:	11 – 12 - 2020
COORDINATES	UTM		LO 22/15	
	East	South	Y	X
WT2	517467	7024958	-17538.123	542376.004



POINT I.D	WT3		DATE:	11 – 12 - 2020
COORDINATES	UTM		LO 22/15	
	East	South	Y	X
WT3	517905	7024993	-17976.123	542341.004

POINT I.D	WT4		DATE:	11 – 12 - 2020
COORDINATES	UTM		LO 22/15	
	East	South	Y	X
WT4	518343	7025028	-18414.123	542306.004

#Oab Energy (PTY) LTD

8MW Namdeb Elizabeth Bay (EBAY) Mine Wind Farm

Vol. 3 of 3-Final Environmental Management Plan (EMP) Report for the Proposed 8MW Namdeb Elizabeth Bay (EBAY) Mine Wind Farm with Access Roads and Powerline to the Nearby Substation, Tsau //Khaeb (Sperrgebiet) National Park, LÜDERITZ DISTRICT, //KARAS REGION **SOUTHERN NAMIBIA**

JANUARY 2017

2 Schutzen Street
P. O. Box 86524
WINDHOEK NAMIBIA

Prepared By

Risk-Based Solutions cc

The Consulting Arm of Foresight Group Namibia (PTY) LTD

Our Investments and Consultancy Portfolio / Specialisation:

- ❖ Environmental Assessments (Scoping, SEAs, EIAs and EMPs)
- ❖ Oil and Gas Exploration and Production Technical Support Services
- ❖ Minerals Exploration and Mining Technical Support Services
- ❖ Renewable Energy Technical Support Services
- ❖ Property Development and Tourism Investments
- ❖ Waste Management Technical Support Services
- ❖ Geoenvironmental and Geotechnical Engineering Technical Support Services
- ❖ Programme and Project Management and Logistics Support Services
- ❖ Specialised Training and Industry Research Support

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Global Office URL:http//www.rbs.com.na

Foresight Group Namibia (FGN) (PTY) LTD – *Perfecting the Future*
Risk-Based Solutions (RBS) – *Delivering the Solutions*

STATEMENT OF QUALIFICATIONS / SUMMARY CV /PROFILE OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP) – DR. SINDILA MWIYA

Dr. Sindila Mwiya is highly qualified with extensive experience in renewable energy (Solar, Wind and Biomass), petroleum (Oil and Gas exploration and production), minerals exploration and mining, environmental assessment and management (Scoping, EIA, EMP, HSE etc.), cleaner production, geoenvironmental, geological and geotechnical engineering fields. Dr. Sindila Mwiya has more than twelve (12) years of direct industry experience in renewable and fossil energy, onshore and offshore resources exploration, extraction and utilisation / coexistence covering general and technical specialist exploration support, Health, Safety and Environment (HSE) permitting for Geophysical Surveys such as 2D and 3D seismic and Gravity surveys, mining and drilling operations support, through to coexistence recovery and utilisation for broader sustainable socioeconomic development.

Through his companies Risk-Based Solutions (RBS) and Foresight Group Namibia (FGN) (PTY) LTD, which he founded, he has worked and continue to work for global reputable renewable and fossil energy and resources (Oil and Gas and Mining) companies such as InnoSun Holding (PTY) LTD (Namibia / France), LL Namibia Phosphate (Namibia/ Israel), OLC Arandis Solar Energy (PTY) LTD (Namibia / Germany), Debmarine (Namibia), Namibia Underwater Technologies (NUTAM) (Namibia), Impact Oil and Gas (UK), AziNam Limited (Bermuda / Namibia), Petrobras Oil and Gas (Brazil) / BP (UK), REPSOL (Spain), ACREP (Angola), Preview Energy Resources (UK), HRT Africa (Brazil / USA), Chariot Oil and Gas Exploration (UK), Serica Energy (UK), Eco (Atlantic) Oil and Gas (Canada / USA), ION GeoVentures (USA), PGS UK Exploration (UK), TGS-Nopec (UK), Maurel & Prom (France), GeoPartners (UK), PetroSA Equatorial Guinea (South Africa / Equatorial Guinea), Preview Energy Resources (Namibia / UK), Sintezneftegaz Namibia LTD (Russia) and INA Namibia (INA INDUSTRIJA NAFTE d.d) (Croatia).

He has worked and continue to work as an Environmental Assessment Practitioner (EAP), Project Manager, Lecturer (University of Namibia), External Examiner/ Moderator (Polytechnic of Namibia), Technical Consultant (RBS / FGN), National Technical Advisor (Directorate of Environmental Affairs, Ministry of Environment and Tourism / DANIDA – Cleaner Production Component) and Chief Geologist for Engineering and Environment Division and Geotechnician (Magnetics, Seismic, Gravity and Electromagnetics Field-Based Survey Methods for Minerals Exploration Promotion Project in Namibia) for Geophysics Division, Geological Survey of Namibia, Ministry of Mines and Energy. He has supervised and continue to support a number of MSc and PhD research programmes and has been a reviewer on international, national and regional researches, plans, programmes and projects with the objective to ensure substantial local skills development for sustainable natural resources development, utilisation, management and for development policies, plans, programmes and projects financed by governments, private investors and donor organisations. Since 2006, he has provided extensive technical support to the Department of Environmental Affairs (DEA), Ministry of Environment and Tourism (MET) through GIZ and continue to play a significant role in the amendments of the Namibian Environmental Management Act, 2007, (Act No. 7 of 2007), preparation of new Strategic Environmental Assessment (SEA) Regulations, preparation of the updated Environmental Impact Assessment (EIA) Regulations and new SEA and EIA Guidelines and Procedures.

Among his academic achievements, Dr Sindila Mwiya is a holder of a PhD (Geoenvironmental Engineering and Artificial Intelligence) – Research Thesis: Development of a Knowledge-Based System Methodology (KBSM) for the Design of Solid Waste Disposal Sites in Arid and Semiarid Environments (Namibia)), MPhil/PG Cert and BEng (Hons) (Engineering Geology and Geotechnics), qualifications from the University of Portsmouth in the United Kingdom. During the 2004 Namibia National Science Awards, organised by the Namibian Ministry of Education, and held in Windhoek, Dr. Sindila Mwiya was awarded the Geologist of the Year for 2004, in the professional category. Furthermore, as part of his professional career recognition, Dr. Sindila Mwiya is a life member of the Geological Society of Namibia, Consulting member of the Hydrogeological Society of Namibia and a Professional Engineer registered with the Engineering Council of Namibia.

WINDHOEK, JANUARY 2017

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EXECUTIVE SUMMARY

1. Introduction

#Oab Energy (PTY) LTD is proposing to develop an 8MW Elizabeth Bay (EBAY) Wind Farm comprising four (4) turbines of 2MW each in order to supply green energy to the Namdeb Elizabeth Bay (EBAY) Diamond Mine. The proposed project and the EBAY Diamond Mine falls within the Tsau //Khaeb (Sperrgebiet) National Park in the //Karas Region in Southern Namibia.

The Environmental Management Plan (EMP) provides a detailed plan of action required in the implementation of the mitigation measures for minimising and maximising the identified negative and positive impacts respectively, with respect to the development of the proposed 8MW EBay Wind Farm.

This EMP covers all aspects of the proposed project development lifecycle and it's inclusive of the following: Access routes, wind turbine sites and all associated infrastructure such as underground cables, switch station and transmission lines to the EBay Substations.

The EMP also provides the management actions with roles and responsibilities requirements for implementation by the #Oab Energy (PTY) LTD through the contractor/s who will be undertaking the activities from preconstruction to decommissioning of the proposed wind energy project. The EMP gives commitments including financial and human resources provisions for effective implementation of the EMP, management and monitoring of the likely environmental impacts through the life cycle of the proposed project. Regular assessments and evaluation of the likely impacts during the operational stage will need to be undertaken and will ensure adequate provision of the necessary resources towards good environmental management at various stages of the project development.

2. Summary of the EMP

Based on the assessment of both negative and positive impacts undertaken for the proposed wind energy project, a number of high positive and localised negative impacts have been identified. Overall, positive impacts of the proposed project development outweigh the localised high negative ones at local, regional, national and global levels. Mitigation measures for the negative impacts have been proposed and management strategies are provided in this Environmental Management Plan (EMP Vol. 3 of 3) covering the site establishment, preconstruction, construction, operational and closure / upgrading related activities of the various developmental stages of the proposed 8MW EBay Wind Farm.

3. #Oab Energy Actions and Responsibilities

The implementation of the EMP by the #Oab Energy (PTY) LTD as a part of the management of the impacts covers the entire lifecycle covering site establishment, preconstruction, construction, operational, decommissioning and closure stages of the proposed project activities. All the responsibilities to ensure that the recommendations of this EMP Report are executed accordingly, rest with the **#Oab Energy (PTY) LTD.** The company must provide all appropriate resource necessary for the effective implementation of this EMP and monitoring thereof. It is the responsibility of **#Oab Energy (PTY) LTD** to make sure that all members of the workforce including contractors and subcontractors are aware of the provisions of this EMP Report and its objectives.

1. PROJECT BACKGROUND

1.1 Introduction

#Oab Energy (PTY) LTD (**the Proponent**) is in the process of developing an 8 MW Namdeb Elizabeth (EBAY) Wind Energy Project. #Oab Energy (PTY) LTD is a Namibian registered company fully owned by InnoSun Energy Holdings (PTY) LTD. Since 2010, InnoSun Energy Holdings (PTY) LTD, a Namibian registered company, has been developing a portfolio of utility-scale renewable project (wind and Solar) to be connected to the Namibian electricity grid. The company is owned by French and Namibian shareholders (EIA Vol. 2 of 3 Report).

1.2 Regulatory Requirements

Environmental management in Namibia are governed by the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 gazetted under the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007) and in line with the provisions of the Cabinet approved Environmental Assessment Policy for Sustainable Development and Environmental Conservation of 1995. The regulations and the Act both have schedules of listed activities which are subject to Environmental Clearance Certificate (ECC).

The proposed 8MW EBay Wind Farm falls within the categories of listed activities that cannot be undertaken without an ECC. An ECC is issued based on the review and approval by the Environmental Commissioner of the findings of an Environmental Assessment covering Scoping, Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP).

Other key legislative instruments governing the proposed project include all those related to the electricity generation, transmission, distribution, use, import and export as they directly affect the feasibility of the project. The Ministry of Mines and Energy (MME) and the Electricity Control Board (ECB) are the key main Competent Authorities. The following is the summary of the key legal framework related to this project: Electricity Act, 2000 (Act No. 2 of 2000) as amended and the Electricity: Administrative Regulations of 2000 as amended.

1.3 Project Location

The project is located next to Elizabeth Bay (EBAY) Mine in the Tsau //Khaeb (Sperrgebiet) National Park near the Town of Lüderitz in the //Karas Region in Southern Namibia (Figs. 1.1 1.4). The proposed Wind Energy Project site falls within the Tsau //Khaeb (Sperrgebiet) National Park which form part of the Succulent Karoo hotspot, which covers an area of approximately 116,000 km^2 in Namibia and South Africa (Fig. 1.3 and Critical Ecosystem Partnership Fund, 2003). According to Critical Ecosystem Partnership Fund, (2003), the rich biodiversity of the Succulent Karoo hotspot is due to an extensive and complex array of habitat types derived from topographical and climatic diversity in the region's rugged mountains, semi-arid shrublands and coastal dunes. The hallmark of the hotspot is its exceptionally diverse and unique flora, especially succulents and bulbs. Local endemism (i.e. the restriction of species to extremely small ranges of <50 km^2) is most pronounced among bulbs and Mesembryanthemaceae and other succulents. In addition to invertebrates, faunal diversity and endemism is high for reptiles, amphibians and some mammals.

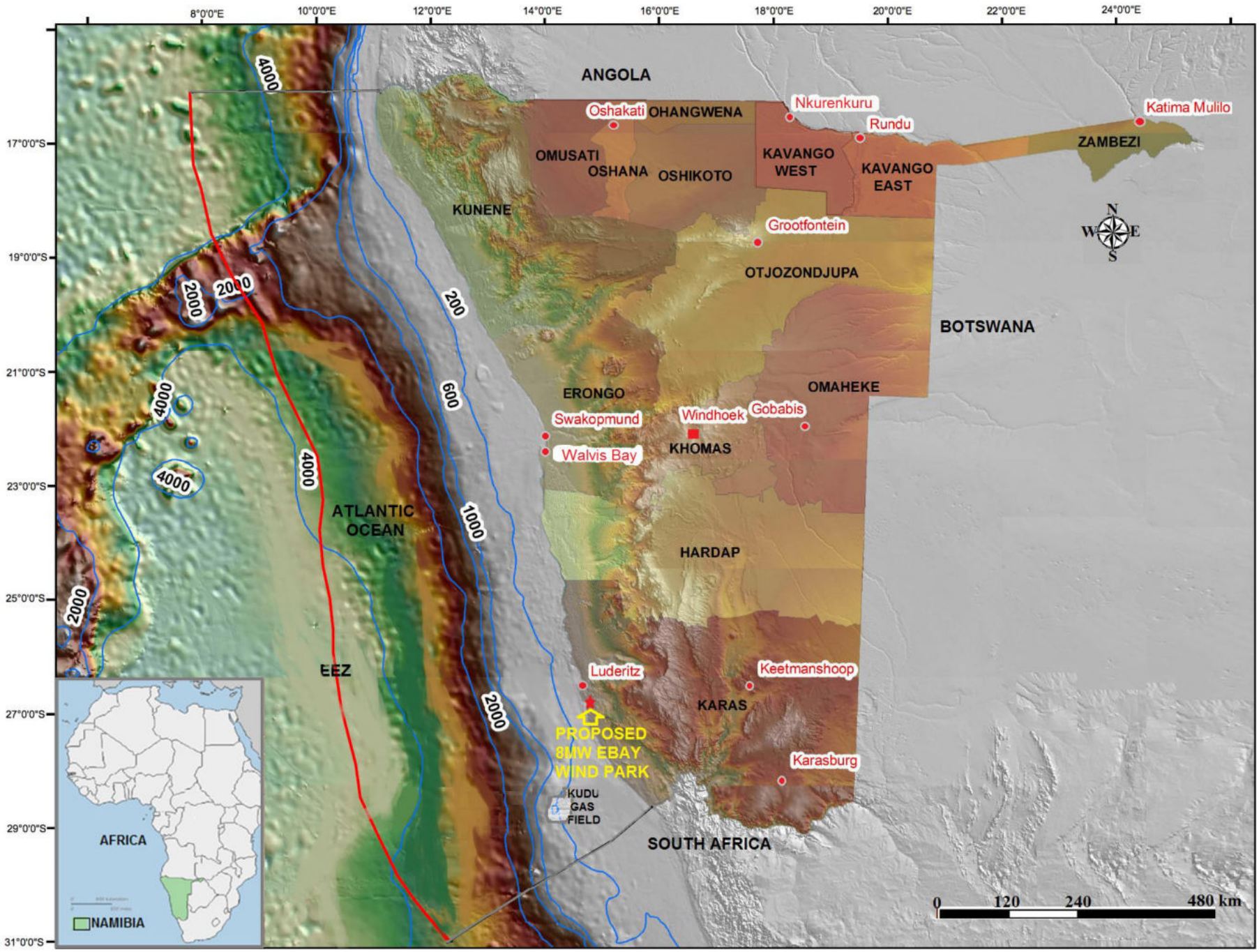


Figure 1.1: Regional location of the proposed 8MW EBAY Wind Farm (RBS Map Series 2015).

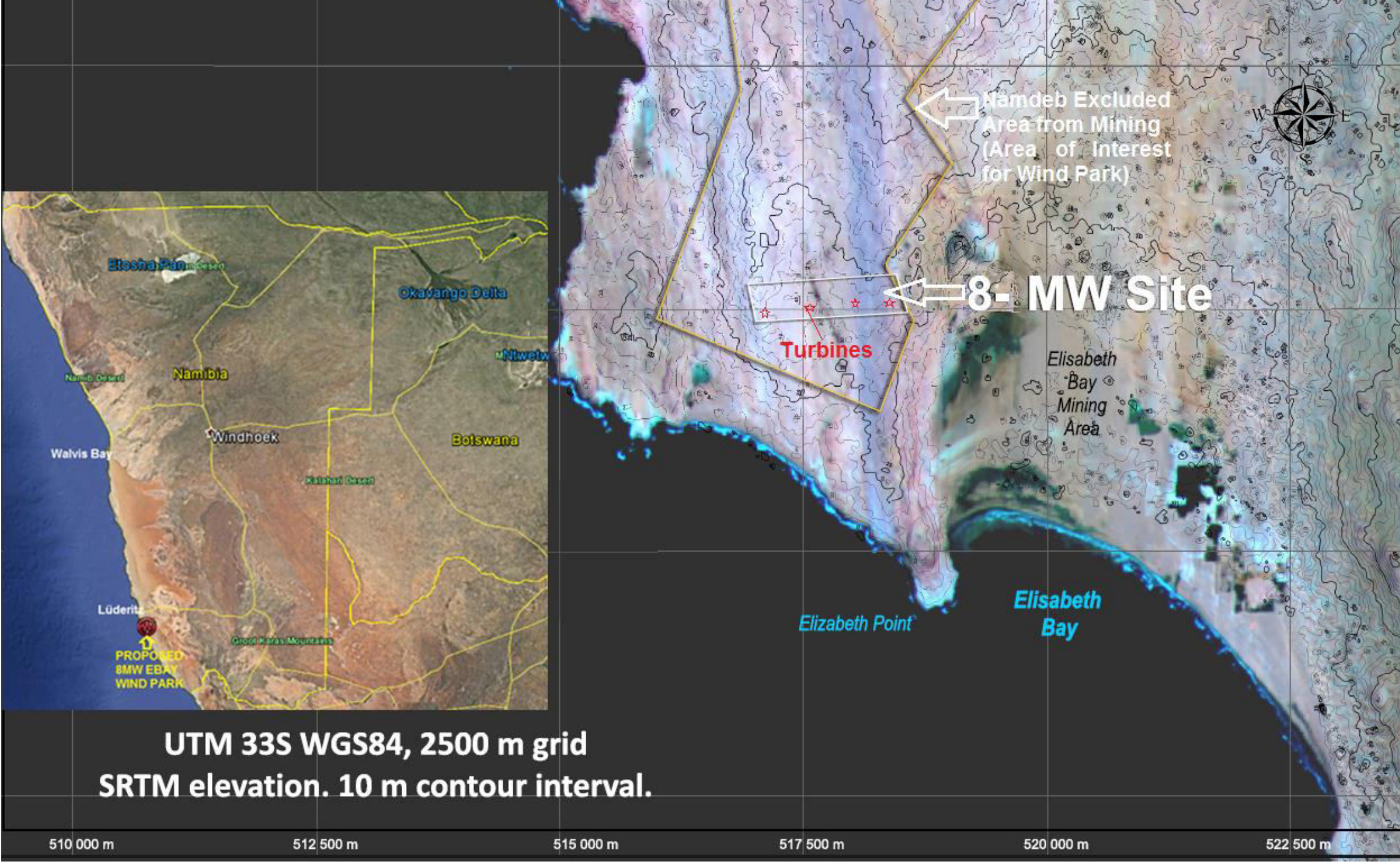


Figure 1.2: Detailed location of the proposed 8MW EBay Wind Farm (Source: Google Map Accessed, Oct 2016).

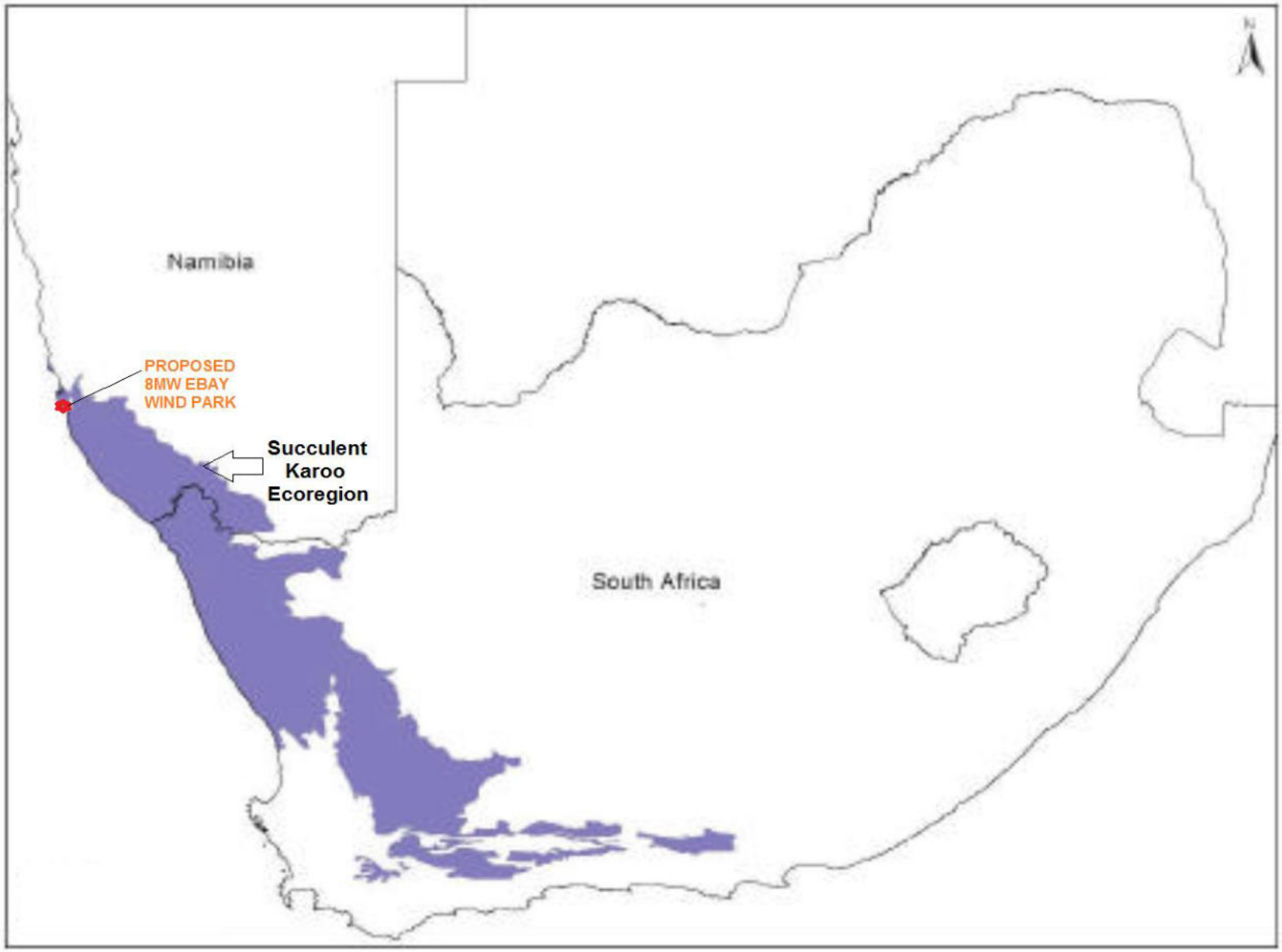
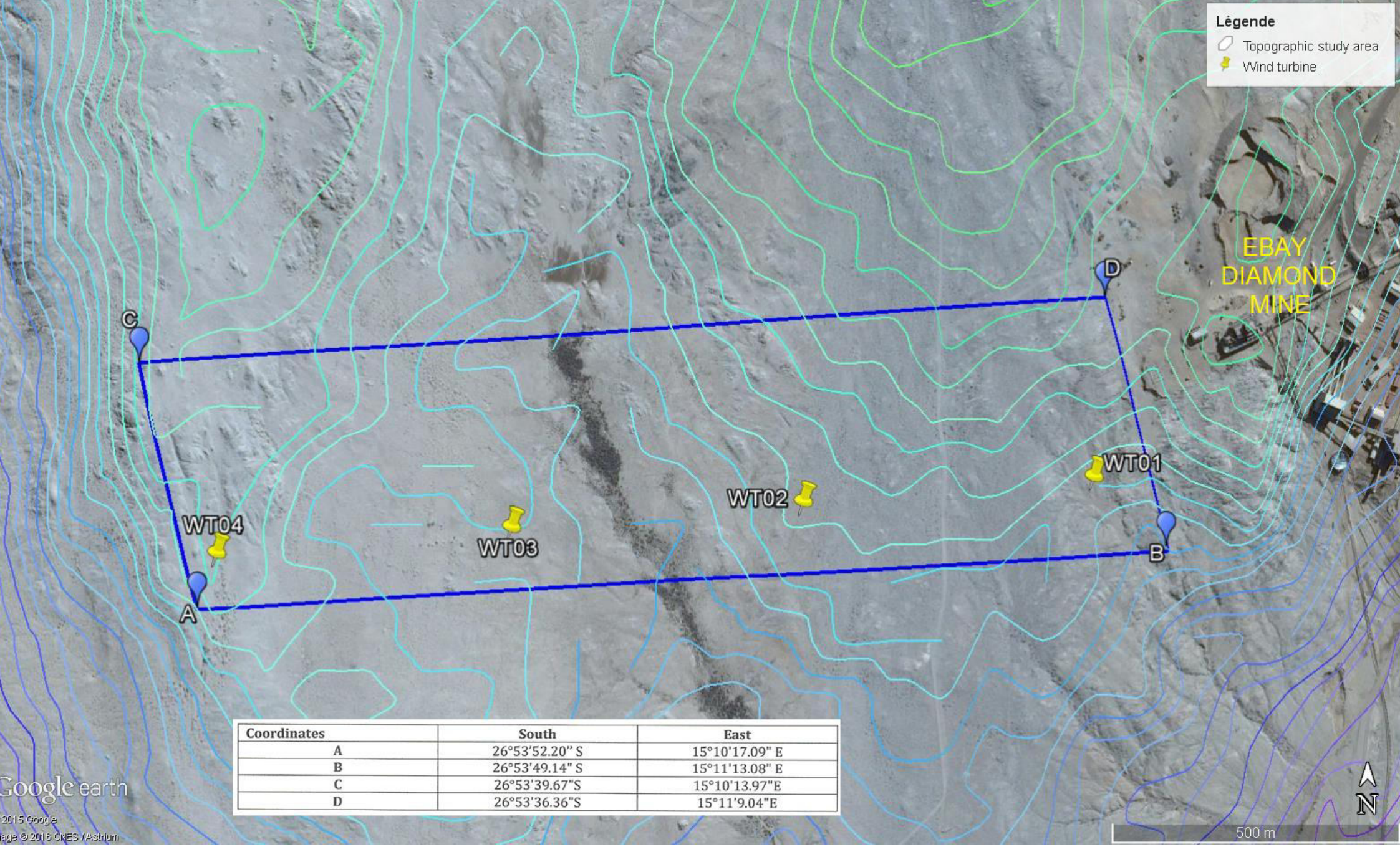


Figure 1.3 Succulent Karoo Ecoregion (Source: Critical Ecosystem Partnership Fund, 2003).



Coordinates	South	East
A	26°53'52.20" S	15°10'17.09" E
B	26°53'49.14" S	15°11'13.08" E
C	26°53'39.67"S	15°10'13.97"E
D	26°53'36.36"S	15°11'9.04"E

Figure 1.4: Detailed location, showing the coordinates of each of the turbines (Source: Google Earth accessed, Jan 2016).

2. THE EMP FRAMEWORK

2.1 EMP Objectives and Structure

The purpose of this EMP is to ensure that all environmental impacts, risks and liabilities identified during the EIA process as detailed in Vol 2 of 3 Report are effectively managed during the preconstruction, construction, operation and closure / upgrading stages of the proposed project. The EMP specifies the mitigation and management measures to which the proponent is committed and shows how the proponent will utilise its organisational capacity and resources to implement this EMP. The main key objectives of this EMP is to provide a framework and schedule for the implementation of the mitigation, management and monitoring measures for the proposed 8 MW EBay Wind Farm in accordance with the environmental management and precautionary principles as detailed in the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007).

2.2 Wind Farm Development Process

2.2.1 Wind Farm Development Process

This EMP stipulates the environmental standards to be adhered to by all the parties involved in the various stages of the proposed project lifecycle covering the following project life cycle stages:

(i) Planning, design and preconstruction;

(ii) Construction;

(iii) Operational and Ongoing Environmental Monitoring;

(iv) Decommissioning / Closure / Upgrading with New Technology.

Unless otherwise indicated, all potential impacts and the mitigation measures presented in this Environmental Management Plan Report (EMP) report will be valid for the duration of the proposed Wind Farm life span initially estimated at twenty-five (25) years.

2.2.2 Sources of Impacts (Proposed Project Activities)

The following is the summary of the activities (impact factors) associated with the preconstruction, construction, operational and rehabilitation stages of the proposed wind farm:

1. Site establishment and surveying;

2. Creation of access road by upgrading the existing service tracks as may be required. The upgrading in some place will require blasting, grading, levelling and overall favourable low gradients to transport the various turbines parts;

3. Site preparation including soil / ground preparation around the key four (4) turbine localities;

4. Fencing as may be required, however, considering the fact that the turbines are located in protected area, there is no need for fencing the turbines;

5. Excavation (may involve blasting) of a trenches to carry the two (2) circuits underground 6.6kV Cross-linked polyethylene or vulcanized polyethylene underground cables (XLPE) saving Wind Turbine (WT) 4 – WT3 and WT2 – WT1 to switch station*;*

6. External single 6.6kV overhead power line linking the proposed 8MW Wind Farm to the substation;

7. Foundation excavations (may involve blasting) and construction for the four(4) turbines*;*

8. Erection of the towers;

9. Hub and turbine housing structural mounting;

10. Blades and associated module mounting / clamping;

11. DC wiring and electrical equipment installation;

12. AC electrical works;

13. Installation of Communication Monitoring;

14. Commissioning;

15. Wind Energy Generation and Maintenance (for 25 Years);

16. Decommissioning (After 25 Years) / Upgrade of Facility.

The impact assessment considerations include land disturbance/land use impacts; potential impacts to specially designated areas; impacts to soil, water and air resources; impacts to vegetation, wildlife, wildlife habitat, and sensitive species; visual, archaeological and cultural resources, socioeconomic and potential impacts from hazardous materials.

2.3 Impact Assessment Results

The results of the Environmental Impact Assessment are presented in the EIA Report Vol. 2 of 3. This EMP Report Vol. 3 of 3 presents the recommended mitigation measures that the proponent (#Oab Energy (PTY) LTD) must implement throughout the lifecycle of the proposed project. The likely environment impacts assessment of the proposed project has been undertaken based on the specialist studies undertaken (Annex 2) and long-term (12 months) avifauna monitoring programme.

The likely negative impacts of the proposed Namdeb Wind Farm would be site-specific and have a relatively small environmental “footprint” limited to the actual turbine (x 4) sites, associated access tracks and pylon infrastructure (Annex 2). However, the impact of the proposed turbines would potentially affect birds moving between EBay and the various Lüderitz bays. Species at greatest risk would be those flying at wind turbine height (e.g. gulls and swifts); larger species (e.g. Ludwig’s bustard, egrets, ducks, gulls and flamingos); nocturnal travellers (e.g. flamingos and Palaearctic species) and species regularly using the E-Bay sites for foraging (e.g. Damara tern). Based on the results of the long-term monitoring implemented as part of the EIA process for this project, the likely impact on avifauna collision with the turbines is likely to be associated with the Cape and pied crows with flight paths extending inland and

inclusive of the proposed Wind Farm area. Flight paths of other species are concentrated along the coast and the nearest turbine to the coastline is about 2 km away. Local hyena dens that maybe found in close proximity to the locations of four (4) turbines are also likely to be affected particularly during the preconstruction and construction stages when more people and equipment are likely to be onsite.

The proposed alternative site to east of current and falling within the sand dunes area cannot be used because it falls within the current active diamond mining and exploration activities by Namdeb. The likely high probability for birds colliding with turbines with respect to the selected site falling within bird flight paths could be reduced through the implementation of the following three (3) mitigation measures:

(i) The use a real time Avian Radar System for birds and bats monitoring and risk mitigation. These systems uses software combined with radar technology and other sensor data inputs, including weather and visibility information to deliver a real-time radar-based curtailment or deterrence to prevent bird mortality while maximizing energy production;

(ii) Installation of a light reflective discs on the rotating components of the turbine in order to force the flamingos and other birds from coming closer to the turbines (hopefully change their commuting daily / migrating route over time), and;

(iii) Coating of the spinning components of the turbines with reflective paint in order to force the flamingos and other birds from coming closer to the turbines (hopefully change their commuting daily / migrating route);

(iv) Continuous monitoring with the aim of evaluating the level of impacts and development of appropriate and effective mitigation measures.

Taking into consideration the lack of certainty on the level of significant negative impacts that the proposed project will have on the avifauna and the fact that industry known mitigation measures have been provided, the current proposed site may still be used for the proposed 8MW EBay Wind Farm project on the following conditions that:

(i) The proponent implements all the mitigation measures for reducing any likely significant negative impacts on the local hyenas, flora and avifauna as detailed in the EMP Vol. 3 of 3 Report covering the preconstruction, construction, operational, decommissioning and closure stages of the proposed Wind Farm;

(ii) The proponent continue with the already undertaken preconstruction long-term avifauna monitoring during the preconstruction, construction, operational, decommissioning and closure stages of the proposed Wind Farm;

(iii) The proponent implements the hyenas and flora monitoring programmes and work with the local hyenas and flora experts during the preconstruction, construction, operational, decommissioning and closure stages of the proposed Wind Farm;

(iv) The proponent give an undertaking that if the operational monitoring results on avifauna proves that there is significant negative impacts, the four (4) turbines or the turbine specific identified to be the main cause of increased collision mortalities with avifauna shall be relocated or removed and the EBay Diamond mine electricity supply, if still required by then, may be integrated in the much larger wind farm being proposed in general area by WinNam or be supplied from the national grid.

Based on the findings of this EIA, specialist studies and the long-term avifauna monitoring already undertaken, it is hereby recommended that #Oab Energy (PTY) LTD (the Proponent) shall be issued with the Environmental Clearance Certificate for the development of the proposed 8 WM EBay Wind Farm on condition that the proponent implements all the key mitigation measures that are likely to reduce the probability for birds to collide with turbines coupled with ongoing monitoring.

2.4 EMP Roles and Responsibilities

2.4.1 Engineering, Procurement, Construction (EPC) / Project Manager

#Oab Energy (PTY) LTD is to appoint an **Engineering, Procurement, Construction (EPC)** and **Project Manager (PM)** with the following responsibilities:

- The Project Manager (MP) to act as the Employer's (#Oab Energy PTY) LTD) representative on-site and the Engineering, Procurement, Construction (EPC) to be the implementing agent;
- EPC to appoint the Contractor Health Safety and Environment (Contractor HSE);
- PM and EPC to ensure that the Employer's responsibilities are executed in compliance with the relevant legislation and the EMP for the upgrade/construction of access road(s);
- PM and EPC to ensure that all the necessary environmental authorisations and permits have been obtained;
- PM and EPC to Assist the Contractor in finding environmentally responsible solutions to challenges that may arise (with input from the Project HSE and Contractor HSE);
- Should the PM and EPC and in consultation with the Project HSE and Contractor HSE be of the opinions that a serious threat to, or impact on the environment may be caused by the preconstruction, construction or operations activities, he/she may stop work; the Employer must be informed of the reasons for the stoppage as soon as possible;
- The PM has the authority to issue fines for transgressions of basic conduct rules and/or contravention of the EMP;
- Should the Contractor or his/her employees fail to show adequate consideration for the environmental aspects related to the EMP, the PM can have person(s) and/or equipment removed from the site or work suspended until the matter is remedied;
- PM shall report to the Employer on the implementation of this EMP on site (with input from the EPC, Project HSE, Contractor HSE and/or independent environmental auditor);
- Maintain open and direct lines of communication between the Employer, PM, EPC, Project HSE, Contractor HSE, Contractor and Interested and Affected Parties (I&APs) with regards to environmental matters; and
- PM and EPC to attend regular site meetings and inspections.

2.4.2 Project HSE, Contractor HSE

The **Project HSE** and **Contractor HSE** both have the following responsibilities:

- Assist the PM and EPC in ensuring that the necessary environmental authorizations and permits have been obtained;
- Assist the PM, EPC and Contractor in finding environmentally responsible solutions to challenges that may arise;
- Conduct environmental monitoring as per EMP requirements;
- Recommend on the issuing of fines for transgressions of basic conduct rules and/or contraventions of the EMP to the PM and EPC respectively;
- Advise the PM and EPC on the removal of person(s) and/or equipment not complying with the specifications of the EMP;
- Carry out regular site inspections (on average once per week) of all construction areas with regards to compliance with the EMP; report any non-compliance(s) to the PM and EPC as soon as possible;
- Organize for an independent internal audit on the implementation of and compliance to the EMP to be carried out half way through the construction period; audit reports to be submitted to the PM and EPC;
- Organize for an independent post-construction environmental audit to be carried out;
- Continuously review the EMP and recommend additions and/or changes to the EMP document;
- Monitor the Contractor's environmental awareness training for all new personnel coming onto site;
- Keep records of all activities related to environmental control and monitoring; the latter to include a photographic record of the construction and environmental control and rehabilitation process, and a register of all major incidents; and
- Attend regular site meetings.

2.4.3 Contractor

The responsibilities of the **Contractor** include:

- Comply with the relevant legislation and the EMP for the upgrade/construction of access road(s);
- Preparation and submission of the following Management Plans:
    - Environmental Awareness Training and Inductions;
    - Emergency Preparedness and Response;
    - Waste Management; and
    - Health and Safety.

- Ensure adequate environmental awareness training for senior site personnel;

- Environmental awareness presentations (inductions) to be given to all site personnel prior to work commencement; the Contractor HSE is to provide the course content and the following topics, at least but not limited to, should be covered:
    - The importance of complying with the relevant Namibian, International and Best Practice Legislation;
    - Roles and Responsibilities, including emergency preparedness;
    - Basic Rules of Conduct (Do's and Don'ts);
    - EMP: aspects, impacts and mitigation;
    - Fines for Failure to Adhere to the EMP;
    - Health and Safety Requirements.

- Record keeping of all environmental awareness training and induction presentations; and

- Attend regular site meetings and environmental inspections.

3. PLANNING, DESIGN AND PRECONSTRUCTION

3.1 Planning and Design Stage

The planning and design phase of the project is not expected to have any direct impacts on the environment and consequently few management control measures are required and/or proposed as shown in Table 3.1. Various layout options were considered to minimise the environmental impacts and the currently proposed layout plan has been chosen on the basis of these considerations. The Engineering, Procurement, Construction (EPC) contractor, EBay Mine Management, Ministry of Mines and Energy (MME) and Ministry if Environment and Tourism (MET) must be informed of the site establishment and all activities shall take place in an orderly manner and all required amenities shall be installed at the established construction camp sites before the main workforce move onto site. The Construction camp shall have the necessary ablution facilities with chemical toilets at commencement of construction. The EPC Contractor shall inform all site staff to make use of supplied ablution facilities and under no circumstances shall indiscriminate sanitary activities be allowed anywhere around the site other than in supplied facilities.

The Contractor shall supply waste collection bins and all solid waste collected shall be disposed of using approved waste handlers. A Waste Tracking Sheet is required shall be used by EPC contractor at all times and kept on file. The disposal of waste shall be in accordance with the provisions of this EMP. Under no circumstances may any form of waste be burnt or buried on site or nay where other than an approved waste management site.

3.2 Access Planning and Site Layout

The proposed project falls within the Tsau //Khaeb (Sperrgebiet) National Park and diamond protected area (Elizabeth Bay (EBAY) Mine) and access to the site will require both national park entrances permits and security clearances for all personnel to be able work in a diamond (resources) protected area. The following key EMPs shall be implemented with respect to access planning and site layout considerations:

(i) All the construction workers are strictly prohibited from entering areas that fall outside the construction work area and no harming of wild or domestic animals or destruction of vegetation shall be allowed;

(ii) Extraction of construction materials outside the construction area is strictly prohibited and must be approved by Namdeb EBay Mine management. With permission from Namdeb EBay Mine management, the current tailings at EBay Mine could potential source of construction material;

(iii) No wildlife or indigenous vegetation may be harmed or removed unless approved by the client's HSE officer in conjunction with the necessary permits;

(iv) In consultation with Namdeb EBay Mine operations, new tracks must be constructed in such a way as to reduce the denuded land and subsequent visual contrast;

(v) In consultation with Namdeb EBay Mine operations, vehicles and/or plant and personnel shall only be permitted within the demarcated construction areas or on existing roads and/or access tracks between demarcated areas;

(vi) Where topsoil is disturbed/excavated, such topsoil shall be stockpiled on the site where it originated from for later use during closure / rehabilitation. Stockpiles must

be protected from wind erosion by covering with suitable synthetic material or coarse grained materials that cannot be lifted easily by wind;

(vii) The location of the construction camp must be selected in consultation with Namdeb EBay Mine operations;

(viii) Disturbance of the vegetation shall be kept to the minimum required and where possible, shall be avoided and areas for construction related activities shall be located where the natural habitat has been transformed;

(ix) All construction sites and camp site areas should be clearly demarcated;

(x) Areas where priority plant species are growing must be demarcated as no-go zones;

(xi) All disturbed or cleared areas should be kept clear of alien invasive plants for the duration of the construction and defects notification period;

(xii) Access tracks should avoid sensitive areas;

(xiii) No disturbance of vegetation, storage of materials or other construction related activities shall be permitted outside the demarcated construction area;

(xiv) Materials for construction shall be stored within demarcated construction areas.

As part of the site layout, the following procedures and specifications must be taken into considerations:

(i) Ideally, turbines should be positioned at least 750m (10 rotor diameters) from any target that maybe affected by shadow flicker and noise impacts. If the layout cannot be adjusted or modified, certain turbines shall be switched off at certain times when shadow flicker occurs over the recommended 30 hours per year or 30 minutes per day);

(ii) Consideration must be given to orderly and precise arrangement of the turbines to minimise the negative visual impacts;

(iii) The layout should be able to accommodate additional turbines (Wind Farm expansion) in a manner that reinforces the original pattern;

(iv) Consideration must be given to the loss or destruction of habitat and species of special concern, in order to minimise impacts on threatened or protected species of this rare Succulent Karoo Biome;

(v) The turbines should be painted either white/off-white/very light grey colour with matt coating.

3.3 Preconstruction Stage

Due to the desert landscape of EBay Wind Farm area, there will be no need for major site preparations in terms of bush clearing etc. The main activities of the preconstruction stage will be the upgrading and/or construction, including rehabilitation, of access road(s) to and from the proposed wind farm development areas. Table 3.1 outlines the EMP framework for the preconstruction stage of the proposed development. The following EMP specific requirements

must be fulfilled during the preconstruction stage of the proposed 8MW EBay Wind Farm project with the additional mitigation measure presented in Table 3.1:

(i) There should be continuous liaison among the proponent, the Engineering, Procurement, Construction (EPC) contractor, EBay Mine Management, Ministry of Mines and Energy (MME) and Ministry of Environment and Tourism (MET) in order to ensure that all parties are informed of the ongoing activities at all times;

(ii) EBay Mine Management, MME and MET must be informed of the starting date of construction as well as the phases in which the construction will take place;

(iii) The EPC contractor must adhere to all conditions of contract including the requirements of this EMP;

(iv) The EPC contractor should plan the construction program taking cognisance of the MET national park access and MME Diamond security requirements as well as the variability of the local climatic conditions;

(v) Where existing private roads are in a bad state of repair, such roads' condition shall be documented before they are used for construction purposes. This will allow for easy assessment of any damage to the roads which may result from the construction process. If necessary some repairs should be done to prevent damage to equipment;

(vi) The construction site office must keep a proper record of all complaints received and actions taken to resolve the complaints;

(vii) A Project HSE Officer should be appointed by the proponent and Contractor HSE officer should be appointed by the EPC contractor to implement this EMP as well as deal with EBay Mine Management, MME and MET related matters;

(viii) Internal and external environmental inspections and audits should be undertaken during and upon completion of construction. The frequency of these audits should be quarterly;

(ix) The Project HSE Officer should conduct regular inspections in order to maintain good control over the construction process during the construction phase;

(x) A formal communications protocol should be set up during this phase. The aim of the protocol should be to ensure that effective communication on key issues that may arise during construction be maintained between key parties such as the Project HSE Officer, Project Manager and EPC contractor. The protocol should ensure that concerns/issues raised by stakeholders are formally recorded and considered and where necessary acted upon. If necessary, a forum for communicating with key stakeholders on a regular basis may need to be set up. This could be done through the EPC contractor's site office that would meet on a regular basis. The communications protocol should be maintained throughout the construction phase.

<u>The proponent shall continue with the already undertaken preconstruction long-term fauna and flora monitoring and work with the local hyenas, avifauna and flora experts during the implementation of the preconstruction activities of the proposed Wind Farm.</u>

Table 3.1: Planning, design and preconstruction.

ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
1) Management and Monitoring	• Social and Environmental Performance	• In consultation with Namdeb EBay Management and Ministry of Environment and Tourism Park Directorate, ensure that all aspects related to the EMP are implemented during the upgrade/construction and rehabilitation of access road(s). • Hold regular site meetings/inspections. Make provision in the minutes of the meetings for reporting on all aspects of the EMP related to the upgrade/construction and rehabilitation of the access road(s).	1. Project Manager (PM), 2. Engineering, Procurement, Construction (EPC) 3. Project HSE 4. Contractor HSE 5. Contractor	• Ongoing throughout the planning, design and preconstruction stages
2) Consultation and Disclosure (EP 5)	• Social and Environmental Performance	• PM, EPC, Project HSE, Contractor HSE and Contractor to maintain open and direct lines of communication between the Employer and I&APs with regards to environmental matters. • Consult with project affected parties and institutions (MME, MET and Namdeb) in a structured and culturally appropriate manner throughout the project process. Consultation should be "free" (*of external manipulation, interference or coercion, and intimidation*), "prior" (*timely disclosure of information*) and "informed" (*relevant, understandable and accessible information*). • Adequately incorporate project affected parties concerns.		
3) Grievance Mechanism (EP 6)	• Social and Environmental Performance	• Implement a grievance mechanism for receiving and resolving any concerns and grievances related to the project's social and environmental performance throughout the project life cycle. • Inform the affected communities about the mechanism in the course of the community engagement process; it must be readily accessible to all segments of the affected communities. • Address concerns promptly and transparently and in a culturally appropriate manner.		
4) Training (IFC PS 1), including awareness and inductions	• Social and Environmental Performance	• Train employees and contractors in matters related to the project's social and environmental performance, Namibia's regulatory requirements, and the requirements of the IFC Performance Standards. • Ensure adequate environmental awareness training for all senior site personnel. • Give environmental induction presentations to all site personnel prior to work commencement.		
5) Labour and Working Conditions (IFC PS 2)	• Social and Environmental Performance	• Establish, maintain and improve the worker-management relationship. Base the employment relationship on equal opportunity and fair treatment and no discrimination to be allowed. • Comply with Namibia's labour and employment laws and prevent unacceptable forms of labour practices. • Promote safe with mandatory use of Personal Protective Equipment (PPE) at all times and healthy working conditions and the protection and promotion of worker health. • Prepare a Human Resources Policy and document and communicate the Working Conditions and Terms of Employment. • Respect Collective Agreements and the right of workers to organize and bargain collectively. • Prepare a Retrenchment Plan.		

ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
		• Implement a Grievance Mechanism.		
6) Occupational Health and Safety	• Social and Environmental Performance	• Prepare and submit an Emergency Preparedness and Response Plan. • Adhere to all Namibian Health and Safety Regulations. • Occupational Health and Safety Training to be provided to all employees. • Ensure that qualified first aid can be provided at all times. • Provide and ensure the active use of Personal Protective Equipment (PPE).	1. Project Manager (PM), 2. Engineering, Procurement, Construction (EPC) 3. Project HSE 4. Contractor HSE 5. Contractor	• Ongoing throughout the planning, design and preconstruction stages
7) Community Health and Safety (IFC PS 4)	• Social and Environmental Performance	• Prevent communicable disease (e.g sexually transmitted diseases (STDs) such as HIV/AIDS transmission): provide surveillance and active screening and treatment of employees; prevent illness among employees in local communities (through health awareness and education initiatives); ensure ready access to medical treatment, confidentiality and appropriate care, particularly with respect to migrant workers; and promote immunization.		
8) Construction on site (at construction site) and Construction Lüderitz Camp (In Lüderitz Town) as may be required	• Tsau //Khaeb (Sperrgebiet) National Park (MET) and Diamond Protected Resources Area Mining License (MME) land Use Restrictions	• Selection of camp site for equipment and material storage ONLY at a construction site must be done in consultation with EBay Mine Management (Mining License - ML) Area; • No camping / overnighting is allowed at the construction onsite camp due to the diamonds security and national park access restrictions; • The construction onsite camp shall only be used during the day and for overnight storage of equipment and materials • Adhere to the provisions of your security and access permits at all times • Minimize the size of the onsite construction camp and provide / demarcate all onsite parking.		
	• Construction Lüderitz Camp in Lüderitz Town	• The EPC contractor to seek approval from Lüderitz Town Council for the location of the construction camp within the municipal area. Factors to consider during siting of construction camps include location of local residents and/or ecologically sensitive areas, including wind impact and slip/unstable zones. If the EPC contractor chooses to locate the camp site on private land, he must get prior permission from both the Project Manager and respective landowner; • Minimize the size of both the construction camp and the onsite construction; • Provide adequate parking for site staff and visitors. This should not inconvenience or serve as a nuisance for neighbours.		
	• Disturbance of fauna and flora and habitat alteration at the construction site camp	• The planning and design to ensure minimum impact to the environment. • No natural vegetation may be removed for the making of fires. • No animal may be injured, fed, trapped, hunted or harmed in any way. • No off-road / offsite driving is allowed. • No trespassing off the access road or beyond the construction site is allowed and no game or vegetation are to be interfered with.		
	• Pollution of biophysical environment (air,	• No fires will be allowed. • Vehicle maintenance/servicing/washing not to be allowed anywhere on site/at the camp. • Portable toilets to be provided and used at the camp. • Sanitary wastewater to be released into a French drain system.		

ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
	soil and water) at the construction site camp	• Use bio-degradable detergents on site. • Enforce proper waste (hazardous and non-hazardous) management practices (as per Waste Management Plan) – waste and litter to be disposed of in scavenger and weatherproof bins and the refuse to be collected by the contractor and disposed off at the Lüderitz Waste Disposal Site at least once a week.		
	• Occupational Health and Safety (OHS) at the construction site and Lüderitz Town camps	• No fires will be allowed, unless a specific area has been identified and set aside by the ER for the cooking of food. • Ensure that employees are trained in the use of appropriate firefighting equipment and ensure that such equipment is on hand at all times. • Comply with all safety regulations for electricity supply. • Supply potable water for human consumption and other domestic uses; • Make suitable arrangements, as far as practicable, for the maintenance of health, the prevention and overcoming of outbreaks of disease and of adequate first aid services. • Ensure that security arrangements are in place at all times. Store all hazardous materials such as blasting materials, oils, paints, thinners, fuels, chemicals, etc. in properly constructed and impermeable bunded areas at both camps. Hazardous materials must not be allowed to soak into the soil. Siting of hazardous material storage areas must be approved by the Project Manager. • The EPC contractor to acquire Material Safety Data Sheets (MSDSs) for all chemicals and hazardous substances used on site. Training on environmental impacts of chemicals and hazardous substances and Personal Protective Clothing (PPE) required to be worn must be provided to the workers and visitors as may be required. • Hazardous material storage areas must be signposted clearly. • Use a licensed waste handler for disposal of all used oils from the camp sites. A waste tracking sheet must be completed whenever used oils are being disposed. • Dispose off any excess concrete mixes in consultation with the Project Manager. • Immediately contain, recover and cleanup any spillages that may occur during the construction phase. All spillages must be reported to the HSE Officer and Project Manager.	1. Project Manager (PM), 2. Engineering, Procurement, Construction (EPC) 3. Project HSE 4. Contractor HSE 5. Contractor	• Ongoing throughout the planning, design and preconstruction stages
9) Levelling of areas for road upgrade/ Camp site area /construction	• Disturbance of fauna and flora and habitat alteration	• Restrict road upgrade/construction activities to previously demarcated areas (borrow pits, haul and access roads (20 m from the center line of the road), construction camp, etc.); all other areas will be regarded as "no go" zones in order to minimize the impact on the surrounding land. • Minimize the removal of native plant species; no vegetation may be removed/damaged without direct instruction. • No off-road driving will be allowed. • No animal may be injured, fed, trapped, hunted or harmed in any way.		
	• Soil erosion	• Sediment mobilisation and transport: reduce or prevent soil erosion • Road design: Provide adequate road drainage based on road width, surface material, compaction and maintenance. • Structural (slope) stability: provide effective short-term measures for slope stabilisation, sediment and subsidence control until long-term measures (during operations) can be implemented.		• Ongoing throughout the

ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
	• Possible loss of the seed bank in the topsoil	• The upper layer of soil (10-20 cm), where alluvial, to be stripped and stockpiled separately (1-2 m high piles to allow for proper aeration). Install drainage to protect the topsoil pile and cover it to protect it from (wind) erosion.		planning, design and preconstruction stages
10) Blasting along the access road, Camp site, construction site or barrow pit areas (Blasting at All Areas of the Proposed Project Activities)	• Vibrations, noise, dust, HSE …	• Blasting operations shall only be done by a qualified person who must at all times adhere to the required blasting protocol; • Prior warning shall be given to all persons including EBay management before the blasting takes place; • Careful planning and timing of the blast program to minimise the size of the charge; • Where practicable, use of explosive products with lower detonation velocities, but noting that this would require more explosives to achieve the same blast result; • Use of detonating caps with built-in time delays, as this effectively reduces each detonation into a series of small explosions; • Use of a procedure ("decking the charge") which subdivides the charge in one blast hole into a series of smaller explosions, with drill patterns restricted to a minimum separation from any other loaded hole; • Over-drilling the holes to ensure fracturing of the rock; • Staggering the detonation for each blast hole in order to spread the explosive's total overpressure over time; • Matching, to the extent possible, the energy needed in the "work effort" of the borehole to the rock mass to minimise excess energy vented into the receiving environment.		
11) Borrow pit siting.	• Visual, pollution (traffic, noise and air), and land use	• **Extraction of construction materials outside the construction area is strictly prohibited (Diamond Mining License Area) and must be approved by Namdeb EBay Mine management**; • **With permission from Namdeb EBay Mine management, the current tailings at EBay Mine could potential source of construction material;** • Consider, in addition to material quality and quantity, the visual impact, potential traffic, noise and air pollution, and the potential loss of pristine high value conservation land when borrow pits are sited.		• Ongoing throughout the planning, design and preconstruction stages
12) Borrow pit management	• Disturbance of fauna and flora and habitat alteration	• Limit the number of borrow pits as far as possible. • The progression of stripping and excavation to allow for rehabilitation once the areas have been fully utilized.		
	• Possible loss of the seed bank in the topsoil	• The upper layer of soil (10-20 cm), where alluvial, to be stripped and stockpiled separately (1-2 m high piles to allow for proper aeration). Install drainage to protect the topsoil pile and cover it to protect it from (wind) erosion.		
	• Occupational and Community Safety	• Cut slopes not to be steeper than 30 degrees. • No under-cutting of the sides to be allowed. • Undertake excavations in a safe manner and in compliance with the relevant safety regulations.	1. Project Manager (PM), 2. Engineering, Procurement,	
	• Social and Environmental Performance	• Cut slopes not to be steeper than 30 degrees. • Use excess rock spoil to fill borrow pits; material to be neatly shaped and no loose material to be left inside the borrow pits. • No waste are allowed to be dumped in borrow pits.		

ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
		• Evenly spread top soil over the entire area to allow for the re-growth of vegetation. • Replant previously removed native plant species in disturbed areas.	Construction (EPC) 3. Project HSE 4. Contractor HSE	
13) Increased traffic, presence and movement of machinery, and the establishment of soil stockpiles.	• Air quality (dust or Particulate Matter (PM) pollution)	• Minimise the area in which the movement of construction machines will take place to reduce the effects of dust pollution. • Minimize dust from material handling sources (e.g. conveyors and bins) by using covers and/or control equipment (e.g. water suppression). • Minimize dust from open area sources, including storage piles, by using control measures (install enclosures and covers, and increase the moisture content). • Avoid the excavation, handling and transport of erodible materials under high wind conditions or when a visible dust plume is present.	1. Project Manager (PM), 2. Engineering, Procurement, Construction (EPC) 3. Project HSE 4. Contractor HSE	• Ongoing throughout the planning, design and preconstruction stages
14) Increased traffic/vehicle movement.	• Air quality (dust or Particulate Matter (PM) pollution)	• Maintain the road surface to preserve surface characteristics (e.g. texture and roughness). • Use dust control/suppression methods, such as applying water or non-toxic chemicals to minimize dust (oil and oil by-products are prohibited and not a recommended measure to control road dust).		
15) Increased traffic, presence and movement of machinery (exhaust from diesel engines).	• Air quality & Occupational and Community Health and Safety	• Fleet owners/operators to implement manufacturer recommended engine maintenance programs (to control vehicle emissions: Carbon Monoxide (CO), Nitrogen Oxide (NO_x), Sulphur Dioxide (SO_2), Particulate Matter (PM) and Volatile Organic Compounds (VOCs)).		
16) Presence of machinery, construction workers, and associated equipment.	• Visual and noise	• Avoid critical habitats (for access roads) through using existing access roads where possible.		
17) Increased traffic, movement of machinery.	• Occupational and Community Safety	• Adopt best transport safety practices being used by Namdeb in addition to implementing the following measures: Emphasize safety aspects among drivers; improve driving skills and require licensing of drivers; Adopt limits for trip duration; avoid dangerous routes and times of day; and use speed control devices. • Regularly maintain vehicles and use manufacturer approved parts. • Use locally sourced materials (where possible) to minimize transport distances. • Employ safe traffic control measures, including the use of traffic and safety warning signs and flag persons to warn of dangerous conditions.		

ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
18) Water Management	• Resource use / depletion of natural resources	• Implement a water conservation program, promoting the continuous reduction in water consumption and achieving savings in water pumping, treatment and disposal costs, commensurate with the magnitude and cost of water use.	1. Project Manager (PM), 2. Engineering, Procurement, Construction (EPC) 3. Project HSE 4. Contractor HSE	• Ongoing throughout the planning, design and preconstruction stages
19) Hazardous materials management.	• Social and Environmental Performance	• Establish hazardous materials management priorities (based on hazard analysis of risky operations). • Avoid, or minimize the use of hazardous materials. • Prevent uncontrolled releases of hazardous materials to the environment or uncontrolled reactions that may result in fire or explosion. • Make us of engineering controls (containment, automatic alarms and shut-off systems); implement management controls (procedures, inspections and training, communication and drills) to address residual risks not prevented or controlled through engineering controls.		
20) Hazardous materials management	• Pollution of biophysical environment (soil and water)	• Implement prevention and control measures for the use, handling and storage of hazardous materials: o Materials transfer: regularly inspect, maintain and repair fittings/pipes/hoses; make use of drip trays/other drip containment measures at connection/possible overflow points; o Overfill protection: use trained filling operators; install gauges on tanks to measure the volume inside; make use of dripless hose connections (vehicle tanks) and fixed connections (storage tanks); use a catch basin/drip tray around the fill pipe to collect spills; o Reaction, fire, and explosion prevention: hazardous materials to be stored in marked containers and separate (from non-hazardous materials); incompatible hazardous materials (acids, bases, flammables, oxidizers, reactive chemicals) to be stored in separate areas and with containment facilities separating material storage; smoking or working with open flames not to be permitted in the presence of these substances; limit access to hazardous waste storage areas and clearly label and demarcate the area; conduct regular inspections of the areas and document the findings; prepare and implement spill response and emergency plans; train employees in the use of appropriate firefighting equipment and ensure that such equipment is on hand at all times. o Secondary containment: use bunding (made of impervious, chemically resistant material) that can contain the larger of 110% of the largest tank or 25% of the combined tank volumes for above-ground tanks with a total storage volume equal or greater than 1,000 liters. • Train workers on the correct transfer and handling of fuels and chemicals and the response to spills. • Immediately report and clean up any accidental hydrocarbon spill: Spill-Sorb, Drizzat Pads, Enretech Powder or Peat Moss can be used to clean up small spills; in case of larger spills, the spill together with the polluted soil should be removed and disposed of at e.g. a biological remediation site in consultation with Namdeb EBay Management.		

ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
21) Hazardous materials management.	• Occupational Health and Safety	• Implement hazard communication and training programs (including information on Material Safety Data Sheets (MSDS)) to make employees aware of workplace chemical hazards and how to respond to these. • Provide and ensure the active use of Personal Protective Equipment (PPE).	1. Project Manager (PM), 2. Engineering, Procurement, Construction (EPC) 3. Project HSE 4. Contractor HSE	• Ongoing throughout the planning, design and preconstruction stages
22) Waste management: solid.	• Air quality	• Avoid the open burning of waste (whether hazardous, or non-hazardous).		
23) Waste management: non-hazardous and hazardous.	• Pollution of biophysical environment	• Prepare and submit a Waste Management Plan before construction commences. The generation of waste should be avoided or minimized as far as practicable; where it cannot be avoided, but has been minimized, waste should be recovered and reused; where waste cannot be recovered/reused, it should be treated, destroyed and disposed of in an environmentally sound manner. • Institute and maintain good housekeeping and operating practices; littering is not allowed. • Non-hazardous and hazardous waste to be collected and stored separately: • Non-hazardous waste to be transported to and disposed of, with prior permission from Namdeb EBay Management and Lüderitz Town Council for the use of their facility. • Hazardous waste: Recycle petroleum (fuels and lubricants) waste products and collect and recycle batteries and print cartridges. The remainder to be transported to a recognized hazardous waste disposal site (Windhoek or Walvis Bay), with prior permission from the Municipalities of Walvis Bay or Windhoek.		
24) Waste management: sanitary.	• Pollution of biophysical environment	• Portable toilets (1 toilet per 30 employees; preferred 1:15) to be provided and transported along the route; contents to be collected by an approved contractor and disposed of at an approved sewage site.		
25) Waste water management - waste water treatment.	• Pollution of biophysical environment	• Ensure that the discharge of process wastewater and/or sanitary wastewater and/or wastewater from utility operations and/or storm water to land conform to the regulatory requirements in line with the conditions of waste water discharge permit issued by the Department of Water Affairs, Ministry of Water, Agriculture and Forestry	1. Project Manager (PM), 2. Engineering, Procurement, Construction (EPC) 3. Project HSE 4. Contractor HSE	• Ongoing throughout the planning, design and preconstruction stages
26) Waste water management - storm water management	• Soil erosion	• Regular inspection and maintenance of permanent erosion and runoff control features.		
27) Continuous Rehabilitation.	• Social and Environmental Performance	• Remove all equipment, waste, temporary structures, etc. from the camp and work sites. • Reshape all disturbed areas (including stockpiles, borrow pits, and temporary detours and turnouts) to their original contours. • Cover disturbed areas with previously collected topsoil and spread evenly. • Manually rip disturbed areas, where compaction has taken place, and cover the areas with previously collected topsoil. • Replant any previously removed native plant species in disturbed areas.		

4. CONSTRUCTION STAGE

4.1 Scope of Work

The construction stage of the proposed 8MW EBay Park will cover all the activities that must support major structures such as the foundation, towers, transformers, the nacelle (housing), as well as the blades and the hub, together called the rotor. The installation of such structures will first require the manufacture / building of the required structures such as the towers, foundation excavation, steel works and concrete casting.

The EMP makes provisions for management of a wider array of activities that will be associated with either manufacturing of the towers oversees and only ship them to Namibia for installation or the near site (Lüderitz Town) manufacturing of towers by only shipping the moulds to Namibia. The following outlines the key summary mitigation measures with respect to birds – turbines, brown hyenas –turbines conflicts and vegetation turbine conflicts with Table 4.1 outlining the overall EMP framework for the construction stage of the proposed development.

(a) Recommendations to mitigate potential bird-turbine mortalities:

(i) Installation of light reflective discs on the rotating components of the turbines to increase visibility;

(ii) Coating of the rotating components of the turbines with reflective paint to increase visibility;

(iii) Investigate the possibility of installing early “bird warning system” to each turbine which can automatically shut down the turbine when a large bird (or flock) approaches – e.g. camera or radar operated systems;

(iv) Avoid establishing wind turbines at the proposed site as this site could potentially lead to numerous bird-turbine mortalities as it is located on various flight paths to-from E-Bay and various other coastal bays and the Lüderitz feeding grounds;

(v) The alternative site is the preferred site with the least potential overall impact on the environment;

(vi) Implement and fund a long term monitoring programme to determine bird/bat-turbine mortalities and alternative mitigations once operational.

(b) Recommendations to mitigate potential brown hyena-turbine conflict:

(i) Avoid establishing wind turbines close to known active brown hyena den sites west of the E-Bay plant area;

(ii) Avoid access routes servicing the turbines to be constructed past the known active brown hyena den sites;

(iii) Implement and fund a long term monitoring programme with camera trapping and satellite telemetry to determine brown hyena den site use and turbine disturbances once operational;

(iv) The location of access roads should be as far away as possible from the den site;

(v) Depending on the amount of traffic, they should preferably reach the turbine construction sites from the north, as the main corridor to reach the den site lies in the south between E-Bay ghost town and Green valley den (map of corridor movement can be provided);

(vi) Construction should only take place during daylight hours (peak of denning activity is at dusk and dawn) and a strict speed limit should be enforced;

(vii) Blasting only to take place when the den is not active, as the den may collapse and trap and/or kill cubs. If this is not feasible at all, alternative methods have to be discussed with the Brown Hyena Research Project (BHRP) in due time;

(viii) The cable connecting the turbines to the switch station should not pass through the den area and an alternative route should be considered.

(c) Recommendations to mitigate potential vegetation-turbine conflict:

(i) The precise location of the proposed wind turbines should be moved slightly one-way-or-another – i.e. local site selection to favour flora – dependent on local flora to have the least impact on the flora at each site;

(ii) Avoid establishing wind turbines at the proposed site as this area is much more diverse floristically and with lichens being ubiquitous throughout the area.

(iii) The alternative site is the preferred site with the least potential overall impact on the environment.

The proponent shall continue with the already undertaken preconstruction long-term fauna and flora monitoring during the construction stage of the proposed Wind Farm and work with the local hyenas, avifauna and flora experts during the construction stage of the proposed Wind Farm.

Table 4.1: Environmental Management Plan (EMP) for construction Stage.

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
1) All activities	• Management and Monitoring	• Social and Environmental Performance	• Ensure that all aspects related to the EMP are implemented during the construction phase. • Hold regular site meetings/inspections. Make provision in the minutes of the meetings for reporting on all aspects of the EMP related to the construction of the wind farm.	1. Project Manager (PM), 2. Engineering, Procurement, Construction (EPC) 3. Project HSE 4. Contractor HSE	• Ongoing throughout construction stage
2) All activities	• Consultation and Disclosure (EP 5)	• Social and Environmental Performance	• PM, EPC, Project HSE, Contractor HSE and Contractor to maintain open and direct lines of communication with the Employer, and I&APs with regards to environmental matters. • Consult with project affected communities in a structured and culturally appropriate manner. Consultation should be "free" (*of external manipulation, interference or coercion, and intimidation*), "prior" (*timely disclosure of information*) and "informed" (*relevant, understandable and accessible information*). • Adequately incorporate project affected communities' concerns.		
3) All activities	• Grievance Mechanism (EP 6)	• Social and Environmental Performance	• Ensure a mechanism for receiving and resolving any concerns and grievances related to the project's social and environmental performance during the construction phase. • Address concerns promptly and transparently and in a culturally appropriate manner.		
4) All activities	• Training (IFC PS 1), including awareness and inductions	• Social and Environmental Performance	• Train employees and contractors in matters related to the project's social and environmental performance, Namibia's regulatory requirements, and the requirements of the IFC Performance Standards. • Ensure adequate environmental awareness training for all senior site personnel. • Give environmental induction presentations to all site personnel prior to work commencement.		
5) All activities	• Labour and Working Conditions (IFC PS 2)	• Social and Environmental Performance	• Establish, maintain and improve the worker-management relationship. Base the employment relationship on equal opportunity and fair treatment and no discrimination to be allowed. • Comply with Namibia's labour and employment laws and prevent unacceptable forms of labour, i.e. harmful child and forced labour. • Promote safe and healthy working conditions and the protection and promotion of worker health.		

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
			• Prepare a Human Resources Policy and document and communicate the Working Conditions and Terms of Employment. • Respect Collective Agreements and the right of workers to organize and bargain collectively. • Prepare a Retrenchment Plan. • Implement a Grievance Mechanism.	1. Project Manager (PM), 2. Engineering, Procurement, Construction (EPC) 3. Project HSE 4. Contractor HSE	• Ongoing throughout construction stage
6) All activities	• Employment and procurement opportunities	• Socio-economic	• Ensure local recruitment (of registered contractors or qualified and certified personnel, registered and certified with the appropriate statutory authority as per Electricity Control Board (ECB) licensee duty) and procurement to maximize benefit to region.		
7) All activities	• Occupational Health and Safety	• Social and Environmental Performance	• Prepare and submit an Emergency Preparedness and Response Plan. • Adhere to all Namibian Health and Safety Regulations. • Occupational Health and Safety Training to be provided to all employees. • Ensure that qualified first aid can be provided at all times. • Provide and ensure the active use of Personal Protective Equipment (PPE).		
8) All activities	• Community Health and Safety (IFC PS 4)	• Social and Environmental Performance	• Prevent communicable disease (e.g sexually transmitted diseases (STDs) such as HIV/AIDS transmission): provide surveillance and active screening and treatment of employees; prevent illness among employees in local communities (through health awareness and education initiatives); ensure ready access to medical treatment, confidentiality and appropriate care, particularly with respect to migrant workers; and promote immunization.		
9) All activities	• Unauthorized public access	• Community Safety	• Fencing of the Wind Farm is not recommended and not necessary because the site falls in a protected area with public access restrictions. • Turbine tower ladders should not be accessible to anyone from the public should they wish to climb the towers. • Notice or information boards relating public safety hazards and emergency contact details should be put up at the gate(s) and at the wind farm. • Create a viewpoint area, possibly including an information centre, for the public/tourists.		
10) All activities	• Construction of wind farm	• Change in land use from “conservation”	• Restrict construction activities to demarcated areas; all other areas will be regarded as "no go" zones in order to minimize the impact on the surrounding land and unique vegetation.		

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
11) All Excavations in pristine areas suspected of having archaeological Resources / artefact	• Construction of wind farm and all associated infrastructures	• Destruction of archaeological resources / artefact	• The proponent should consider appointing an archaeologist during the preconstruction and construction to avoid negative impacts on archaeological resources; • Construction managers/foremen should be informed before construction starts on the possible types of archaeological resources / artefacts that may be encountered onsite and the procedures to follow when such archaeological resources / artefacts are found; • Sufficient time must be allowed to remove/collect any archaeological resources / artefacts found on the site; • If archaeological material already identified during the archaeological impact assessment will be impacted upon by the wind turbine footprint, mitigation in the form of test pits, systematic excavation and sampling must be undertaken before trenching and any other earth moving activities are carried out.	1. Project Manager (PM), 2. Engineering, Procurement, Construction (EPC) 3. Project HSE 4. Contractor HSE 5. Specialist Consultants	• Ongoing throughout construction stage
		Destruction of hyenas dens and disturbance of the local population	• The actual den locations must be avoided because the actual footprints of the turbines only requires a limited specific area. • The proponent to work with the local experts from the Brown Hyena Research Project in making sure that the exiting local hyena dens are not disturbed and that the communal hyena population is not exposed to potential illegal killings once the dens localities known. • Den localities should not be made public or known to the contractors or local community / workers. • No construction activities shall take place if there are cubs around the dens in close proximity to the turbines. • Continuous monitoring.		
12) Wind farm layout planning	• Wind farm layout	• Visual	• Minimize the presence of secondary structures: avoid fencing the site, minimize access roads, and bury intra-project power lines.		
13) Wind turbine sitting and layout	• Electromagnetic interference (aviation radar and telecommunications)	• Community Health and Safety	• <u>Aviation radar</u>: ○ Consider the designs of the components, i.e. the shape of the turbine towers and the shape and materials of the nacelles (in order to minimize radar interference); ○ Investigate the use of radar-absorbent surface treatments (to minimize electrical disturbance); ○ Consider the geometric layout and location of the wind turbines in relation to air traffic routes; ○ Consider radar design alterations, i.e. relocation of the affected radar, radar blanking of the affected		

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
			area, or the use of alternative radar systems to cover the affected area. • Telecommunication systems: o Avoid direct physical interference of point-to-point communication systems; o Modify the existing aerial; o Install a directional antenna; o Boost the signal by installing an amplifier. • Television broadcasts: o Site the turbines away from the line-of-sight of the broadcaster transmitter; o Make use of non-metallic turbine rotor blades.	1. Project Manager (PM), 2. Engineering, Procurement, Construction (EPC) 3. Project HSE 4. Contractor HSE	• Ongoing throughout construction stage
	• Configuration of turbine arrays	• Species (birds and bats) injury, disturbance (and potential alteration of behaviour), or mortality.	• Wind turbines to be grouped (rather than spreading the turbines widely), and/or place rows of turbines parallel to known bird movement/migration routes.		
	• Aircraft navigation safety (potential collision or the alteration of flight paths)	• Community Safety	• Consult the air traffic authorities so that the installation of the wind turbines will conform to air traffic safety regulations (15 km) craw flies from the Wind Farm (**NOTE:** The Wind Farm is about 22 km away from Lüderitz Airport).		
14) Wind turbine design specifications	• Wind turbine appearance	• Visual	• Turbine type, height, colour and direction of rotation must be kept uniform; • Wind turbines are to be painted a light grey or pale blue (dependent on air navigational marking regulations) and with a non-reflective coating to avoid reflection from the towers; • Avoid using graphics or lettering on the turbines.		
15) Wind turbine acoustic design specifications	• Wind turbine acoustics	• Noise pollution	• Adhere to national or international acoustic design standards for wind turbines. • Implement engineering design standards to prevent or control noise (e.g. the use of variable speed turbines or pitched blades (resulting in lower rotational speed) may control broadband noise).		
16) Infrastructure construction	• Increased traffic, presence and movement of machinery, and the establishment of soil stockpiles	• Air quality (dust or Particulate Matter (PM) pollution)	• Minimize the area in which the movement of construction machines will take place to reduce the effects of dust pollution. • Minimize dust from material handling sources (e.g. conveyors and bins) by using covers and/or control equipment (e.g. water suppression). • Minimize dust from open area sources, including storage piles, by using control measures (install		

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
			enclosures and covers, and increase the moisture content). • Avoid the excavation, handling and transport of erodible materials under high wind conditions or when a visible dust plume is present.	1. Project Manager (PM), 2. Engineering, Procurement, Construction (EPC) 3. Project HSE 4. Contractor HSE	• Ongoing throughout construction stage
	• Increased traffic/vehicle movement	• Air quality (dust or Particulate Matter (PM) pollution)	• Maintain the road surface to preserve surface characteristics (e.g. texture and roughness). • Use dust control/suppression methods, such as applying water or non-toxic chemicals to minimize dust (oil and oil by-products is not a recommended measure to control road dust).		
	• Increased traffic, presence and movement of machinery (exhaust from diesel engines)	• Air quality & Occupational and Community Health and Safety	• Fleet owners/operators to implement manufacturer recommended engine maintenance programs (to control vehicle emissions: Carbon Monoxide (CO), Nitrogen Oxide (NO_x), Sulphur Dioxide (SO_2), Particulate Matter (PM) and Volatile Organic Compounds (VOCs)).		
	• Presence of machinery, construction workers, infrastructure (wind turbines and transmission towers) and associated equipment	• Visual and noise	• Avoid critical habitats (for site transmission and distribution rights of way, lines, towers and substations) through using existing utility and transport corridors (transmission and distribution) where possible.		
	• Increased traffic, movement of machinery	• Occupational and Community Safety	• Adopt best transport safety practices by implementing the following measures: emphasize safety aspects among drivers; improve driving skills and require licensing of drivers; adopt limits for trip duration; avoid dangerous routes and times of day; and use speed control devices. • Regularly maintain vehicles and use manufacturer approved parts. • Use locally sourced materials (where possible) to minimize transport distances. • Employ safe traffic control measures, including the use of traffic and safety warning signs and flag persons to warn of dangerous conditions.		
	• Turbine foundations	• Occupational Safety	• Ensure that all excavations are properly performed and in accordance with Occupational, Health and Safety (OH&S) regulations. Blasting shall be undertaken in accordance with EMP No. 10 under Preconstruction Section of this EMP.		

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
			• Ensure that the handling of concrete follow health and safety precautions (as per Material Safety Data Sheets (MSDS)). • Environmental Protection Agency (EPA) Environmental Guidelines for the Concrete Batching Industry could be followed (Best Practice Environmental Management).		
17) Assembly of wind tower components	• Working at heights	• Occupational Safety	• Test integrity of structure(s) before work commences. • Implement a fall protection program (including training in climbing techniques and the use of fall protection measures; inspection, maintenance, and replacement of fall protection equipment; and rescue of fall-arrested workers). • Establish criteria for use of 100% fall protection (the system should be fitting for the tower structure and movements (ascent, descent, and moving from point to point)). • Install fixtures on tower components to facilitate the use of fall protection systems. • Provide an adequate work-positioning device system to workers (with connectors on positioning systems compatible with the tower components to which they are attached). • Ensure proper rating and maintenance of hoisting equipment and training of hoist operators. • Use safety belts of not less than 15.8 mm two in one nylon or material of equivalent strength; replace rope safety belts before signs of aging or fraying of fibres become evident. • Workers to use a second (backup) safety strap when operating power tools at height. • Remove signs/other obstructions from poles/structures before work commences. • Use approved tool bags for lowering/raising tools/materials to workers on elevated structures. • Avoid conducting tower installation during poor weather conditions (especially where there is a risk lightning strikes).	1. Project Manager (PM), 2. Engineering, Procurement, Construction (EPC) 3. Project HSE 4. Contractor HSE 5. Specialist Consultants	• Ongoing throughout construction stage
18) Turbines	• Avifauna collision with turbines. Based on the results of the long-term monitoring implemented as part of the EIA process for this project, the likely	• Increased mortality of avifauna at the site.	• The use a real time Avian Radar System for birds and bats monitoring and risk mitigation. These systems uses software combined with radar technology and other sensor data inputs, including weather and visibility information to deliver a real-time radar-based curtailment or deterrence to prevent bird mortality while maximizing energy production;		

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
	impact on avifauna collision with the turbines is likely to be associated with the Cape and pied crows with flight paths extending inland and inclusive of the proposed Wind Farm area.		• Installation of a light reflective discs on the rotating components of the turbine in order to force the flamingos and other birds from coming closer to the turbines (hopefully change their commuting daily / migrating route over time); • Coating of the spinning components of the turbines with reflective paint in order to force the flamingos and other birds from coming closer to the turbines (hopefully change their commuting daily / migrating route); • Continuous monitoring with the aim of evaluating the level of impacts and development of appropriate and effective mitigation measures.	1. Project Manager (PM), 2. Engineering, Procurement, Construction (EPC) 3. Project HSE 4. Contractor HSE 5. Specialist Consultants	• Ongoing throughout construction stage
19) Power transmission and distribution	• Underground cables (turbines to transformer station; transmission lines)	• Habitat alteration & Occupational and Community Health	• Restrict excavation activities to previously demarcated areas; all other areas will be regarded as "no go" zones in order to minimize the impact on the surrounding land. • Ensure that all excavations are properly performed and in accordance with Occupational, Health and Safety (OH&S) regulations. • Restrict trench excavation to a pace that matches cable installation and backfill. No more than 300 m of open trench to exist at any time.		
20) Power transmission and distribution	• Habitat alteration	• Bird and bat collisions and electrocutions	• Align transmission corridors to avoid critical habitats. • Maintain 1.5 m spacing between, or cover energized components and grounded hardware. • Consider the installation of underground transmission and distribution lines (sensitive areas). • Install visibility enhancement object (marker balls, bird deterrents, or diverters).		
21) Power transmission and distribution	• Electric and Magnetic Fields (EMF)	• Occupational and Community Health	• Ensure that average and peak exposure levels remain below the reference levels developed by the Commission of Non-Ionizing Radiation Protection (ICNIRP). • Reduce the EMF (from power lines, substations, or transformers) by applying engineering techniques (if levels are expected or confirmed above the recommended levels): shielding with specific metal alloys; burying transmission lines; increasing the height of the transmission towers; or modifications to size, spacing and configuration of conductors.		
22) Power transmission and distribution	• Hazardous materials management (insulating oils / gases	• Pollution of biophysical environment (soil and water)	• Minimize the use of SF6 (greenhouse gas). • The use of PCBs has largely been discontinued (see *IFC EHS Guidelines for Electric Power Transmission*		

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
	(Polychlorinated Biphenyls (PCB) and sulphur hexafluoride (SF6)) and fuels) Also products for wood preservation; I assume that no wooden poles would be used?		*and Distribution* for the management of PCBs should it be used). • See all activities, Hazardous materials management. • Wood preservatives? Needed?	1. Project Manager (PM), 2. Engineering, Procurement, Construction (EPC) 3. Project HSE 4. Contractor HSE	• Ongoing throughout construction stage
23) Power transmission and distribution	• Live power lines	• Occupational Health and Safety	• Allow only trained/certified employees to install, maintain, and repair electrical equipment. • Deactivate and properly ground live power distribution lines before work is conducted on, or close to, distribution lines. • Ensure that live-wire work is conducted by qualified workers and in accordance to the specific safety and insulation standards. • Do not approach an exposed energized or conductive part (even if the worker is trained) unless: the person is properly insulated from the energized part (e.g. gloves) and *vice versa*; the worker is properly isolated and insulated from any other conductive part (live-line work). • Implement a Health and Safety Plan, detailing specific training, safety measures, personal safety devices and other precautions, where maintenance and operation is required within minimum setback distances.		
24) Power transmission and distribution	• Working at heights on poles/structures	• Occupational Health and Safety	• See Assembly of wind turbine components, working at heights.		
25) Power transmission and distribution	• Electric and Magnetic Fields (EMF)	• Occupational Health and Safety	• Prepare and implement an EMF Safety Program containing information on: potential exposure levels in the workplace and the use of personal monitors; training of workers to identify EMF levels and hazards; the identification and establishment of safety zones (areas acceptable for public exposure vs. those with expected elevated EMF levels and that only properly trained workers may access); action plans dealing with potential or confirmed exposure of levels that exceed those developed by the Commission of Non-Ionizing Radiation Protection (ICNIRP) and Institute of Electrical and Electronics Engineers (IEEE).		

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
26) Power transmission and distribution	• Electrocution	• Community Health and Safety	• Use signs, barriers, and education to prevent public contact with potentially dangerous equipment. • Ground conducting objects installed near power lines.	1. Project Manager (PM), 2. Engineering, Procurement, Construction (EPC) 3. Project HSE 4. Contractor HSE	• Ongoing throughout construction stage
27) All activities	• Water Management	• Resource use / depletion of natural resources	• Implement a water conservation program, promoting the continuous reduction in water consumption and achieving savings in water pumping, treatment and disposal costs, commensurate with the magnitude and cost of water use.		
28) All activities	• Hazardous materials management • Maybe this can come out; important, but more to do with overall hazardous materials management	• Social and Environmental Performance	• Establish hazardous materials management priorities (based on hazard analysis of risky operations). • Avoid, or minimize the use of hazardous materials. • Prevent uncontrolled releases of hazardous materials to the environment or uncontrolled reactions that may result in fire or explosion. • Make us of engineering controls (containment, automatic alarms and shut-off systems); implement management controls (procedures, inspections and training, communication and drills) to address residual risks not prevented or controlled through engineering controls.		

5. OPERATIONAL STAGE

5.1 Introduction

Once the construction and installation of the turbines has been completed, only specialised and maintenance workforce will be required to run and maintain the wind farm. #Oab Energy (PTY) LTD will be responsible for fulfilling the requirements in the Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) for the operational stage of the proposed 8MW EBay Wind Farm. A Project / Site / Health Safety and Environmental (HSE) Manager / Engineer could be appointed by #Oab Energy (PTY) LTD to oversee all the site operation as well as management of other site workforce.

The proponent hereby gives an undertaking that if the operational monitoring results on avifauna proves that there is significant negative impacts, the four (4) turbines or the turbine specific identified to be the main cause of increased collision mortalities with avifauna shall be relocated or removed and the EBay Diamond mine electricity supply, if still required by then, may be integrated in the much larger wind farm being proposed in general area by WinNam or be supplied from the national grid.

During the operational stage the proponent shall continue with the already undertaken preconstruction and construction long-term fauna and flora monitoring during the operational stage of the proposed Wind Farm and work with the local hyenas, avifauna and flora experts. Table 5.1 outlines the Environmental Management Plan for the operational stage of the proposed EBay Wind Park

Table 5.1: Environmental Management Plan (EMP) for the operations stage.

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
1) All activities	• Management and Monitoring	• Social and Environmental Performance	• Ensure that all aspects related to the EMP are implemented during the operations phase.	1. Project Manager (PM), 2. Project HSE 3. Monitoring Specialists	• Ongoing throughout construction stage
2) All activities	• Consultation and Disclosure (EP 5)	• Social and Environmental Performance	• Consult with project affected communities in a structured and culturally appropriate manner throughout the operations phase. Consultation should be "free" (*of external manipulation, interference or coercion, and intimidation*), "prior" (*timely disclosure of information*) and "informed" (*relevant, understandable and accessible information*). • Adequately incorporate project affected communities' concerns.		
3) All activities	• Grievance Mechanism (EP 6)	• Social and Environmental Performance	• Ensure a mechanism for receiving and resolving any concerns and grievances related to the project's social and environmental performance during the operations phase. • Address concerns promptly and transparently and in a culturally appropriate manner.		
4) All activities	• Training (IFC PS 1), including awareness and inductions	• Social and Environmental Performance	• Train employees and contractors in matters related to the project's social and environmental performance, Namibia's regulatory requirements, and the requirements of the IFC Performance Standards. • Ensure adequate environmental awareness training for all personnel. • Give environmental induction presentations to all new personnel prior to work commencement.		
5) All activities	• Labour and Working Conditions (IFC PS 2)	• Social and Environmental Performance	• Establish, maintain and improve the worker-management relationship. Base the employment relationship on equal opportunity and fair treatment and no discrimination to be allowed. • Comply with Namibia's labour and employment laws and prevent unacceptable forms of labour, i.e. harmful child and forced labour. • Promote safe and healthy working conditions and the protection and promotion of worker health. • Document and communicate the Working Conditions and Terms of Employment. • Respect Collective Agreements and the right of workers to organize and bargain collectively.		
6) All activities	• Employment and procurement opportunities	• Socio-economic	• Ensure local recruitment (of registered contractors or qualified and certified personnel, registered and		

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
			certified with the appropriate statutory authority as per Electricity Control Board (ECB) licensee duty) and procurement to maximize benefit to region.	1. Project Manager (PM), 2. Project HSE 3. Monitoring Specialists	• Ongoing throughout construction stage
7) All activities	• Occupational Health and Safety	• Social and Environmental Performance	• Adhere to all Namibian Health and Safety Regulations. • Occupational Health and Safety Training to be provided to all employees. • Ensure that qualified first aid can be provided at all times. • Provide and ensure the active use of Personal Protective Equipment (PPE).		
8) All activities	• Community Health and Safety (IFC PS 4)	• Social and Environmental Performance	• Prevent communicable disease (e.g sexually transmitted diseases (STDs) such as HIV/AIDS transmission): provide surveillance and active screening and treatment of employees; prevent illness among employees in local communities (through health awareness and education initiatives); ensure ready access to medical treatment, confidentiality and appropriate care, particularly with respect to migrant workers; and promote immunization.		
9) All activities	• Unauthorized public access	• Community Safety	• Use gates on the access road(s), or the entire site, or individual turbines, can be fenced off. • Turbine tower ladders should not be accessible to anyone from the public should they wish to climb the towers. • Notice or information boards relating public safety hazards and emergency contact details should be put up at the gate(s) and at the wind farm. • Create a viewpoint area, possibly including an information centre, for the public/tourists.		
10) All activities	• Increased traffic/vehicle movement	• Air quality (dust or Particulate Matter (PM) pollution)	• Maintain the road surface to preserve surface characteristics (e.g. texture and roughness). • Use dust control/suppression methods, such as applying water or non-toxic chemicals to minimize dust (oil and oil by-products is not a recommended measure to control road dust).		
11) All activities	• Increased traffic/vehicle movement (exhaust from diesel engines)	• Air quality & Occupational and Community Health and Safety	• Fleet owners/operators to implement manufacturer recommended engine maintenance programs (to control vehicle emissions: Carbon Monoxide (CO), Nitrogen Oxide (NO_x), Sulphur Dioxide (SO_2), Particulate Matter (PM) and Volatile Organic Compounds (VOCs)).		
12) All activities	• Increased traffic/vehicle movement	• Occupational and Community Safety	• Adopt best transport safety practices by implementing the following measures: emphasize		

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
			safety aspects among drivers; improve driving skills and require licensing of drivers; adopt limits for trip duration; avoid dangerous routes and times of day; and use speed control devices. • Regularly maintain vehicles and use manufacturer approved parts. • Use locally sourced materials (where possible) to minimize transport distances. • Employ safe traffic control measures, including the use of traffic and safety warning signs and flag persons to warn of dangerous conditions.		
13) All activities	• Storm water management	• Attraction of species (birds and bats) to the area due to open water and subsequent injury, disturbance, or mortality of species	• Implement appropriate storm water management measures so as to avoid the presence of open water in the area.	1. Project Manager (PM) / Engineer, 2. Project HSE 3. Monitoring Specialists	
14) Operational turbines	• Moving turbine blades	• Species injury, disturbance (and potential alteration of behaviour), or mortality	• Implement monitoring programmes to study the potential impact(s) of the wind turbines on birds and bats.		• Ongoing throughout construction stage
		• Bird injury, disturbance (and potential alteration of behaviour), or mortality	• Use a radar system that can detect (any migrating) birds and simultaneously analyse the existing weather conditions. Turbines should be shut down (and would automatically re-start once the birds have passed) during unfavourable weather conditions, especially at night time.		• Upon detection of any impacts to birds throughout the operational stage
		• Bat injury or mortality	• Increased turbine speed, or change the wind turbine cut-in speed to drive bats away. • Use a stationary antenna transmitting two different radar signals at different pulse lengths to reduce bat activity. • Reduce the operational hours during low wind periods.		• Upon detection of any impacts to bats throughout the operational stage
	• Noise	• Occupational and Community Health	• Insulate the gearbox of each turbine.		
	• Inoperative turbines	• Visual	• Remove inoperative turbines.		
	• Hazardous waste management	• Pollution of biophysical	• Wind turbines to be equipped with oil absorption and collection systems.		

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
		environment (soil and water)			
	• Aircraft navigation safety (potential collision or the alteration of flight paths)	• Community Safety	• Install anti-collision lighting and marking systems on the towers and blades.		
	• Malfunctioning rotor blades (and subsequent blade throw)	• Community Safety	• Put up notice or information boards at the gate(s) and at the wind farm to alert the public of the potential risk. • Regularly maintain wind turbines. • Equip wind turbines with vibration sensors that can detect an imbalance in the rotor blades and shut down the turbines. • Implement safety setbacks of around 300 m, depending on the turbine height and the speed, size, shape and weight of the rotor blades.	1. Project Manager (PM) / Engineer, 2. Project HSE 3. Monitoring Specialists	• When required throughout the operational stage
	• Electromagnetic interference (television broadcasts)	• Community Health and Safety	• Install a higher quality or directional antenna or relocate/direct the antenna towards an alternative broadcast transmitter; or install an amplifier; or construct a new repeater station if a wide area is affected.		
15) General turbine maintenance	• Washing of the rotor blades (with water) to prevent dust and insect build-up	• Resource use / depletion of natural resources	• Ensure all wash water is recycled. Ensure there are no leaks from all taps, pipes and fittings.		• Ongoing throughout the operational stage
	• Periodic painting of tower structures	• Pollution of biophysical environment (soil and water)	• Conform to ISO 12944:1998 Paints and varnishes - Corrosion protection of steel structures by protective paint systems- Part 4: Types of surface and surface preparation.		• *Ad hoc throughout the operational stage*
	• Working at heights	• Occupational Safety	• Test integrity of structure(s) before work commences. • Implement a fall protection program (including training in climbing techniques and the use of fall protection measures; inspection, maintenance, and replacement of fall protection equipment; and rescue of fall-arrested workers). • Establish criteria for use of 100% fall protection (the system should be fitting for the tower structure and movements (ascent, descent, and moving from point to point)). • Install fixtures on tower components to facilitate the use of fall protection systems. • Provide an adequate work-positioning device system to workers (with connectors on positioning	1. Project Manager (PM) / Engineer, 2. Project HSE 3. Monitoring Specialists	• Ongoing throughout the operational stage

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
			systems compatible with the tower components to which they are attached). • Ensure proper rating and maintenance of hoisting equipment and training of hoist operators. • Use safety belts of not less than 15.8 mm two in one nylon or material of equivalent strength; replace rope safety belts before signs of aging or fraying of fibres become evident. • Workers to use a second (backup) safety strap when operating power tools at height. • Remove signs/other obstructions from poles/structures before work commences. • Use approved tool bags for lowering/ raising tools/materials to workers on elevated structures. • Avoid conducting maintenance during poor weather conditions (especially where there is a risk lightning strikes).	1. Project Manager (PM) / Engineer, 2. Project HSE 3. Monitoring Specialists	• Ongoing throughout the operational stage
16) Power transmission and distribution	• Electric and Magnetic Fields (EMF)	• Occupational and Community Health	• Ensure that average and peak exposure levels remain below the reference levels developed by the Commission of Non-Ionizing Radiation Protection (ICNIRP). • Reduce the EMF (from power lines, substations, or transformers) by applying engineering techniques (if levels are expected or confirmed above the recommended levels): shielding with specific metal alloys; burying transmission lines; increasing the height of the transmission towers; or modifications to size, spacing and configuration of conductors.		
17) Power transmission and distribution	• Hazardous materials management (insulating oils / gases (Polychlorinated Biphenyls (PCB) and sulphur hexafluoride (SF6)) and fuels)	• Pollution of biophysical environment (soil and water)	• Minimize the use of SF6 (greenhouse gas). • The use of PCBs has largely been discontinued (see *IFC EHS Guidelines for Electric Power Transmission and Distribution* for the management of PCBs should it be used). • See All activities, Hazardous materials management. • Wood preservatives? Needed?		
18) Power transmission and distribution	• Live power lines	• Occupational Health and Safety	• Allow only trained/certified employees to install, maintain, and repair electrical equipment. • Deactivate and properly ground live power distribution lines before work is conducted on, or close to, distribution lines. • Ensure that live-wire work is conducted by qualified workers and in accordance to the specific safety and insulation standards.		

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
			• Do not approach an exposed energized or conductive part (even if the worker is trained) unless: the person is properly insulated from the energized part (e.g. gloves) and *vice versa*; the worker is properly isolated and insulated from any other conductive part (live-line work). • Implement a Health and Safety Plan, detailing specific training, safety measures , personal safety devices and other precautions, where maintenance and operation is required within minimum setback distances	1. Project Manager (PM) / Engineer, 2. Project HSE 3. Monitoring Specialists	• Ongoing throughout the operational stage
19) Power transmission and distribution	• Working at heights on poles/structures	• Occupational Health and Safety	• See General turbine maintenance, working at heights.		
20) Power transmission and distribution	• EMF	• Occupational Health and Safety	• Prepare and implement an EMF Safety Program containing information on: potential exposure levels in the workplace and the use of personal monitors; training of workers to identify EMF levels and hazards; the identification and establishment of safety zones (areas acceptable for public exposure vs. those with expected elevated EMF levels and that only properly trained workers may access); action plans dealing with potential or confirmed exposure of levels that exceed those developed by the ICNIRP and Institute of Electrical and Electronics Engineers (IEEE).		
21) Power transmission and distribution	• Electrocution	• Community Health and Safety	• Use signs, barriers, and education to prevent public contact with potentially dangerous equipment. • Ground conducting objects installed near power lines.		
22) All activities	• Water Management	• Resource use / depletion of natural resources	• Implement a water conservation program, promoting the continuous reduction in water consumption and achieving savings in water pumping, treatment and disposal costs, commensurate with the magnitude and cost of water use.		
23) All activities	• Hazardous materials management (mainly fuels and lubricating and hydraulic oils for operating vehicles and	• Pollution of biophysical environment (soil and water)	• Implement prevention and control measures for the use, handling and storage of hazardous materials. • Train workers on the correct transfer and handling of fuels and chemicals and the response to spills.		

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
	equipment; substation transformer insulating oil; equipment coolants and maintenance chemicals such as solvent cleaners and paints)		• Immediately report and clean up any accidental hydrocarbon spill: Spill-Sorb, Drizzat Pads, Enretech Powder or Peat Moss can be used to clean up small spills; in case of larger spills, the spill together with the polluted soil should be removed and disposed of at e.g. a biological remediation site.	1. Project Manager (PM) / Engineer, 2. Project HSE 3. Monitoring Specialists	• Ongoing throughout the operational stage
		• Occupational Health and Safety	• Implement hazard communication and training programs (including information on Material Safety Data Sheets (MSDS)) to make employees aware of workplace chemical hazards and how to respond to these. • Provide and ensure the active use of Personal Protective Equipment (PPE).		
24) All activities	• Waste management: solid	• Air quality	• Avoid the open burning of waste (whether hazardous, or non-hazardous).		
25) All activities	• Waste management: non-hazardous and hazardous	• Pollution of biophysical environment	• As per Waste Management Plan. • Institute and maintain good housekeeping and operating practices; littering is not allowed. • Non-hazardous and hazardous waste to be collected and stored separately: • Non-hazardous waste to be transported to and disposed of, with prior permission from the Lüderitz Town Council, at the waste disposal site at Lüderitz. • Hazardous waste: recycle petroleum (fuels and lubricants) waste products and collect and recycle batteries and print cartridges. The remainder to be transported to a recognized hazardous waste disposal site (Lüderitz), with prior permission from the Lüderitz Town Council.		
26) All activities	• Waste management: sanitary	• Pollution of biophysical environment	• Portable toilets (1 toilet per 30 employees; preferred 1:15) to be provided on the site; contents to be collected by an approved contractor and disposed of at an approved sewage site. Unless there will be a sewage plant linked to EBay Mine?		
27) All activities	• Waste water management - waste water treatment	• Pollution of biophysical environment	• Ensure that the discharge of process wastewater and/or sanitary wastewater and/or wastewater from utility operations and/or storm water to land conform to the regulatory requirements.		

6. DECOMMISSIONING/ CLOSURE/ UPGRADING STAGE

6.1 Introduction

The decommissioning/ closure/ upgrading stages of the proposed 8MW EBay Wind Farm will cover all the activities that aim at restoring the site to the state before the Wind Farm was created. The decommissioning and closure stage will only be implemented once the Wind Farm has reached its useful life span of 25 years. Although the generation license period is up to 25 years, the license is renewable.

Furthermore, the electrical and electronic components of a wind turbine can also be replaced with the latest technology (upgrade of the Wind Farm) once they reach their useful life span thereby extending the operational stage of the proposed EBay Wind Farm without decommissioning the structures such as the towers, transformers, the nacelle (housing), as well as the blades and the hub, together called the rotor.

The decommissioning and closure stage will cover the removal of all structures such as the towers, foundation, steel works and concrete casted to hold all structures on site. The EMP makes provisions for management of a wider array of activities that will be associated with decommissioning / closure of the proposed EBay Wind Farm. Table 6.1 outlines the EMP framework for the decommissioning and closure stage of the proposed development. The EMP for any possible upgrading is similar to the construction EMP as detailed in Table 4.1. The proponent shall continue with the already undertaken preconstruction, construction and operational long-term fauna and flora monitoring during the decommissioning and closure stages of the proposed Wind Farm and work with the local hyenas, avifauna, socioeconomic and flora experts during the decommissioning and closure stages of the proposed Wind Farm.

Table 6.1: Environmental Management Plan (EMP) for the decommissioning and closure stage.

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
1) Decommissioning and Closure	• Decommissioning	• Social and Environmental Performance & Visual	• Isolate (electrically) the turbines from the substation. • Dismantle the blades, nacelle and towers, load onto trucks and remove from the site for disposal/recycling. • Disassemble the steel tower sections and cut off at the top of the foundation concrete; rehabilitate the hardstand area. • Remove all above-ground substation infrastructure and re-use, recycle or dispose of it. • Conduct a site contamination assessment; remove any contaminated material and dispose of at an appropriate disposal facility. • Break up foundations in the substation and remove for disposal. • Dig up below-ground substation infrastructure and remove. • Conduct a validation survey to ensure that all contaminated material at the substation has been removed; remove any contaminated material and dispose of at an appropriate disposal facility. • Rehabilitate access tracks not required for ongoing land use activities. • Remove all other equipment, waste, etc. from the area. • Reshape all disturbed areas to their original contours. • Cover disturbed areas with previously collected topsoil and spread evenly. • Manually rip disturbed areas, where compaction has taken place, and cover the areas with previously collected topsoil. • Replant any previously removed native plant species in disturbed areas.	1. Project Manager (PM), 2. Engineering, Procurement, Construction (EPC) 3. Project HSE 4. Contractor HSE	Ongoing during the decommissioning and Closure Stages
2) Closure	• Loss of jobs and income	• Socio-economic	• Implement a skills training programme during the operations phase.		

7. ENVIRONMENTAL PERFORMANCE MONITORING

7.1 Environmental Monitoring

The monitoring process of the EMP performances for the proposed EBay Wind Farm project is divided into two parts and these are:

(i) Monitoring activities and effects to be undertaken by the Project HSE and specialists such as an ornithologist, archaeologist and ecologist;

(ii) Preparation of an Environmental Monitoring Report covering all activities related to the Environmental Management Plan (EMP) throughout the lifecycle of the proposed EBay Wind Farm project to be undertaken by the Project HSE with the support of the specialists such as an ornithologist, archaeologist and ecologist.

As part of the condition of the Environmental Clearance Certificate (ECC) that will be issued by the Environmental Commissioner (EC) in the Ministry of Environment and Tourism (MET), #Oab Energy (PTY) LTD will be required to report to the Ministry of Environment and Tourism (Office of the Environmental Commissioner), the environmental performances monitoring results for every six (6) months or as maybe stated in the ECC. The reporting process will form part of the ongoing environmental monitoring programme. Environmental monitoring programme is part of the EMP performances assessments and will need to be compiled and submitted as determined by the regulators.

The process of undertaking appropriate monitoring as per specific topic and tracking performances against the objectives and documenting all environmental activities is part of internal and external auditing to be coordinated by the Project HSE supported by specialists consultants. The objective will be to ensure that corrective actions are reviewed and steps are taken to ensure compliance EMP provisions.

The second part of the monitoring of the EMP performance will require a report outlining all the activities related to effectiveness of the EMP at the end of the proposed EBay Wind Farm Project to be undertaken by the Project HSE supported by specialist consultant. The report shall outline the status of the environment and any likely environmental liability after completion of the proposed project. The report shall be submitted to the Ministry of Environment and Tourism via the Ministry of Mines and Energy or Electricity Control Board and will represent the final closure and fulfilment of the Environmental Performance Monitoring undertaken by #Oab Energy (PTY) LTD with respect to the proposed 8MW EBay Wind Farm.

7.2 Environmental Compliance Auditing

7.2.1 General Compliance Requirements

The following is the summary of the general requirements for environmental compliance auditing that the proponent must implement:

(i) With the assistance of the specialists such as the ecologist and archaeologist, the Project HSE officer and the Contractor(s) HSE officer shall conduct a preconstruction site inspection to identify sensitive environments, no-go areas, location of site camps, etc.;

(ii) With the assistance of the specialists such as the ecologist and archaeologist the Project HSE officer shall prepare a preconstruction audit report which will include photographs of the general condition of the key features of the site. The photographs shall be used for comparison purposes on completion of the contract i.e. after rehabilitation of the construction areas;

(iii) With the assistance of the specialists such as the ecologist and archaeologist the Project HSE shall conduct monthly site audits of all construction related activities;

(iv) On completion of the construction activities, with the assistance of the specialists such as the ecologists and archaeologist the Project HSE officer together with the contractor(s) HSE officer shall conduct a site inspection. Any items requiring attention shall be included in a post-construction audit report;

(v) On completion of the defects liability period, the Project HSE officer shall accompany the Project Manager and the contractor with the view of determining whether outstanding matters from the post-construction audit have been adequately addressed.

7.2.2 HSE Incidents

The contractor(s) HSE officer shall maintain a register of all HSE related incidents occurring as a result of the activities associated with the entire contract. HSE related incidents that shall be recorded include (but not limited to):

- Fires;
- Accidents;
- Spills of hazardous materials that contaminate soil or water resources;
- Improvement orders/notices issued by the regulator, Namdeb or other relevant lead agencies, and;
- Non-compliance with this EMP.

Each HSE related incident shall be investigated by the Project HSE officer and an incident report forwarded to the contractor and Project Manager. An incident report will be presented within five working days. The HSE incident reports shall include as a minimum, a description of the incident, actions taken to contain any damage to the environment, personnel or the public, and the corrective actions to repair/remediate any damage. Prescribe additional measures that may be required to remediate damage resulting from the incident and/or to prevent similar incidents occurring in the future must be clearly stated.

7.2.3 Training

The Contractor is responsible for ensuring that their workers are provided with all the required levels of HSE training appropriate for this project and in line with the Labour Act. In addition to formal training, the Contractor may undertake tool-box talks. A training register should be kept on site for all training conducted as proof for auditing purposes. The HSE training should include among other topics:

- The importance of conforming with all HSE policies;

- The HSE impacts of the proposed activities;
- HSE benefits of improved personal performance;
- Worker roles and responsibilities in achieving conformance with the client's HSE policy, procedures and this EMP including associated procedures and emergency preparedness and response requirements and arrangements;
- Potential consequences of departure from specified operating procedures; and
- Mitigation measures required to be implemented when carrying out their work activities.

7.3 Environmental Awareness Guidance Materials

7.3.1 Environmental Awareness General Guidance

- The Environmental Rules apply to EVERYBODY. This includes all permanent, contract, or temporary workers as well as any other person who visits the wind farm area. Any person who visits the wind farm area will be required to adhere to the company Environmental Code of Conduct;
- Warnings will be issued to ANY PERSON who breaks anyone of the Environmental Rules and Procedures. Repeated and continued breaking of the Rules and Procedures will result in a disciplinary hearing and which may result in that person being asked to leave the site permanently;
- The ENVIRONMENT means the whole surroundings around us. The environment is made-up of the soil, water, air, plants and animals; and those characteristics of the soil, water, air, plant and animal life that influence human health and wellbeing;
- If any member of the WORK FORCE does not understand, or does not know how to keep any of Environmental Rule or Procedure, that PERSON must seek advice from the Project HSE, Contractor or Contractor HSE Officers or Specialist available onsite. The PERSON that does not understand must keep asking until she/he is able to keep to the all the Environmental Rules and Procedures.

7.3.2 Natural Environmental Management Guidance

- Never feed, tease or play with, hunt, kill, destroy or set devices to trap any wild animal (including birds, reptiles and mammals), livestock or pets. Do not bring any wild animal or pet to the wind farm area;
- Do not pick any plant or take any animal out of the wind farm area EVER. You will be prosecuted and asked to leave the project area;
- Never leave rubbish and food scraps or bones where it will attract animals, birds or insects. Rubbish must be thrown into the correct rubbish bins or bags provided;
- Protect the surface material by not driving over it unnecessarily;

- Do not drive over, build upon, or camp on any sensitive habitats for plants and animals;
- Do not destroy bird nest, dens, burrow pits, termite hills etc or any other natural objects in the area.

7.3.3 Vehicle Use and Access Guidance

- Never drive any vehicle without a valid licence for that particular vehicle and do not drive any vehicle that appears not to be road-worthy;
- Never drive any vehicle when under the influence of alcohol or drugs;
- DO NOT make any new roads without permission. Stay within demarcated areas;
- Avoid U-Turns and large turning circles. 3-point turns are encouraged. Do not ever drive on rocky slopes or vegetated dune areas;
- Stay on the road, do not make a second set of tracks and do not cut corners;
- DO NOT SPEED - keep to less than 60 km per hour on the tracks and site roads;
- No off-road driving is allowed;
- Vehicles may only drive on demarcated roads;
- Adhere to speed limits and drive with headlights switched on along any gravel road.

7.3.4 Control of Dust Guidance

- Do not make new roads or clear any vegetation unless instructed to do so by your Contractor or the Environmental Control Officer / Site Manager;
- Try to disturb the surface of the natural landscape as little as possible.

7.3.5 Health and Safety Guidance

- Drink lots of water every day, but only from the fresh water supplies;
- Take the necessary precautions to avoid contracting the HIV/AIDS virus;
- Only enter or exit the wind farm area at the demarcated gates / or road;
- Always keep the access area as you found them;
- Any damage to any existing infrastructure in the area must be reported to the Project HSE, Contractor or Contractor HSE Officers or Specialist available onsite who will then inform the owner of any damage with all the repairs done to the satisfaction of the owner or Project Manager;
- Never enter any area that is out of bounds, or demarcated as dangerous or wander off without informing or permission;

- Report to the Project HSE, Contractor or Contractor HSE Officers or Specialist available onsite if you see a stranger or unauthorised person in the wind farm area;

- Do not remove any vehicle, machinery, equipment or any other object from the wind farm area /site without permission of the Project Manager, Project HSE, Contractor or Contractor;

- Wear protective clothing and equipment required and according to instructions from the Project HSE, Contractor or Contractor HSE Officers or Specialist available onsite;

- Never enter or work in the wind farm area when under the influence of alcohol or drugs.

7.3.6 Preventing Pollution and Dangerous Working Conditions Guidance

- Never throw any hazardous substance such as fuel, oil, solvents onto the ground;

- Never allow any hazardous substance to soak into the soil;

- Immediately tell the Project HSE, Contractor or Contractor HSE Officers or Specialist available onsite when you spill, or notice any hazardous substance being spilled anywhere in the wind farm area;

- Report to the Project HSE, Contractor or Contractor HSE Officers or Specialist available onsite when you notice any container, which may hold a hazardous substance, overflow, leak or drip;

- Immediately report to the Project HSE, Contractor or Contractor HSE Officers or Specialist available onsite when you notice overflowing problems or unhygienic conditions at the ablution facilities;

- Vehicles, equipment and machinery, containers and other surfaces shall be washed at areas designated by the Project HSE, Contractor or Contractor HSE Officers or Specialist available onsite;

- If you are not sure how to transport, use, store or dispose any hazardous substance - ASK the Project HSE, Contractor or Contractor HSE Officers or Specialist available onsite for advice.

7.3.7 Saving Water Guidance

- Always use as little water as possible. Reduce, reuse and re-cycle water where possible;

- Report any dripping or leaking taps and pipes to your Contractor or Environmental Control Officer or Site Manager;

- Never leave taps running. Close taps after you have finished using them.

7.3.8 Disposal of Waste Guidance

- Learn to know the difference between the two main types of waste, namely:
  - ✓ General Waste; and
  - ✓ Hazardous Waste.
- Learn how to identify the containers, bins, drums or bags for the different types of wastes. Never dispose of hazardous waste in the bins or skips intended for general waste or construction rubble;
- Never burn or bury any waste on the wind farm area;
- Never overfill any waste container, drum, bin or bag. Inform the Project HSE, Contractor or Contractor HSE Officers or Specialist available onsite if the containers, drums, bins or skips are nearly full;
- Never litter or throwaway any waste on the site, in the field or along any road. No illegal dumping;
- Littering is prohibited.

7.3.9 Religious, Cultural, Historical and Archaeological Objects Guidance

- If you find any suspected religious, cultural, historical or archeologically object or site around the wind farm and all associated areas, you must immediately notify the Project HSE, Contractor or Contractor HSE Officers or Specialist available onsite;
- Never remove, destroy, interfere with or disturb any religious, cultural, historical or archaeological object or site around the wind farm and all associated areas.

7.3.10 Dealing with Environmental Complaints Guidance

- If you have any complaint about dangerous working conditions or potential pollution to the environment, immediately report this to the Project HSE, Contractor or Contractor HSE Officers or Specialist available onsite;
- If any person complains to you about noise, lights, littering, pollution, or any other harmful or dangerous condition, immediately report this to the Project HSE, Contractor or Contractor HSE Officers or Specialist available onsite.

7.4 Environmental Personnel Register

Table 7.1 shows the Environmental Personnel Register to be signed by every person who receives or attends the Environmental Awareness Training or who has the training material explained to him or her or in possession of the training material.

Table 7.1: Environmental personnel register.

Date	Name	Company	Signature

7.5 #Oab Energy (PTY) LTD HSE Policy

Table 7.2 summarises the HSE Policy with respect to environmental commitment that #Oab Energy (PTY) LTD will implement as part of the company environmental policy.

Table 7.2: Environmental statement.

#Oab Energy (PTY) LTD HSE
#Oab Energy (PTY) LTD is Committed to: 1. Exercising appropriate environmental care in accordance with the provisions of this EMP From planning, design and preconstruction to decommissioning and closure / upgrading stages of the proposed project. 2. Fully comply with all applicable environmental regulations in force in Namibia and the Equator Principles (the internationally agreed benchmarks for managing environmental and social objectives in project finance in emerging markets); 3. Delivery of significant socioeconomic benefits for the surrounding Lüderitz community through contracts, employment opportunities, skills transfer, training and viable regional (//Karas Region) and local (Lüderitz Town) Corporate Social Responsibility (CSR) projects interventions. 4. The promotion the development of open and constructive partnerships with the all the relevant stakeholders to address environmental concerns and advance necessary protection measures. 5. The advancement of scientific local knowledge base to be applied to the identification and effective resolution of real environmental challenges associated with wind energy development in Namibia. 6. Continuously encouraging Pollution Prevention (P2), Cleaner Production (CP), Waste Minimisation, Reuse and Recycling efforts. 7. Conducting regular internal and external audits of all our operations to ensure adherence to this policy and compliance to all relevant regulations throughout the lifecycle of the proposed 8MW EBay Wind Farm Project development.

9. CONCLUSION AND RECOMMENDATIONS

9.1 Summary of Conclusions

This EMP covers all the stages of the proposed 8MW EBay Wind Farm project lifecycle and is inclusive of the planning, design, preconstruction, construction, operation, rehabilitation and closure / upgrading stages.

9.2 Recommendations

It's hereby recommended that the #Oab Energy (PTY) LTD takes all the necessary steps to implement all the recommendations of this EMP for the successful implementation and completion of the proposed project activities. The following are the recommended actions to be implemented by the #Oab Energy (PTY) LTD as a part of the management of the impacts through implementations of the EMP:

(i) Provide all the required support, human and financial resources, for the effective implementation of the proposed mitigations measures and effective environmental performance monitoring requirements throughout the proposed project life cycle;

(ii) Develop a simplified environmental induction and awareness programme for all the workforce, contractors and sub-contractors;

(iii) Where contracted service providers are likely to cause environmental impacts, these will need to identified and contract agreements need to be developed with costing provisions for environmental liabilities;

(iv) Implement internal and external monitoring of the actions and management strategies developed during the project duration and a final Environmental Monitoring report to be prepared by the Project HSE with the support of the specialists and to be submitted to the regulators and to end the proposed mine project;

(v) Develop and implement a monitoring programme that will fit into the overall company's Environmental Management Systems (EMS) as well as for any future EIA related to the expansion of the current proposed 8MW EBay Wind Farm or development of completely new site.

All the responsibilities to ensure that the recommendations are executed accordingly, rest with the **#Oab Energy (PTY) LTD.** The company must provide all necessary and required resource for the effective implementation of this EMP. It is the responsibility of **#Oab Energy (PTY) LTD to** make sure that all members of the workforce including subcontractors are aware of all the provisions of this EMP and its objectives.

END OF THE EMP