

Submitted to: Osona Sun Energy (Pty) Ltd
Attention: Mr. Israel Shihepo
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REPORT:

COMPLIANCE REPORT FOR THE OSONA 5 MW AC SOLAR PLANT, OTJOZONDJUPA REGION, NAMIBIA

PROJECT NUMBER: ECC-43-495-REP-02-D

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ABBREVIATIONS

Abbreviation	Description
AC	alternate current
CO	carbon monoxide
DEA	Directorate of Environmental Affairs
ECB	electricity control board
ECC	Environmental Compliance Consultancy
ECC	environmental clearance certificate
EHS	environmental health and safety
EIA	environmental impact assessment
EMF	Electromotive Force
EMP	environmental management plan
ha	hectares
HIV/AIDS	human immunodeficiency virus / acquired immunodeficiency syndrome
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
km	kilometres
kV	kilovolts
Ltd.	Limited
m	metre
MEFT	Ministry of Environment, Forestry and Tourism
MSDS	material safety data sheets
MW	megawatts
MVA	megavolt ampere
No	Number
NO _x	nitrogen oxides
Osona	Osona Sun Energy (Pty) Ltd
PCB	Polychlorinated Biphenyls
PM	particulate matter
PPE	personnel protective equipment
Pty	Proprietary
PV	photovoltaic
Reg	Registration
SO ₂	sulphur dioxide
STDs	sexually transmitted diseases
VOC	Volatile Organic Compounds

1 INTRODUCTION

1.1 BACKGROUND INFORMATION

InnoSun Energy Holding (Pty) Ltd (herein referred to as the 'Proponent' or 'InnoSun') is an independent power producer (IPP) that was established in Namibia in 2012. InnoSun is specialised in the development, construction, operation and maintenance of renewable generation plants making use of solar and wind technologies. Currently, InnoSun operates four solar photovoltaic (PV) plants and one wind farm in Namibia. Osona Sun Energy (Pty) Ltd, which is 100% owned by InnoSun is currently operating a 5 MW AC Solar PV plant since 2015 on a privately owned property, Osona Commonage No. 65, Portion 82 located approximately 8.3 km from Okahandja. The land is situated 750 m northeast of Osona NamPower's substation (66/22 kV, 10 MVA), which is 16 km southwest of Osona settlement. The Osona Solar AC Plant comprise of approximately 21,600 solar panels on a Solar AC Plant which occupies a maximum of 16 ha out of 26 ha leased land, thus ensuring a minimum distance with the existing NamPower's substation.

An Environmental Impact Assessment (EIA) was compiled by Risk- Based Solutions cc and submitted in April 2014, to support the application for an environmental clearance certificate for a 5 MW AC solar PV plant. An environmental management plan (EMP) was compiled and approved for the Solar PV plant (Appendix A) in line with the approved environmental clearance certificate, which was renewed by the Ministry of Environment, Forestry and Tourism (MEFT) on 29 January 2021 (ECC-01200) (Appendix B).

Figure 1 provides a locality map of the existing 5 MW AC solar park, located on a portion of farm Osona Commonage 65, portion 82, Otjozondjupa Region.

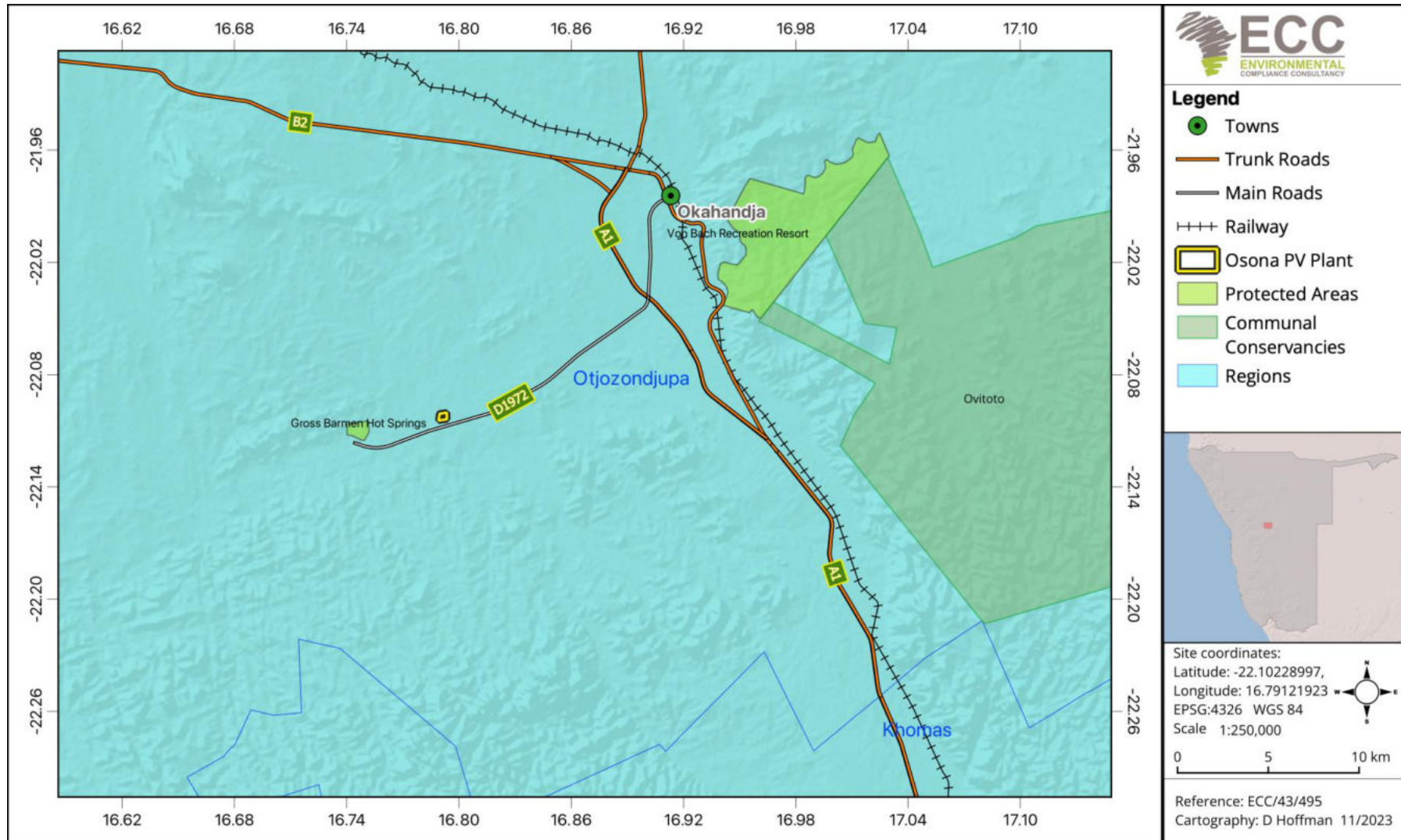


Figure 1 - Locality map of the existing 5 MW AC solar park, Otjozondjupa Region

1.2 PURPOSE OF THIS DOCUMENT

Environmental Compliance Consultancy (ECC) has been engaged by InnoSun, on behalf of Osona Sun Energy (Pty) Ltd, to prepare the application to renew the environmental clearance certificate for the Osona Solar PV plant. The Proponent currently holds a valid environmental clearance certificate for Osona Solar PV plant. As part of this application, an environmental compliance desktop audit and physical audit (site visit) has been undertaken to determine the status of compliance with the EMP from January 2021 to October 2023. The site visit by the environmental control officer was conducted on the 2nd of November 2023.

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 (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 of The Proponent. No member or employee of ECC has, or has had, any shareholding in the Proponent.

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

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2 BACKGROUND TO THE PROJECT

Osona Sun Energy (Pty) Ltd is a Namibian registered company is dedicated in providing renewable power in Namibia. Namibia, characterised by its arid climate and high solar radiation, is ideal for solar energy generation. By investing in solar power, reliance on imported energy is less and the cost of energy is heavily reduced. In the efforts to combat climate change, solar energy is an environmentally friendly approach that lessens the nation's carbon footprint. The project provides an important service ensuring energy security, sustainable and renewable green energy development for Namibia. Osona was granted a Generation License No. G-130-011113-25 by the Electricity Control Board (ECB) within the provisions of the Electricity Act, 2007, (Act No. of 2007).

The EMP is the binding document to which a clearance certificate is granted to a proponent to carry out a proposed activity. This document is subjected to periodically auditing as the activities transition throughout the Project phases. The EMP is audited to monitor the progress of the project and ensure that all measures stipulated in the document are met and effectively adhered to as required by the Department of Environmental Affairs (DEA). In an event where the project activities alter, the EMP is required to be amended accordingly.

2.1 RENEWAL ACTIVITIES

The following is the activities associated with the operational and rehabilitation stages if the solar plant that could potentially have an impact on the biophysical and social environments:

- Operational Phase – Solar energy generation and maintenance (For 25 years)
- Decommissioning and closure phase – decommissioning (After 25 years) / upgrade of facility

3 ENVIRONMENTAL COMPLIANCE AUDIT

3.1 SITE ACTIVITIES

3.1.1 MONITORING AND REPORTING

ECC compiled an operational health, safety and environmental report to demonstrate the compliance of the Proponent and its employees with their EMP during the period of 2021 and 2023. This enables the Proponent to comply to all legal standards by pointing out areas of non-compliance and allowing them to take immediate action on implementing corrective actions. The report is available in Appendix D.

3.1.2 ACTIVITIES CARRIED OUT FOR THE PERIOD OF JANUARY 2023 TO DECEMBER 2022

The following activities were undertaken for the period January 2020 – December 2022:

- Energy generation;
- Solar plant operation and
- Maintenance of solar plant installations, maintenance of equipment shed and overall site maintenance.

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 Osona solar PV plant operations and closure. 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 Osona solar PV plant. 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 **Error! Reference source not found.**)

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 and social 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 issues of non-compliance were identified.

4 EMP COMPLIANCE AUDIT

Table 2 and Table 3 provides an overview of the compliance with EMP requirements as depicted in the approved EMP for the operational and decommissioning phase of the Osona solar PV plant (Appendix A).

Table 2 – Operational phase of EMP compliance audit

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
1) All activities	<ul style="list-style-type: none"> Management and Monitoring 	<ul style="list-style-type: none"> Social and Environmental Performance 	<ul style="list-style-type: none"> Ensure that all aspects related to the EMP are implemented during the operations phase. Adhere to the regulations, rules, and procedures as well as current and future regional and local and use plans. 	<ul style="list-style-type: none"> Compliant 	<ul style="list-style-type: none"> The Proponent has been compliant with relevant national legislation and adhered to the applicable rules and regulations set out in the EMP.
2) All activities	<ul style="list-style-type: none"> Consultation and disclosure 	<ul style="list-style-type: none"> Social and Environmental Performance 	<ul style="list-style-type: none"> Consult with project affected communities in a structure 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). 	<ul style="list-style-type: none"> Compliant 	<ul style="list-style-type: none"> Potentially affected communities have been provided with a platform to address concerns throughout operations.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			<ul style="list-style-type: none"> - Adequately incorporate project affected communities' concerns. 		
3) All activities	<ul style="list-style-type: none"> - Grievance Mechanisms (EP 6) 	<ul style="list-style-type: none"> - Social and Environmental Performance 	<ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - Compliant 	<ul style="list-style-type: none"> - A platform was provided to address concerns from affected communities throughout operations. - No concerns or grievances related to the project have been made during the report period.
4) All activities	<ul style="list-style-type: none"> - Training including awareness and inductions 	<ul style="list-style-type: none"> - Social and Environmental Performance 	<ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - Compliant 	<ul style="list-style-type: none"> - The Proponent provided training and awareness to staff relating to environmental impacts and mitigation measures, the contents of the EMP and

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
					emergency training.
5) All activities	<ul style="list-style-type: none"> - Labour and working conditions 	<ul style="list-style-type: none"> - Social and Environmental Performance 	<ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - Compliant 	<ul style="list-style-type: none"> - Relationships among workers have been managed successfully and Namibian labour regulations have been adhered to. - There have been no complaints recorded during the reporting period.
6) All activities	<ul style="list-style-type: none"> - Employment and procurement opportunities 	<ul style="list-style-type: none"> - Socio-economic 	<ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - Compliant 	<ul style="list-style-type: none"> - The Proponent has adhered to this condition.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
7) All activities	<ul style="list-style-type: none"> Occupational health and safety 	<ul style="list-style-type: none"> Social and Environmental Performance 	<ul style="list-style-type: none"> 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). 	<ul style="list-style-type: none"> Compliant 	<ul style="list-style-type: none"> The National health and safety regulations have been adhered to.
8) All activities	<ul style="list-style-type: none"> Community health and safety 	<ul style="list-style-type: none"> Social and Environmental Performance 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Compliant 	<ul style="list-style-type: none"> No evidence of non-compliance recorded during the reporting period.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
9) All activities	<ul style="list-style-type: none"> – Unauthorised public access 	<ul style="list-style-type: none"> – Community safety 	<ul style="list-style-type: none"> – Use gate on the access road(s) and the entire site must be fenced off. – Solar Plant should not be accessible to anyone from the public. – Notice or information boards relating public safety hazards and emergency contact details should be put up at gate(s) and at the solar plant. – Create a viewpoint area, possibly including an information centre, for the public/tourists. 	<ul style="list-style-type: none"> – Compliant 	<ul style="list-style-type: none"> – The Proponent maintained all required operational plans to ensure that safe status of the area during the reporting period.
10) All activities	<ul style="list-style-type: none"> – Increased traffic/vehicle movement 	<ul style="list-style-type: none"> – Air quality (dust or Particulate Matter (PM) pollution) 	<ul style="list-style-type: none"> – 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). 	<ul style="list-style-type: none"> – Compliant 	<ul style="list-style-type: none"> – The Proponent ensured all road characteristics and dust control measures were maintained during operations.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
11) All activities	<ul style="list-style-type: none"> - Increased traffic/vehicle movement (exhaust from diesel engines) 	<ul style="list-style-type: none"> - Air quality and Occupational and community health and safety 	<ul style="list-style-type: none"> - Fleet owners/operators to implement manufacturer recommended engine maintenance programs (to control vehicle emissions: Carbon Monoxide (CO), Nitrogen Oxide (NO_x), Sulphur Dioxide (SO₂), Particulate Matter (PM) and Volatile Organic Compounds (VOCs)). 	<ul style="list-style-type: none"> - Compliant 	<ul style="list-style-type: none"> - There was no evidence of non-compliance.
12) All activities	<ul style="list-style-type: none"> - Increased traffic/vehicle movement 	<ul style="list-style-type: none"> - Occupational and community safety 	<ul style="list-style-type: none"> - 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 waning signs and flag persons to warn of dangerous conditions. 	<ul style="list-style-type: none"> - Compliant 	<ul style="list-style-type: none"> - The Proponent maintained traffic/ vehicle safety measures throughout the operational phase.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
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.	- Compliant	- Storm water management has been in place. - The Proponent will continue to ensure mitigation measures are in place as per the EMP
14) Operational solar plant	- Solar plant components	- Species injury, disturbance (and potential alteration of behavior), or mortality	- Implement monitoring programmes to study the potential impact(s) of the solar plant on birds and bats.	- Compliant	- The Proponent has maintained conservation measures to vegetation, birds and bats as per the EMP.
	- Hazardous waste management	- Pollution of biophysical environment (soil and water)	- Solar Plant to be equipped with oil absorption and collection systems.	- Compliant	- Waste management of hazardous and non-hazardous material are handled and

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
					contained in a safe manner.
	– Electromagnetic interference (television broadcasts)	– Community and Healthy 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.	– Compliant	– There was no evidence of non-compliance.
15) General solar maintenance plant	– Cleaning of panels 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.	– Compliant	– All water containers and equipment work efficiently, and no leaks were reported.
	– 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	– Compliant	– There was no evidence of non-compliance.
	– 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	– Compliant	– The Proponent maintained all safety procedures during operational activities that

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			<p>fall protection equipment; and rescue of fall-arrested workers).</p> <ul style="list-style-type: none"> - 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. - Material of equivalent strength; replace rope safety belts before signs of aging or fraying of fibres become evident. 		involved working at heights.
			<ul style="list-style-type: none"> - 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. 	- Compliant	- All operational activities are done in accordance with the EMP and will continue as such.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			<ul style="list-style-type: none"> Avoid conducting maintenance during poor weather conditions (especially where there is a risk such as lightning strikes). 		
16) Power transmission and distribution	<ul style="list-style-type: none"> Electric and Magnetic Fields (EMF) 	<ul style="list-style-type: none"> Occupational and community health 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Compliant 	<ul style="list-style-type: none"> All operational activities are done in accordance with the EMP.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
17) Power transmission and distribution	<ul style="list-style-type: none"> - Hazardous materials management (insulating oils/gases (Polychlorinated Biphenyls (PCB) and Sulphur hexafluoride ((SF6 and fuels) 	<ul style="list-style-type: none"> - Pollution of biophysical environment (soil and water) 	<ul style="list-style-type: none"> - 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). - All activities, Hazardous materials management. - Wood preservatives? Needed? 	<ul style="list-style-type: none"> - Compliant 	<ul style="list-style-type: none"> - All measures to reduce Namibian carbon footprint were maintained. - Waste management of hazardous and non-hazardous material are handled and contained in a safe manner.
18) Power transmission and distribution	<ul style="list-style-type: none"> - Live power lines 	<ul style="list-style-type: none"> - Occupational health and safety 	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - Compliant 	<ul style="list-style-type: none"> - The Proponent maintained all occupational health and safety procedures during operational activities.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			<p>versa; the worker is properly isolated and insulated from any other conductive part (live-line work).</p> <ul style="list-style-type: none"> – 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	<ul style="list-style-type: none"> – Working at heights on poles/structures 	<ul style="list-style-type: none"> – Occupational health and safety 	<ul style="list-style-type: none"> – See general solar panel/plant maintenance, working at heights. 	<ul style="list-style-type: none"> – Compliant 	<ul style="list-style-type: none"> – The Proponent maintained all safety procedures during operational activities that involved working at heights.
20) Power transmission and distribution	<ul style="list-style-type: none"> – EMF 	<ul style="list-style-type: none"> – Occupational health and safety 	<ul style="list-style-type: none"> – 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 	<ul style="list-style-type: none"> – Compliant 	<ul style="list-style-type: none"> – All operational activities are done in accordance with the EMP.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			confirmed exposure of levels that exceed those developed by the ICNIRP and Institute of Electrical and Electronics Engineers (IEEE).		
21) Power transmission and distribution	– Electrocutation	– Community health and safety	<ul style="list-style-type: none"> – Use signs, barriers, and education to prevent public contact with potentially dangerous equipment. – Ground conducting objects installed near power lines. 	– Compliant	– No evidence of non-compliance was recorded during the reporting period.
22) All activities	– Water Management	– Resources 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.	– Compliant	– Water conservation practices and programs are in place as per the EMP.
23) All activities	– Hazardous materials management	– Pollution biophysical environment (soil and water)	<ul style="list-style-type: none"> – 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 	– Compliant	– No evidence of non-compliance was recorded during the reporting period.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			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.		
		- Occupational health and safety	<ul style="list-style-type: none"> - 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). 	- Compliant	- The Proponent ensured that staff members are well trained and have the required PPE to maintain health and safety on-site.
24) All activities	- Waste management solid	- Air quality	- Avoid the open burning of waste (whether hazardous, or non-hazardous).	- Compliant	- No evidence of non-compliance has been recorded during the reporting period.
25) All activities	- Waste management non-hazardous and hazardous	- Pollution of biophysical environment	<ul style="list-style-type: none"> - 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: 	- Compliant	- A waste management plan is in place as per the EMP.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			<ul style="list-style-type: none"> - Non-hazardous waste to be transported to and disposed off at an approved waste disposal site. - 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, with prior permission from the site operator / owner. 		
26) All activities	<ul style="list-style-type: none"> - Waste management sanitary 	<ul style="list-style-type: none"> - Polluton biophysical environment 	<ul style="list-style-type: none"> - 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? 	<ul style="list-style-type: none"> - Compliant 	<ul style="list-style-type: none"> - This activity is in accordance with the EMP.
27) All activities	<ul style="list-style-type: none"> - Wastewater management 	<ul style="list-style-type: none"> - Pollution biophysical environment 	<ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - Compliant 	<ul style="list-style-type: none"> - No evidence of non-compliance was recorded during the reporting period.

Table 3 - Decommissioning and closure phase EMP audit

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
1) Decommissioning and closure	<ul style="list-style-type: none"> - Decommissioning 	<ul style="list-style-type: none"> - Social and Environmental Performance and Visual 	<ul style="list-style-type: none"> - Isolate (electrically) the solar plant from the substation. - 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 	<ul style="list-style-type: none"> - Non-applicable 	<ul style="list-style-type: none"> - The Proponent did not carry out activities that triggered the need for this component of the EMP during the reporting period.
2) All activities	<ul style="list-style-type: none"> - Consultation and disclosure 	<ul style="list-style-type: none"> - Social and Environmental Performance 	<ul style="list-style-type: none"> - Consult with project affected communities in a structure 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. 	<ul style="list-style-type: none"> - Non-applicable 	<ul style="list-style-type: none"> - This aspect was not triggered during the reporting period; however, it will be applied should the Project be decommissioned.

5 CONCLUSION

No complaints were recorded during the reporting period. 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. Further recommendation includes annual operational health, safety and environmental reports to be continually updated throughout operations by an independent environmental practitioner.

APPENDIX A – ENVIRONMENTAL MANAGEMENT PLAN

APPENDIX B – CURRENT ENVIRONMENTAL CLEARANCE CERTIFICATE

ECC –	01200	Serial: 4iFSmZ1200
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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

Osona Sun Energy (Pty) Ltd
P. O. Box 27527, Windhoek

TO UNDERTAKE THE FOLLOWING LISTED ACTIVITY

Operation of the existing 5MW AC solar park, located on a portion of farm Osona Commonage 65, portion 82 near Okahandja, Otjozondjupa Region

Issued on the date: **2021-01-29**

Expires on this date: **2024-01-29**

(See conditions printed over leaf)




ENVIRONMENTAL COMMISSIONER
 REPUBLIC OF NAMIBIA



This certificate is printed without erasures or alterations.

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 national heritage guidelines and regulations 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.

APPENDIX C – EMP COMPLIANCE SITE VISIT CHECKLIST (2023)

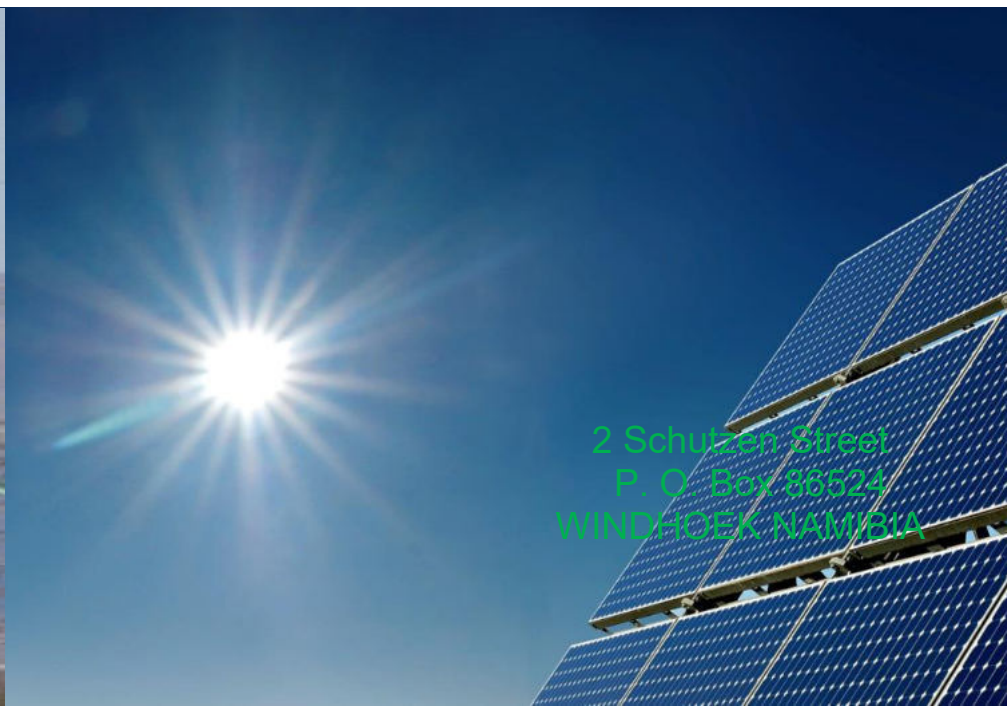
APPENDIX D – OPERATIONAL HEALTH, SAFETY AND ENVIRONMENTAL REPORTS 2020 - 2022

Osona Sun Energy (PTY) TD

**Final Environmental Management
Plan (EMP) (Vol. 3 of 3) Report for
the Proposed 4.5 MW AC Osona
PV Solar Energy Project, Osona
Commonage 65, Portion 82,
Okahandja, OTJOZONDJUPA
REGION, CENTRAL NAMIBIA**



APRIL 2014



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

Statement of Qualification of the Environmental Assessment Practitioner (EAP)

Dr. Sindila Mwiya has been the Environmental Assessment Practitioner (EAP) for this project in accordance with the provisions of the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 under the Environmental Management Act (EMA), 2007, Act No. 7 of 2007. Dr. Sindila Mwiya is highly qualified, with more than ten years of professional experience in mining, petroleum, property development, applied environmental management, cleaner production, environmental management, geoenvironmental engineering and geotechnical engineering fields.

He has worked 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 – Cleaner Production Component) and Chief Geologist for Engineering and Environment 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, management, and for development policies, plans, programmes and projects financed by governments, private investors and donor organisations. He has provided extensive technical support and has played a significant role in the development of the Namibian Environmental Management Act, 2007, (Act No. 7 of 2007) as well as Environmental Impact Regulations, 2012 that came in force in February 2012.

Among his academic achievements, Dr Sindila Mwiya is a holder of a PhD (Geoenvironmental Engineering - *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, APRIL 2014

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EXECUTIVE SUMMARY

1. Introduction

Osona Sun Energy (PTY) LTD is in the process of developing a 4.5 MW AC solar energy generation facility on Farm Osona Commonage 65, Portion 82 near Okahandja in the Otjozondjupa Region. The proposed site location is approximately 15 km southeast of Okahandja in close proximity to the Osona Distribution Station. This Environmental Management Plan (EMP) Report Vol. 3 of 3 provides a detailed plan of actions required in the implementation of the mitigation measures with respect to the likely impacts as identified and defined in the EIA Vol. 2 of 3 Report.

2. The EMP

The Environmental Management Plan, described in this report, is based on the findings as outlined in the Scoping Report (Vol. 1 of 3) and EIA (Vol. 2 of 3). Osona Sun Energy (PTY) LTD must incorporate the EMP in the Environmental Management System (EMS) of the company in line with the Environmental Policy of the company. This EMP report incorporates the provisions of the Electricity Act, 2007, (Act No. 4 of 2007), Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1995) and the Environmental Management Act, 2007, (Act No. 7 of 2007) as well as the Environmental Policy of the Osona Sun Energy (PTY) LTD.

3. Summary of the EMP

Based on the assessment of both negative and positive impacts undertaken for the proposed 4.5 MW AC solar PV energy project, a number of positive and negative impacts have been identified. Overall, positive impacts of the proposed project development outweigh the 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 following development stages:

- (i) Preconstruction;
- (ii) Construction;
- (iii) Operational;
- (iv) Decommissioning and Closure.

4. Osona Sun Energy Actions and Responsibilities

The following are the recommended actions to be implemented by the Osona Sun Energy (PTY) LTD as a part of the management of the impacts through implementations of this EMP:

- (i) Contract an Environmental Control Officer / External Consultant / suitable in-house resources person to lead and further develop, implement and promote environmental culture through awareness raising of the workforce, contractors and sub-contractors in the field during the whole duration of the proposed project;

- (ii) Provide with other support, human and financial resources, for the implementation of the proposed mitigations and effective environmental management during the planned project life cycle;
- (iii) Develop a simplified environmental induction and awareness programme for all the workforce, contractors and sub-contractors as may be required;
- (iv) Where contracted service providers are likely to cause environmental impacts, these will need to be identified and contract agreements need to be developed with costing provisions for environmental liabilities;
- (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 solar park or development of completely new site.

All the responsibilities to ensure that the recommendations are executed accordingly, rest with the **Osona Sun Energy (PTY) LTD**. The company must provide all appropriate resource requirements for the implementation of this EMP. It is the responsibility of **Osona Sun Energy (PTY) LTD** to make sure that all members of the workforce including subcontractors are aware of the EMP and its objectives. It is hereby recommended that the Osona Sun Energy (PTY) LTD take all the necessary steps to implement all the recommendations of this EMP for the successful execution of the preconstruction, construction, operational and decommissioning activities of the proposed 4.5 MW AC Solar PV energy project.

1. BACKGROUND

1.1 Introduction

Osona Sun Energy (PTY) LTD is in the process of developing a 4.5 MW AC solar energy generation facility on Farm Osona Commonage 65, Portion 82 near Okahandja in the Otjozondjupa Region. The company has been granted a Generation License No. G-130-01111-25 by the Electricity Control Board (ECB) within the provisions of the Electricity Act, 2007, (Act No. 4 of 2007). The company has also signed a Power Purchase Agreement (PPA) with the national power utility company, NamPower. The proposed solar energy project is important to the short- and long-term sustainability developmental goals of Namibia and is in line with the *Vision 2030* plan set out by Government in 2004 for boosting the economic and social performance of the country in the coming decades.

1.2 Environmental Regulatory Requirements

The proposed 4.5 MW AC Solar PV Project exceeds the 1 MW energy projects that can be undertaken without a full Environmental Assessment. In accordance with the provisions of the Electricity Act, 2007, (Act No. 4 of 2007), Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1995) and the Environmental Management Act, 2007, (Act No. 7 of 2007), international best practices such as the Equator Principles a full Environmental Impact Assessment (EIA) and development of an Environmental Management Plan (EMP) must be undertaken. The Scoping Vol. 1 of 3, this Environmental Impact Assessment (EIA) Vol. 2 of 3) and the Environmental Management Plan (EMP) Vol. 3 of 3 reports, all form part of the feasibility study for the proposed 4.5 MW AC energy project. In fulfilment of the regulatory requirements, Osona Sun Energy (PTY) LTD Namibia appointed Risk-Based Solutions (RBS) CC, as the environmental consultants for the proposed solar energy project. The Environmental Assessment has been led by Dr. Sindila Mwiya as the Environmental Assessment Practitioner (EAP).

1.3 Summary of the Proposed Project

The proposed 4.5 MW AC Osona Solar Park is located on Farm Osona Commonage 65, Portion 82 (Figs. 1.1 -1.3). This portion of land is situated 1 km east of Osona NamPower's Substation (66/22 kV, 10 MVA) and is only 2 km east of Okahandja. The total land size is 1528 ha and a total of 30 ha have been surveyed. In minimising the proposed development footprint, solar park will cover a maximum of 16 Ha inclusive of the fenced and road access areas. Details about the proposed project are outlined in Annexes 1: Environmental Scoping Report Vol. 1 of 3. The proposed location responds to the following key criteria when developing a solar park:

- ✓ A high solar irradiation level which results in high energy yields;
- ✓ Proximity to the grid allows efficient and safe integration of renewable energy;
- ✓ Few land availability constraints;
- ✓ Limited terrain irregularities and reduced slopes;
- ✓ Lack of relief and building shadowing that could reduce energy yield.

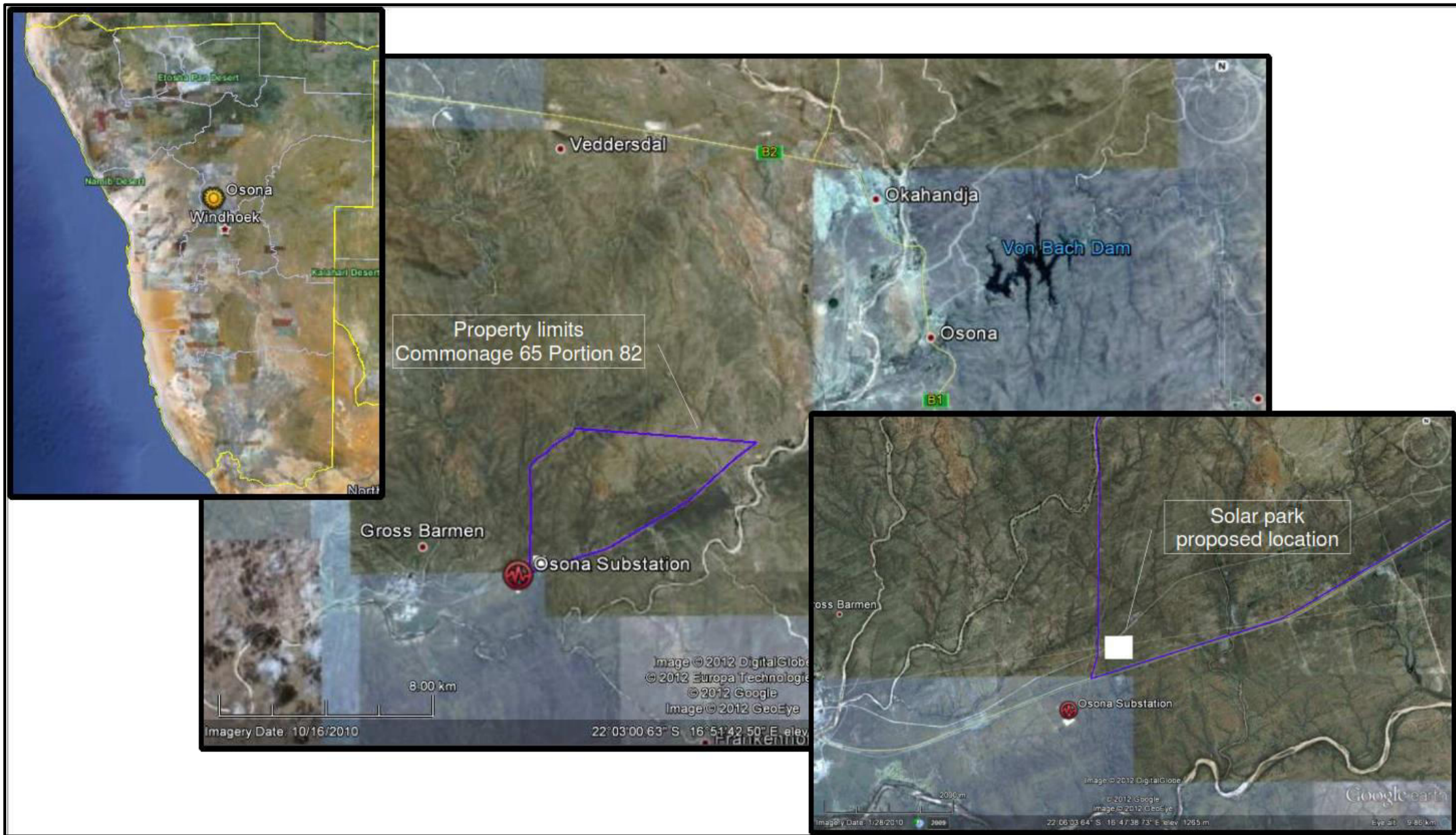


Figure 1.2: Overview of the location of the proposed 4.5 MW AC Osona Solar PV Park (Source: <https://maps.google.com.na>).



Figure 1.3: Detailed location of the proposed 4.5 MW AC Osona Solar PV Park (Source: <https://maps.google.com.na>).

2. OBJECTIVES OF THE EMP

2.1 Summary Objectives

The Environmental Management Plan (EMP) provides a detailed plan of actions required in the implementation of the mitigation measures for minimising and maximising the identified negative and positive impacts respectively. The EMP also provides the management actions with roles and responsibilities requirements for the successful implementation of environmental management strategies by the Osona Sun Energy (PTY) LTD.

2.2 EMP Management Linkages

The Environmental Management Plan, described in this Report, is based on the findings as outlined in the Environmental Impact Assessment Report. The EMP must be continuously updated during the implementation of the proposed project. Within the framework of the existing Environmental Policy of Osona Sun Energy (PTY) LTD, the EMP is to be incorporated in the Environmental Management System (EMS) of the company. This EMP incorporates the Environmental Policy of Osona Sun Energy (PTY) LTD, Namibian Environmental Regulations and Policies as well as international environmental best practices in solar PV energy related development and operational activities.

2.3 The EMP

An Environmental Management Plan (EMP) is one of the most important outputs of the environmental assessment process and is the synthesis of all the proposed mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. The aim of the EMP is to assist Osona Sun Energy (PTY) LTD Energy (PTY) LTD and their Contractors to ensure that the day-to-day operations are carried out in an environmentally responsible manner, thereby preventing or minimizing the negative effects and maximizing the positive effects of the project-related activities.

It's highly imperative that the organisational structure of Osona Sun Energy (PTY) LTD that defines the roles, responsibilities and authority to implement the provisions of this EMP. The summary of such a structure is shown in Fig. 2.1. Provision has also been made, on an ongoing basis, for sufficient management support and human and financial resources. Separate EMPs have been prepared for the project: an EMP for the upgrade and/or construction, including rehabilitation, of access road(s) to and from the proposed solar park development; and EMPs for the Construction, Operations and Decommissioning/Closure Phases of the proposed solar park development.

The EMPs are presented as comprehensive matrices: for each **Activity/Process** and related **Aspects** (defined by the International Organization for Standardization ISO 14001:2004 as *element of an organization's activities or products or services that can interact with the environment; environment is defined as surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelation*) and **Impacts** (*any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects*), **Management Actions** required to address the impacts arising directly and indirectly from the various aspects of the proposed solar park project, with **Responsible Persons** and **Timing** for each, are listed.

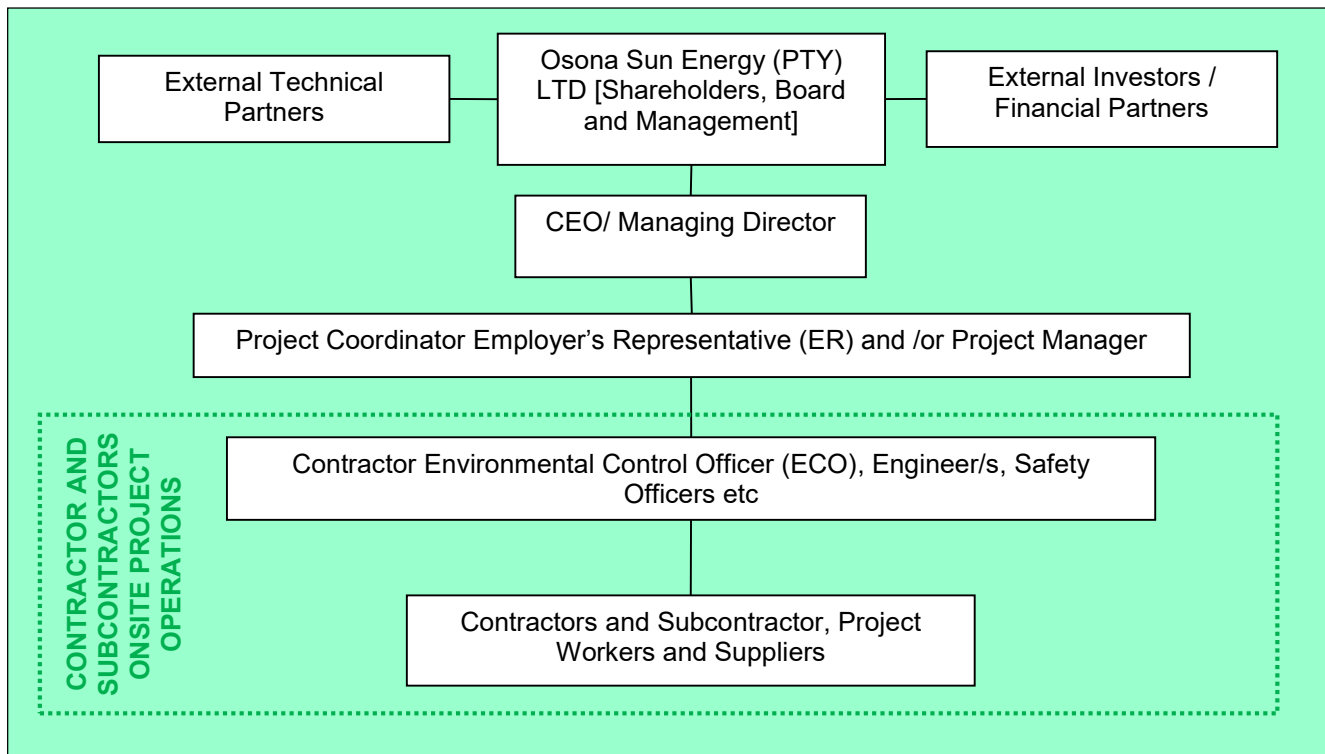


Figure 2.1: Osona Sun Energy (PTY) LTD organisational structure for the proposed solar PV project with respect to the implementation of the EMP.

2.4 Summary of Impacts

The following activities associated with the preconstruction, construction, operation, and decommissioning of the proposed Osona solar power plant have been fully assessed in the EIA as sources of potential adverse impacts to various local, regional and national resources where they exist:

- ✓ Access roads preparation (Impact: *Localised high*, Significant: *moderate*);
- ✓ Site clearing and preparation (Impact: *Localised high*, Significant: *moderate*) ;
- ✓ Fencing (Impact: Localised high, Significant: moderate);
- ✓ Soil / Ground preparation (Impact: Localised high, Significant: moderate);
- ✓ Underground cable trenching (Impact: Localised high, Significant: moderate);
- ✓ Power line connectivity (Impact: Localised high, Significant: moderate);
- ✓ Foundation (Impact: Localised high, Significant: moderate);
- ✓ Posts driving works (Impact: *Localised high*, Significant: *moderate*);
- ✓ Structure mounting (Impact: Localised low, Significant: minor);
- ✓ Module clamping (Impact: Localised low, Significant: minor);

- ✓ DC wiring and electrical equipment installation (Impact: *Localised low* Significant: *minor*);
- ✓ AC electrical works (Impact: *Localised low*, Significant: *minor*);
- ✓ Installation of Communication Monitoring (Impact: *Localised low*, Significant: *minor*);
- ✓ Commissioning (Impact: *Localised very low*, Significant: Negligible);
- ✓ Soar Energy Generation and Maintenance (for 25 Years) (Impacts: *Localised very low*, Significant: *Negligible*);
- ✓ Decommissioning (After 25 Years) / Upgrade of Facility (Impacts: *Localised very low*, Significant: *Negligible*).

The following is the summary of the key issues that have been considered in the EIA and EMP Processes with respect to the activities associated with the preconstruction, construction, operation and decommissioning stages of the proposed 4.5 MW AC solar park near Okahandja:

- ✓ Land Use Impacts (Impact: *Very low*, Significant: *Negligible*);
- ✓ Impacts to Soil and Water Resources (Impact: *Very low*, Significant: *Negligible*);
- ✓ Ecological Impacts (Impact: *Localised low*, Significant: *Negligible*);
- ✓ Landscape and Visual Change (Impact: *Localised low*, Significant: *Negligible*);
- ✓ Light Reflection (Impact: *Very low*, Significant: *Negligible*);
- ✓ Ground Conditions Contamination (Impact: *Localised low*, Significant: *Negligible*);
- ✓ Noise and Vibration (Impact: *Localised low*, Significant: *Negligible*);
- ✓ Air Quality (Impact: *Localised low*, Significant: *Negligible*);
- ✓ Electrical Safety (Impact: *Localised low*, Significant: *Negligible*);
- ✓ Security Fencing (Impact: *Localised low*, Significant: *Negligible*);
- ✓ Cultural and Paleontological Resources (Impact: *Very low*, Significant: *Negligible*);
- ✓ Socioeconomic: Potential Employment, Knowledge Creation and Awareness Raising (Impact: *Very High*, Significant: *Major*).

3. PRECONSTRUCTION AND CONSTRUCTION EMP

3.1 Introduction

This section contains the Environmental Management Plan (EMP) for the preconstruction and construction related activities. The main activities of the preconstruction stage will be the bush clearing, upgrading and/or construction, including rehabilitation, of access road (s) to and from the proposed solar park development areas. The construction phase will cover the manufacture / building of the required structures such as the solar panels, foundation excavation, steel works and concrete casting. The EMP makes provisions for management of a wider array of preconstruction and construction related activities. Table 3.1 outlines the EMP framework for the preconstruction and construction related activities. Always, adhere to the regulations, rules, procedures, current and future regional and local land use plans.

3.2 Roles and Responsibilities

3.2.1 Employer's Representative (ER) / Project Manager

Osona Sun Energy (PTY) LTD is to appoint an **Employer's Representative (ER)** in order to oversee the contractors and subcontractors operations with the following responsibilities:

- Act as the Employer's (Osona Sun Energy (PTY) LTD) on-site project manager and implementing agent overseeing the contractor subcontractors;
- Ensure that the Employer's responsibilities are executed in compliance with the relevant contract conditions and provisions;
- Ensure that all the necessary environmental authorisations and permits have been obtained before project implementation;
- Assist the contractor and subcontractors as may be required in finding environmentally responsible solutions to challenges that may arise;
- Should the ER be of the opinion that a serious threat to, or impact on the environment may be caused by the construction operations, he/she may stop work and the Employer must be informed of the reasons for the stoppage as soon as possible;
- The ER 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 ER can have person(s) and/or equipment removed from the site or work suspended until the matter is remedied;
- Report to the Employer on the implementation of this EMP on site;
- Maintain open and direct lines of communication between the Employer, Contractor, subcontractors and Interested and Affected Parties (I&APs) with regards to environmental matters; and
- Attend regular site meetings and inspections.

3.2.1 Contractor and Subcontractor

The responsibilities of the **Contractor** and **Subcontractors** include:

- Comply with the relevant contractual obligations legislation and the provisions of this EMP for the upgrade/construction of access road(s);
- Preparation and submission to Osona Sun Energy (PTY) LTD of the Environmental Monitoring Reports:
- Ensure adequate environmental awareness training for senior site personnel;
- Environmental awareness presentations (inductions) to be given to all site personnel prior to work commencement and the following topics, at least but not limited to, should be covered:
 - The importance of complying with the provisions of the EMP, 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 activities undertaken; and
- Attend regular site meetings and environmental inspections.

Table 3.1: Environmental Management Plan for Construction Stage.

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
1) All activities	<ul style="list-style-type: none"> Management and Monitoring 	<ul style="list-style-type: none"> Social and Environmental Performance 	<ul style="list-style-type: none"> Ensure that all aspects related to the EMP are implemented during the preconstruction and 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 solar park. 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD Contractor Subcontractors 	Ongoing and Throughout the project life cycle
2) All activities	<ul style="list-style-type: none"> Consultation and Disclosure 	<ul style="list-style-type: none"> Social and Environmental Performance 	<ul style="list-style-type: none"> Maintain open and direct lines of communication between the Employer (Osona Sun Energy (PTY) LTD, Contractor and I&APs with regards to environmental matters. Consult with project affected communities in a structured and culturally appropriate manner. Consultation should be "free" (<i>of external manipulation, interference or coercion, and intimidation</i>), "prior" (<i>timely disclosure of information</i>) and "informed" (<i>relevant, understandable and accessible information</i>). Adequately incorporate project affected communities' concerns. 		
3) All activities	<ul style="list-style-type: none"> Grievance Mechanism 	<ul style="list-style-type: none"> Social and Environmental Performance 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Training including awareness and inductions 	<ul style="list-style-type: none"> Social and Environmental Performance 	<ul style="list-style-type: none"> Train employees and contractors in matters related to the project's social and environmental performance, Namibia's regulatory requirements. Ensure adequate environmental awareness training for all senior site personnel. Give environmental induction presentations to all site personnel prior to work commencement. 		

Table 3.1: Cont.

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
5) All activities	<ul style="list-style-type: none"> Labour and Working Conditions 	<ul style="list-style-type: none"> Social and Environmental Performance 	<ul style="list-style-type: none"> 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 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. 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD Contractor 	<ul style="list-style-type: none"> Ongoing
6) All activities	<ul style="list-style-type: none"> Employment and procurement opportunities 	<ul style="list-style-type: none"> Socio-economic 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Subcontractors 	<ul style="list-style-type: none"> Ongoing
7) All activities	<ul style="list-style-type: none"> Occupational Health and Safety 	<ul style="list-style-type: none"> Social and Environmental Performance 	<ul style="list-style-type: none"> 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). 		<ul style="list-style-type: none"> Pre-construction Ongoing
8) All activities	<ul style="list-style-type: none"> Community Health and Safety 	<ul style="list-style-type: none"> Social and Environmental Performance 	<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> Ongoing

Table 3.1: Cont.

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
9) All activities	<ul style="list-style-type: none"> Unauthorized public access 	<ul style="list-style-type: none"> Community Safety 	<ul style="list-style-type: none"> Use gates on the access road(s) and the entire solar park site must be fenced off. Solar Park should not be accessible to anyone from the public. Notice or information boards relating public safety hazards and emergency contact details should be put up at the gate(s) and at the solar park. Create a viewpoint area, possibly including an information centre, for the public/tourists if required. 		<ul style="list-style-type: none"> Pre- and during construction
10) All activities	<ul style="list-style-type: none"> Construction of solar park 	<ul style="list-style-type: none"> Change in land use from "conservation" to "industrial". 	<ul style="list-style-type: none"> 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; Adhere to the regulations, rules, procedures, current and future regional and local land use plans. 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD 	<ul style="list-style-type: none"> During construction
11) Solar park layout planning	<ul style="list-style-type: none"> Solar park layout 	<ul style="list-style-type: none"> Visual 	<ul style="list-style-type: none"> Minimize the presence of secondary structures: minimize number of access roads, and bury intra-project power lines. Adhere to the regulations, rules, procedures, current and future regional and local land use plans. 	<ul style="list-style-type: none"> Contractor Subcontractors 	<ul style="list-style-type: none"> Pre-construction
12) Solar park sitting and layout	<ul style="list-style-type: none"> Electromagnetic interference (aviation radar and telecommunications) 	<ul style="list-style-type: none"> Community Health and Safety 	<ul style="list-style-type: none"> <u>Aviation radar:</u> <ul style="list-style-type: none"> Consider the designs of the components; Investigate the use of radar-absorbent surface treatments (to minimize electrical disturbance); Consider the geometric layout and location of the solar park in relation to air traffic routes; Consider radar design alterations, i.e. relocation of the affected radar, radar blanking of the affected area, or the use of alternative radar systems to cover the affected area. <u>Telecommunication systems:</u> <ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> Pre-construction

Table 3.1: *Cont.*

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
Solar park sitting and layout (<i>Cont.</i>)			<ul style="list-style-type: none"> • <u>Television broadcasts:</u> <ul style="list-style-type: none"> ○ Site the solar park away from the line-of-sight of the broadcaster transmitter; ○ Make use of more non-metallic material in the construction of the solar park 	<ul style="list-style-type: none"> • Osona Sun Energy (PTY) LTD • Contractor • Subcontractors 	<ul style="list-style-type: none"> • Pre-constructi on
	<ul style="list-style-type: none"> • Configuration of solar park 	<ul style="list-style-type: none"> • Species (birds and bats) injury, disturbance (and potential alteration of behaviour), or mortality. 	<ul style="list-style-type: none"> • Solar park panels to be grouped (rather than spreading the panels widely). 		<ul style="list-style-type: none"> • Pre-constructi on
	<ul style="list-style-type: none"> • Aircraft navigation safety (potential collision or the alteration of flight paths) 	<ul style="list-style-type: none"> • Community Safety 	<ul style="list-style-type: none"> • Consult the air traffic authorities so that the installation of the solar park will conform to air traffic safety regulations regarding solar park if any regulations exists. 		<ul style="list-style-type: none"> • Pre-constructi on
13) Solar park design specifications	<ul style="list-style-type: none"> • Solar park appearance 	<ul style="list-style-type: none"> • Visual 	<ul style="list-style-type: none"> • Solar park, height and colour must be kept uniform; • Solar park installation may be painted with a non-reflective coating to avoid high reflections from the park; • Avoid using graphics or lettering on the solar park installation. 		<ul style="list-style-type: none"> • Pre-constructi on
14) All activities	<ul style="list-style-type: none"> • Construction camp • I assumed that it will only be a (tented) temporary camp and that no buildings, etc. will be constructed 	<ul style="list-style-type: none"> • Disturbance of fauna and flora and habitat alteration 	<ul style="list-style-type: none"> • The planning and design to ensure minimum impact to the environment. • No trees or 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 driving will be allowed. • No trespassing on adjoining properties is allowed and no livestock, game or vegetation are to be interfered with. 		<ul style="list-style-type: none"> • Pre-constructi on • Ongoing

Table 3.1: *Cont.*

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
<p>All activities (14) <i>Cont.</i></p>		<ul style="list-style-type: none"> • Pollution of biophysical environment (air, soil and water) 	<ul style="list-style-type: none"> • No fires will be allowed, unless a specific area has been identified and set aside by the ER for the cooking of food. • 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. • 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 of at least once a week. 	<ul style="list-style-type: none"> • Osona Sun Energy (PTY) LTD • Contractor • Subcontractors 	<ul style="list-style-type: none"> • Ongoing
		<ul style="list-style-type: none"> • Occupational Health and Safety 	<ul style="list-style-type: none"> • 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 regarding electricity supply. • Supply potable water for human consumption and other domestic uses; conduct chemical testing of water samples on a monthly basis (if applicable). • 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. 		<ul style="list-style-type: none"> • Ongoing

Table 3.1: Cont.

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
15) Site preparation	<ul style="list-style-type: none"> Clearing of areas for construction 	<ul style="list-style-type: none"> Disturbance of fauna and flora and habitat alteration 	<ul style="list-style-type: none"> Restrict construction 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. 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. 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD Contractor Subcontractors 	<ul style="list-style-type: none"> Ongoing
		<ul style="list-style-type: none"> Soil erosion 	<ul style="list-style-type: none"> <u>Sediment mobilization and transport</u>: reduce or prevent soil erosion (schedule activities to avoid heavy rainfall periods; contour and minimize length and steepness of slopes; mulching to stabilize exposed areas; re-vegetate areas promptly; and design channels and ditches for post-construction flow). <u>Structural (slope) stability</u>: provide effective short-term measures for slope stabilization, sediment and subsidence control until long-term measures (during operations) can be implemented; provide adequate drainage systems to minimize and control infiltration. 		<ul style="list-style-type: none"> Ongoing During construction
		<ul style="list-style-type: none"> Possible loss of the seed bank in the topsoil 	<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> Pre- and during construction
16) Infrastructure construction	<ul style="list-style-type: none"> Increased traffic, presence and movement of machinery, and the establishment of soil stockpiles 	<ul style="list-style-type: none"> Air quality (dust or Particulate Matter (PM) pollution) 	<ul style="list-style-type: none"> 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 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. 		<ul style="list-style-type: none"> Ongoing

Table 3.1: *Cont.*

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
Infrastructure construction (16) <i>cont.</i>	<ul style="list-style-type: none"> Increased traffic/vehicle movement 	<ul style="list-style-type: none"> Air quality (dust or Particulate Matter (PM) pollution) 	<ul style="list-style-type: none"> 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). 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD Contractor Subcontractors 	<ul style="list-style-type: none"> Ongoing
	<ul style="list-style-type: none"> Increased traffic, presence and movement of machinery (exhaust from diesel engines) 	<ul style="list-style-type: none"> Air quality & Occupational Health and Safety 	<ul style="list-style-type: none"> Fleet owners/operators to implement manufacturer recommended engine maintenance programs (to control vehicle emissions: Carbon Monoxide (CO), Nitrogen Oxide (NO_x), Sulphur Dioxide (SO₂), Particulate Matter (PM) and Volatile Organic Compounds (VOCs)). 		<ul style="list-style-type: none"> Ongoing
	<ul style="list-style-type: none"> Presence of machinery, construction workers, infrastructure (solar panels and transmission towers) and associated equipment 	<ul style="list-style-type: none"> Visual and noise 	<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> Pre- and during construction
	<ul style="list-style-type: none"> Increased traffic, movement of machinery 	<ul style="list-style-type: none"> Occupational and Community Safety 	<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> Ongoing
	<ul style="list-style-type: none"> Solar panels foundations 	<ul style="list-style-type: none"> Occupational Safety 	<ul style="list-style-type: none"> Ensure that all excavations are properly performed and in accordance with Occupational, Health and Safety (OH&S) regulations. Ensure that the handling of concrete follow health and safety precautions (as per Material Safety Data Sheets (MSDS)). 		<ul style="list-style-type: none"> During construction

Table 3.1: Cont.

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
17) Assembly of solar park components	<ul style="list-style-type: none"> Working heights at 	<ul style="list-style-type: none"> Occupational Safety 	<ul style="list-style-type: none"> 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 solar park 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 solar park 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). 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD Contractor Subcontractors 	<ul style="list-style-type: none"> During construction

Table 3.1: Cont.

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
18) Power transmission and distribution	<ul style="list-style-type: none"> Underground cables (Solar park to transformer station; transmission lines) 	<ul style="list-style-type: none"> Habitat alteration & Occupational and Community Health 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD Contractor Subcontractors 	<ul style="list-style-type: none"> Pre- and during construction
19) Power transmission and distribution	<ul style="list-style-type: none"> Habitat alteration 	<ul style="list-style-type: none"> Bird and bat collisions and electrocutions 	<ul style="list-style-type: none"> 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). 		<ul style="list-style-type: none"> Pre- and during construction
20) Power transmission and distribution	<ul style="list-style-type: none"> Electric and Magnetic Fields (EMF) 	<ul style="list-style-type: none"> Occupational and Community Health 	<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> Pre- and during construction
21) Power transmission and distribution	<ul style="list-style-type: none"> Hazardous materials management 	<ul style="list-style-type: none"> Pollution of biophysical environment (soil and water) 	<ul style="list-style-type: none"> Minimize the use of SF6 (greenhouse gas). The use of PCBs has largely been discontinued (see <i>IFC EHS Guidelines for Electric Power Transmission and Distribution</i> for the management of PCBs should it be used). All activities, Hazardous materials management. Wood preservatives? Needed? 		<ul style="list-style-type: none"> Ongoing

Table 3.1: Cont.

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
22) Power transmission and distribution	<ul style="list-style-type: none"> Live power lines 	<ul style="list-style-type: none"> Occupational Health and Safety 	<ul style="list-style-type: none"> 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 <i>vice versa</i>; 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. 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD Contractor Subcontractors 	<ul style="list-style-type: none"> Ongoing
23) Power transmission and distribution	<ul style="list-style-type: none"> Working at heights on poles/structures 	<ul style="list-style-type: none"> Occupational Health and Safety 	<ul style="list-style-type: none"> See Assembly of solar park components, working at heights. 		<ul style="list-style-type: none"> Ongoing
24) Power transmission and distribution	<ul style="list-style-type: none"> EMF 	<ul style="list-style-type: none"> Occupational Health and Safety 	<ul style="list-style-type: none"> 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). 		<ul style="list-style-type: none"> Ongoing

Table 3.1: Cont.

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
25) Power transmission and distribution	<ul style="list-style-type: none"> Electrocution 	<ul style="list-style-type: none"> Community Health and Safety 	<ul style="list-style-type: none"> Use signs, barriers, and education to prevent public contact with potentially dangerous equipment. Ground conducting objects installed near power lines. 		<ul style="list-style-type: none"> Ongoing
26) All activities	<ul style="list-style-type: none"> Water Management 	<ul style="list-style-type: none"> Resource use / depletion of natural resources 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD 	<ul style="list-style-type: none"> Pre- and during construction
27) All activities	<ul style="list-style-type: none"> Hazardous materials management Maybe this can come out; important, but more to do with overall hazardous materials management 	<ul style="list-style-type: none"> Social and Environmental Performance 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Contractor Subcontractors 	<ul style="list-style-type: none"> Pre- and during construction

Table 3.1: Cont.

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
28) All activities	<ul style="list-style-type: none"> Hazardous materials management (of mainly fuels and lubricating and hydraulic oils for construction and operating vehicles and equipment; substation transformer insulating oil; other chemicals used during solar park construction, including concrete admixture chemicals such as surface active agents, plasticizers and form release oil (mineral); equipment coolants and maintenance chemicals such as solvent cleaners and paints) 	<ul style="list-style-type: none"> Pollution of biophysical environment (soil and water) 	<ul style="list-style-type: none"> Implement prevention and control measures for the use, handling and storage of hazardous materials: <ul style="list-style-type: none"> <u>Materials transfer</u>: regularly inspect, maintain and repair fittings/pipes/hoses; make use of drip trays/other drip containment measures at connection/possible overflow points; <u>Overfill protection</u>: 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; <u>Reaction, fire, and explosion prevention</u>: 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. 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. 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD Contractor Subcontractors 	<ul style="list-style-type: none"> Pre- and during construction

Table 3.1: Cont.

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
29) All activities	<ul style="list-style-type: none"> Hazardous materials management 	<ul style="list-style-type: none"> Occupational Health and Safety 	<ul style="list-style-type: none"> 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). 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD Contractor Subcontractors 	<ul style="list-style-type: none"> Ongoing
30) All activities	<ul style="list-style-type: none"> Waste management: solid 	<ul style="list-style-type: none"> Air quality 	<ul style="list-style-type: none"> Avoid the open burning of waste (whether hazardous, or non-hazardous). 		<ul style="list-style-type: none"> Ongoing
31) All activities	<ul style="list-style-type: none"> Waste management: non-hazardous and hazardous 	<ul style="list-style-type: none"> Pollution of biophysical environment 	<ul style="list-style-type: none"> 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 at an approved waste disposal site. 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. 		<ul style="list-style-type: none"> Pre-construction Ongoing
32) All activities	<ul style="list-style-type: none"> Waste management: sanitary 	<ul style="list-style-type: none"> Pollution of biophysical environment 	<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> Ongoing

Table 3.1: *Cont.*

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
33) All activities	<ul style="list-style-type: none"> Waste water management - waste water treatment 	<ul style="list-style-type: none"> Pollution of biophysical environment 	<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> Ongoing
34) All activities	<ul style="list-style-type: none"> Waste water management - storm water management 	<ul style="list-style-type: none"> Soil erosion 	<ul style="list-style-type: none"> Regular inspection and maintenance of permanent erosion and runoff control features. 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD 	<ul style="list-style-type: none"> Ongoing
35) Rehabilitation	<ul style="list-style-type: none"> Rehabilitation 	<ul style="list-style-type: none"> Social and Environmental Performance 	<ul style="list-style-type: none"> Remove all equipment, waste, temporary structures, etc. from the camp and work sites. 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; Adhere to the regulations, rules, procedures, current and future regional and local land use plans. 	<ul style="list-style-type: none"> Contractor Subcontractors 	<ul style="list-style-type: none"> Rehabilitation

4. OPERATIONAL STAGE

4.1 Introduction

Once the construction and installation of the solar park has been completed, only specialised and maintenance workforce will be required to run and maintain the solar park. Osona Sun 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 4.5 MW AC solar park facility. A Project / Site / Health Safety and Environmental (HSE) Manager / Engineer shall be appointed by Osona Sun Energy (PTY) LTD to oversee all the site operation as well as management of other site workforce. Table 4.1 outlines the Environmental Management Plan for the operational stage of the proposed solar park. Adherence to the regulations, rules, procedures, current and future regional and local land use plans must be observed at all time by the operational staff.

4.2 Roles and Responsibilities

The following is the summary of the role and responsibilities of Project / Site / Health Safety and Environmental (HSE) Manager / Engineer during the operational stage of the proposed project:

- Act as the Employer's (Osona Sun Energy (PTY) LTD) on-site project and HSE manager;
- Ensure that the Employer's responsibilities are executed in compliance with the relevant legislation (current and future Namibian legislation that may come into force, as well as International Standards) and the EMP for the Operations Stage of the solar park;
- Training of operations and maintenance staff to raise environmental awareness so that the day-to-day operations are carried out in an environmentally responsible manner, thereby preventing or minimizing the negative effects and maximizing the positive effects of the project-related activities;
- Conduct regular (monthly) internal compliance audits; independent audits to be conducted bi-annually;
- Report to the Employer on the implementation of the EMP on site.

Table 4.1: Environmental Management Plan for the Operations Stage.

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
1) All activities	<ul style="list-style-type: none"> Management and Monitoring 	<ul style="list-style-type: none"> Social and Environmental Performance 	<ul style="list-style-type: none"> Ensure that all aspects related to the EMP are implemented during the operations phase. Adhere to the regulations, rules, and procedures as well as current and future regional and local and use plans. 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD Contractor Subcontractors 	<ul style="list-style-type: none"> Ongoing
2) All activities	<ul style="list-style-type: none"> Consultation and Disclosure (EP 5) 	<ul style="list-style-type: none"> Social and Environmental Performance 	<ul style="list-style-type: none"> Consult with project affected communities in a structured and culturally appropriate manner throughout the operations phase. Consultation should be “free” (<i>of external manipulation, interference or coercion, and intimidation</i>), “prior” (<i>timely disclosure of information</i>) and “informed” (<i>relevant, understandable and accessible information</i>). Adequately incorporate project affected communities’ concerns. 		<ul style="list-style-type: none"> Ongoing
3) All activities	<ul style="list-style-type: none"> Grievance Mechanism (EP 6) 	<ul style="list-style-type: none"> Social and Environmental Performance 	<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> Ongoing
4) All activities	<ul style="list-style-type: none"> Training including awareness and inductions 	<ul style="list-style-type: none"> Social and Environmental Performance 	<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> Ongoing
5) All activities	<ul style="list-style-type: none"> Labour and Working Conditions 	<ul style="list-style-type: none"> Social and Environmental Performance 	<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> Ongoing

Table 4.1: *Cont.*

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
6) All activities	<ul style="list-style-type: none"> • Employment and procurement opportunities 	<ul style="list-style-type: none"> • Socio-economic 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Osona Sun Energy (PTY) LTD • Contractor • Subcontractors 	<ul style="list-style-type: none"> • Ongoing
7) All activities	<ul style="list-style-type: none"> • Occupational Health and Safety 	<ul style="list-style-type: none"> • Social and Environmental Performance 	<ul style="list-style-type: none"> • 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). 		<ul style="list-style-type: none"> • Ongoing
8) All activities	<ul style="list-style-type: none"> • Community Health and Safety 	<ul style="list-style-type: none"> • Social and Environmental Performance 	<ul style="list-style-type: none"> • 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. 		<ul style="list-style-type: none"> • Ongoing
9) All activities	<ul style="list-style-type: none"> • Unauthorized public access 	<ul style="list-style-type: none"> • Community Safety 	<ul style="list-style-type: none"> • Use gates on the access road(s) and the entire site must be fenced off. • Solar Park should not be accessible to anyone from the public. • Notice or information boards relating public safety hazards and emergency contact details should be put up at the gate(s) and at the solar park. • Create a viewpoint area, possibly including an information centre, for the public/tourists. 		<ul style="list-style-type: none"> • Ongoing
10) All activities	<ul style="list-style-type: none"> • Increased traffic/vehicle movement 	<ul style="list-style-type: none"> • Air quality (dust or Particulate Matter (PM) pollution) 	<ul style="list-style-type: none"> • 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). 		<ul style="list-style-type: none"> • Ongoing

Table 4.1: *Cont.*

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
11) All activities	<ul style="list-style-type: none"> Increased traffic/vehicle movement (exhaust from diesel engines) 	<ul style="list-style-type: none"> Air quality & Occupational and Community Health and Safety 	<ul style="list-style-type: none"> Fleet owners/operators to implement manufacturer recommended engine maintenance programs (to control vehicle emissions: Carbon Monoxide (CO), Nitrogen Oxide (NO_x), Sulphur Dioxide (SO₂), Particulate Matter (PM) and Volatile Organic Compounds (VOCs)). 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD 	<ul style="list-style-type: none"> Ongoing
12) All activities	<ul style="list-style-type: none"> Increased traffic/vehicle movement 	<ul style="list-style-type: none"> Occupational and Community Safety 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Contractor Subcontractors 	<ul style="list-style-type: none"> Ongoing
13) All activities	<ul style="list-style-type: none"> Storm water management 	<ul style="list-style-type: none"> Attraction of species (birds and bats) to the area due to open water and subsequent injury, disturbance, or mortality of species 	<ul style="list-style-type: none"> Implement appropriate storm water management measures so as to avoid the presence of open water in the area. 		<ul style="list-style-type: none"> Ongoing

Table 4.1: *Cont.*

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
14) Operational solar park	<ul style="list-style-type: none"> Solar park components 	<ul style="list-style-type: none"> Species injury, disturbance (and potential alteration of behaviour), or mortality 	<ul style="list-style-type: none"> Implement monitoring programmes to study the potential impact(s) of the solar park on birds and bats. 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD Contractor Subcontractors 	<ul style="list-style-type: none"> At the start of operations
	<ul style="list-style-type: none"> Hazardous waste management 	<ul style="list-style-type: none"> Pollution of biophysical environment (soil and water) 	<ul style="list-style-type: none"> Solar Park to be equipped with oil absorption and collection systems. 		<ul style="list-style-type: none"> Ongoing
	<ul style="list-style-type: none"> Electromagnetic interference (television broadcasts) 	<ul style="list-style-type: none"> Community Health and Safety 	<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> When required
15) General solar park maintenance	<ul style="list-style-type: none"> Cleaning of panels to prevent dust and insect build-up 	<ul style="list-style-type: none"> Resource use / depletion of natural resources 	<ul style="list-style-type: none"> Ensure all wash water is recycled. Ensure there are no leaks from all taps, pipes and fittings. 		<ul style="list-style-type: none"> Ongoing
	<ul style="list-style-type: none"> Periodic painting of tower structures 	<ul style="list-style-type: none"> Pollution of biophysical environment (soil and water) 	<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> <i>Ad hoc</i>
	<ul style="list-style-type: none"> Working at heights 	<ul style="list-style-type: none"> Occupational Safety 	<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> Ongoing

Table 4.1: *Cont.*

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
General solar park maintenance (15) <i>Cont.</i>			<ul style="list-style-type: none"> 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). 		
16) Power transmission and distribution	<ul style="list-style-type: none"> Electric and Magnetic Fields (EMF) 	<ul style="list-style-type: none"> Occupational and Community Health 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD Contractor Subcontractors 	<ul style="list-style-type: none"> Ongoing
17) Power transmission and distribution	<ul style="list-style-type: none"> Hazardous materials management (insulating oils / gases (Polychlorinated Biphenyls (PCB) and sulphur hexafluoride (SF6)) and fuels) 	<ul style="list-style-type: none"> Pollution of biophysical environment (soil and water) 	<ul style="list-style-type: none"> Minimize the use of SF6 (greenhouse gas). The use of PCBs has largely been discontinued (see <i>IFC EHS Guidelines for Electric Power Transmission and Distribution</i> for the management of PCBs should it be used). All activities, Hazardous materials management. Wood preservatives? Needed? 		<ul style="list-style-type: none"> Ongoing

Table 4.1: *Cont.*

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
18) Power transmission and distribution	<ul style="list-style-type: none"> Live power lines 	<ul style="list-style-type: none"> Occupational Health and Safety 	<ul style="list-style-type: none"> 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 <i>vice versa</i>; 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 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD Contractor Subcontractors 	<ul style="list-style-type: none"> Ongoing
19) Power transmission and distribution	<ul style="list-style-type: none"> Working at heights on poles/structures 	<ul style="list-style-type: none"> Occupational Health and Safety 	<ul style="list-style-type: none"> See General solar panel / park maintenance, working at heights. 		<ul style="list-style-type: none"> Ongoing
20) Power transmission and distribution	<ul style="list-style-type: none"> EMF 	<ul style="list-style-type: none"> Occupational Health and Safety 	<ul style="list-style-type: none"> 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). 		<ul style="list-style-type: none"> Ongoing
21) Power transmission and distribution	<ul style="list-style-type: none"> Electrocution 	<ul style="list-style-type: none"> Community Health and Safety 	<ul style="list-style-type: none"> Use signs, barriers, and education to prevent public contact with potentially dangerous equipment. Ground conducting objects installed near power lines. 		<ul style="list-style-type: none"> Ongoing

Table 4.1: *Cont.*

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
22) All activities	<ul style="list-style-type: none"> Water Management 	<ul style="list-style-type: none"> Resource use / depletion of natural resources 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD Contractor Subcontractors 	<ul style="list-style-type: none"> Ongoing
23) All activities	<ul style="list-style-type: none"> Hazardous materials management 	<ul style="list-style-type: none"> Pollution of biophysical environment (soil and water) 	<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> Ongoing
		<ul style="list-style-type: none"> Occupational Health and Safety 	<ul style="list-style-type: none"> 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). 		<ul style="list-style-type: none"> Ongoing
24) All activities	<ul style="list-style-type: none"> Waste management: solid 	<ul style="list-style-type: none"> Air quality 	<ul style="list-style-type: none"> Avoid the open burning of waste (whether hazardous, or non-hazardous). 		<ul style="list-style-type: none"> Ongoing

Table 4.1: *Cont.*

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
25) All activities	<ul style="list-style-type: none"> Waste management: non-hazardous and hazardous 	<ul style="list-style-type: none"> Pollution of biophysical environment 	<ul style="list-style-type: none"> 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 off at an approved waste disposal site. 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, with prior permission from the site operator / owner. 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD Contractor Subcontractors 	<ul style="list-style-type: none"> Ongoing
26) All activities	<ul style="list-style-type: none"> Waste management: sanitary 	<ul style="list-style-type: none"> Pollution of biophysical environment 	<ul style="list-style-type: none"> 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? 		
27) All activities	<ul style="list-style-type: none"> Waste water management 	<ul style="list-style-type: none"> Pollution of biophysical environment 	<ul style="list-style-type: none"> 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. 		

5. DECOMMISSIONING AND CLOSURE STAGE

5.1 Introduction

The decommissioning and closure stages of the proposed solar park will cover all the activities that aim at restoring the proposed solar park site to the state before the solar park was developed. The decommissioning and closure stage will only be implemented once the solar park has reached its useful life span estimated to be 25 years. The electrical and electronic components of a solar park can also be replaced once they reach their useful life span thereby extending the operational stage of the solar park without decommissioning the entire solar park structures such as transformers and cabling.

The decommissioning and closure stage will cover the removal of all structures such as the foundation, steel works and concrete casted to hold all structures that were constructed to support the proposed solar park. The EMP makes provisions for management of a wider array of activities that will be associated with decommissioning of the proposed solar park. Table 5.1 outlines the EMP framework for the decommissioning and closure stage of the proposed development.

5.2 Roles and Responsibilities

5.2.1 Employer's Representative (ER)

As part of the decommissioning and closure stage, Osona Sun Energy (PTY) LTD is to appoint an **Employer's Representative (ER)** with the following responsibilities:

- Act as the Employer's (Osona Sun Energy (PTY) LTD on-site project manager and implementing agent;
- Ensure that the Employer's responsibilities are executed in compliance with the relevant legislation and the EMP for the decommissioning and closure stage;
- Ensure that all the necessary environmental authorisations and permits have been obtained for the decommissioning and closure stage as may be required;
- Assist the Contractor and Subcontractors in finding environmentally responsible solutions to challenges that may arise;
- Should the ER be of the opinion that a serious threat to, or impact on the environment may be caused by the decommissioning and closure stage, he/she may stop work and the employer must be informed of the reasons for the stoppage as soon as possible;
- The ER 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 ER can have person(s) and/or equipment removed from the site or work suspended until the matter is remedied;
- Report to the Employer on the implementation of this EMP on site;
- Maintain open and direct lines of communication between the Employer, Contractor, Subcontractors and I&APs with regards to environmental matters; and

- Attend regular site meetings and inspections on the progress of the decommissioning and closure process.

6.2.3 Contractor and Subcontractors

The responsibilities of the **Contractor** and **Subcontractors** include:

- Comply with the relevant national legislation and the EMP for the decommissioning and closure stage of the solar park facility;
- Preparation and submission (to Osona Sun Energy (PTY) LTD) of the Environmental Management Plans;
- Ensure adequate environmental awareness training for senior site personnel;
- Environmental awareness presentations (inductions) to be given to all site personnel prior to the decommissioning and closure stage work commencement; the ECO is to provide the course content and the following topics, at least but not limited to, should be covered:
 - The importance of complying with this EMP, 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, and;
 - Health and Safety Requirements.
- Record keeping of all environmental awareness training and induction presentations; and
- Attend regular site meetings and environmental inspections.

Table 5.1: Environmental Management Plan for the decommissioning and closure stage.

ACTIVITY/PROCESS	ASPECT	IMPACT	MANAGEMENT ACTIONS	RESPONSIBLE PERSON(S)	TARGET DATE
1) Decommissioning and Closure	<ul style="list-style-type: none"> Decommissioning 	<ul style="list-style-type: none"> Social and Environmental Performance & Visual 	<ul style="list-style-type: none"> Isolate (electrically) the solar park from the substation. 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. 	<ul style="list-style-type: none"> Osona Sun Energy (PTY) LTD Contractor Subcontractors 	<ul style="list-style-type: none"> During decommissioning
2) Closure	<ul style="list-style-type: none"> Loss of jobs and income 	<ul style="list-style-type: none"> Socio-economic 	<ul style="list-style-type: none"> Implement a skills training programme during the operations phase. 		<ul style="list-style-type: none"> During operations

6. ENVIRONMENTAL PERFORMANCE MONITORING

6.1 Overview

The monitoring process of the EMP performances for the proposed solar park project is divided into two parts and these are:

- (i) Monitoring / auditing of activities;
- (ii) Preparation of an Environmental Monitoring Report covering all activities related to the Environmental Management Plan throughout the life cycle of the proposed solar park project as may be required by relevant laws.

As part of the provisions of this EMP and the conditions of the Environmental Clearance Certificate that will be issued by the Office of the Environmental Commissioner (OEC) in the Ministry of Environment and Tourism continuous environmental monitoring and reporting must be undertaken as may be required. The reporting process will form part of the ongoing environmental monitoring programme. Environmental monitoring programme is part of this EMP performances assessments and will need to be compiled and submitted as determined by the regulator (OEC). 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 Environmental Control Officer (ECO) / External Consultant / Suitable qualified in-house resource person. Tables 6.1 – 6.9 outline the type of information that shall need to be recorded on a regular by as part of the monitoring process of the activities and the effects.

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 solar park to be undertaken by the Environmental Control Officer (ECO). The types of the data sets to be used in the preparation of such a report are outlined in Tables 6.1 - 6.9. The objective will be to ensure that corrective actions are reviewed and steps are taken to ensure compliance for future EIA and EMP implementation. 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 OEC in the Ministry of Environment and Tourism.

Table 6.1: Monitoring of environmental performance implementation / environmental awareness training.

Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
Is there an Environmental awareness training programme?					
How many people have been given environmental awareness training?					
Is a copy of the EMP on site?					
How effective is the awareness training? Do people understand the contents of the EMP? Where are the weaknesses? Ask 3 people at random various questions about the EMP.					

Table 6.2: Monitoring of environmental performance for the temporal and permanent structures.

Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
Are the temporal and permanent structures positioned to avoid sensitive zones, ephemeral river channels and potential sensitive sites?					
Has new infrastructure been created? If so, what, and how well planned / built with respect to environment?					
Have pit latrines been provided? Where are they situated?					
Do receptacles for waste have scavenging animal proof lids?					
What litter is there – who is littering?					
Are there facilities for the disposal of oils / etc and how often is it removed to an approved disposal site?					
Is there evidence of oil / diesel spills? Bunding or not?					
What fuel source is being provided for cooking?					
Housekeeping					

Table 6.3: Environmental data collection.

Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
Are records being kept?					
Birds' mortality records as result of collision with the solar park associated infrastructure?					
Birds nesting activities around the solar park?					
Noise level?					
Air Quality?					
Have archaeological sites been found / disturbed / described?					
Other key environmental data sets?					

Table 6.4: Health, Safety and ENvionment (HSE).

Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
Is there First Aid Kit containing anti-histamines etc?					
Are dangerous areas clearly marked off?					
Do vehicles appear to maintain the recommended speed limits?					
Do vehicles drive with headlights on along the gravel roads at all times?					

Table 6.5: Recruitment of labour.

Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
What labour source is used?					
How has the recruitment practice been done?					

Table 6.6: Management of the natural habitat and surficial materials management.

Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
Has there been any development done on or very close sensitive areas?					
Has anyone been caught with plants or animals in their possession?					
Has there been wilful or malicious damage to the environment?					
Has topsoil / seed bank layer been removed from demarcated development areas and appropriately stored?					

Table 6.7: Tracks and off-road driving.

Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
Are existing tracks used and maintained?					
What new tracks have been developed and are they planned?					
What evidence is there of off-road driving? Who appears to be responsible?					
Are corners being cut, what type of turning circle are there? Three point turns vs. U turns?					
Have unnecessary tracks been rehabilitated and how well?					
Comments					

Table 6.8: Management of surface and groundwater.

Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
How is potable water supplied and how often? Position of tanks?					
Is water being wasted?					
Is there any leakage from pipes or taps?					
Has casing been left when boreholes hit water and have any records of water strikes been kept? Were water samples taken and RWL measured?					

Table 6.9: Public relations.

Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
Have any complaints been made about the solar park construction and or operational activities by the different I&APs? If so, what, and how was the issue resolved?					

7. ENVIRONMENTAL OBLIGATIONS

7.1 Osona Sun Energy (PTY) LTD Environmental Policy

Table 7.2 summarises the environmental statement with respect to environmental commitment that Osona Sun Energy (PTY) LTD will implement as part of the company environmental policy.

Table 7.1: Environmental statement.

Osona Sun Energy (PTY) LTD Environmental Statement
<p style="text-align: center;">Osona Sun Energy (PTY) LTD is Committed to:</p> <ul style="list-style-type: none">• Exercising appropriate environmental care in accordance with the provisions of the EMP.• Fully comply with all applicable environmental regulations in force in Namibia;• Delivery of significant socioeconomic benefits for through broad based equity participation in the Project Development and Operation.• The promotion the development of open and constructive partnerships with the all the relevant stakeholders to address environmental concerns and advance necessary protection measures.• The advancement of scientific knowledge to be applied to the identification and effective resolution of real environmental challenges associated with solar park development.• Continuously encouraging Pollution Prevention (P2), Cleaner Production (CP), Waste Minimisation, Reuse and Recycling efforts.• Conducting regular internal and external audits of all our operations to ensure adherence to this policy and compliance to all relevant regulations throughout the life cycle of the proposed solar park.

7.2 Environmental Awareness Guidance

- (i) The Environmental Rules apply to EVERYBODY. This includes all permanent, contract, or temporary workers as well as any other person who visits the solar park area. Any person who visits the solar park area will be required to adhere to the company Environmental Code of Conduct;
- (ii) The Site Manager will issue warnings and will discipline 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;

- (iii) 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;
- (iv) 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 ENVIRONMENTAL CONTROL OFFICER (ECO), SITE MANAGER or CONTRACTOR. 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 Environmental Awareness Training Materials

7.3.1 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 solar park area;
- Do not pick any plant or take any animal out of the solar park 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 cut down any part of living trees / bushes for firewood;
- Do not destroy bird nest, dens, burrow pits, termite hills etc or any other natural objects in the area.

7.3.2 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.

7.3.3 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.

7.3.4 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 solar park 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 report to the Environmental Control Officer / Project Manager who will then inform the owner of any damage with all the repairs done to the satisfaction of the owner or Environmental Control Officer;
- Never enter any area that is out of bounds, or demarcated as dangerous or wander off without informing or permission of team leader;
- Report to your Contractor or the Site Manager if you see a stranger or unauthorised person in the solar park area;
- Do not remove any vehicle, machinery, equipment or any other object from the solar park area /site without permission of your Contractor or the Site Manager;
- Wear protective clothing and equipment required and according to instructions from your Contractor or the Site Manager;
- Never enter or work in the solar park area when under the influence of alcohol or drugs.

7.3.5 Preventing Pollution and Dangerous Working Conditions Guidance

- Never throw any hazardous substance such as fuel, oil, solvents, etc. into streams or onto the ground;
- Never allow any hazardous substance to soak into the soil;

- Immediately tell your Contractor or Environmental Control Officer / Site Manager when you spill, or notice any hazardous substance being spilled anywhere in the solar park area;
- Report to your Contractor or Environmental Control Officer / Site Manager when you notice any container, which may hold a hazardous substance, overflow, leak or drip;
- Immediately report to your Contractor or Environmental Control Officer / Site Manager 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 Contractor or Environmental Control Officer/ Site Manager;
- If you are not sure how to transport, use, store or dispose any hazardous substance - ASK your Contractor or Environmental Control Officer / Site Manager for advice.

7.3.6 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.

7.3.7 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 solar park area;
- Never overfill any waste container, drum, bin or bag. Inform your Contractor or the Environmental Control Officer / Site Manager 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.

7.3.8 Religious, Cultural, Historical and Archaeological Objects Guidance

- If you find any suspected religious, cultural, historical or archeologically object or site around the solar park area, you must immediately notify your Contractor or Environmental Control Officer / Site Manager;
- Never remove, destroy, interfere with or disturb any religious, cultural, historical or archaeological object or site around the solar park area.

7.3.9 Dealing with Environmental Complaints Guidance

- If you have any complaint about dangerous working conditions or potential pollution to the environment, immediately report this to your Contractor or the Environmental Control Officer / Site Manager;
- If any person complains to you about noise, lights, littering, pollution, or any other harmful or dangerous condition, immediately report this to your Contractor or the Environmental Control Officer / the Site Manager.

7.4 Environmental Personnel Register

Table 7.2 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.

8. CONCLUSION AND RECOMMENDATIONS

8.1 Summary of Conclusions

Mitigation measures for both positive and negative impacts have been proposed and management strategies are provided in this Environmental Management Plan (EMP Vol. 3 of 3) for the following development stages:

- (i) Preconstruction;
- (ii) Construction;
- (iii) Operational;
- (iv) Decommissioning and Closure.

Based on the extent, duration, intensity and likely negative and positive impacts of the proposed development, this Environmental Management Plan (EMP) Report Vol. 3 of 3 incorporating all the relevant mitigation measures with respect to likely impacts and recommendations has been prepared for implementation by the developer / operator. This EMP implementation and monitoring activities covers all the stages of the proposed solar park project life cycle and is inclusive of the development, construction, operation, rehabilitation and closure stages.

8.2 Recommendations

It's hereby recommended that the Osona Sun Energy (PTY) LTD takes all the necessary steps to implement all the recommendations of the EMP for the successful implementation and completion of the proposed solar PV energy project activities from construction to final closure and aftercare stages. The following are the recommended actions to be implemented by the Osona Sun Energy (PTY) LTD as a part of the management of the impacts through implementations of this EMP:

- (vi) Contract an Environmental Control Officer / External Consultant / suitable in-house resources person to lead and further develop, implement and promote environmental culture through awareness raising of the workforce, contractors and sub-contractors in the field during the whole duration of the proposed project;
- (vii) Provide with other support, human and financial resources, for the implementation of the proposed mitigations and effective environmental management during the planned project life cycle;
- (viii) Develop a simplified environmental induction and awareness programme for all the workforce, contractors and sub-contractors as may be required;
- (ix) Where contracted service providers are likely to cause environmental impacts, these will need to be identified and contract agreements need to be developed with costing provisions for environmental liabilities;
- (x) 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 solar park or development of completely new site.

All the responsibilities to ensure that the recommendations are executed accordingly, rest with the **Osona Sun Energy (PTY) LTD**. The company must provide all appropriate resource requirements for the implementation of this EMP. It is the responsibility of **Osona Sun Energy (PTY) LTD** to make sure that all members of the workforce including subcontractors are aware of the EMP and its objectives. It is hereby recommended that the Osona Sun Energy (PTY) LTD take all the necessary steps to implement all the recommendations of this EMP for the successful execution of the preconstruction, construction, operational and decommissioning activities of the proposed 4.5 MW AC Solar PV energy project.

END



PV Plant - EMP Compliance

2 Nov 2023 / Michael

Incomplete

Osona PV

Conducted on

1 Nov 2023 22:36 -08

Prepared by

Michael

6.2.3: ENVIRONMENTAL CONTROL OFFICER (ECO)

Are adequate environmental awareness training for senior site personnel conducted?

Yes



Photo 1

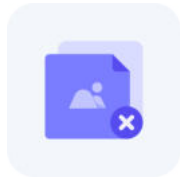


Photo 2



Photo 3



Photo 4



Photo 5

Is there compliance with the relevant national legislation and the EMP?

Yes

Are appropriate actions taken if the specifications of the EMP are not adhered to?

Yes

Is there advising on the removal of person(s) and/or equipment not complying with the specifications of the EMP in consultation with the ER?

Yes

Are continuous reviews of the EMP and recommended additions and/or changes made to the document?

Yes

WASTE MANAGEMENT

Waste Management Plan

Has a waste management plan been created?

Yes

Waste management plan



Photo 6

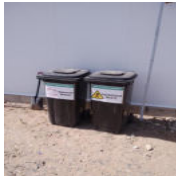


Photo 7

Hazardous Waste

Is the workshop area lined with concrete?

Yes



Photo 8

Sewage and Grey Water

Is there evidence of sewage (black water) discharged directly onto open soil along drainage lines, or any other unspecified areas?

No

Is sewage removed from site on regularly and disposed of at a recognised (municipal) sewage treatment facility?

Yes

Septic tank



Photo 9

Is water collected from equipment cleaning areas (grey water), left standing for long periods of time (promoting parasite and bacterial proliferation)?

No

General Waste

Is there a sufficient number of separate waste containers for hazardous and domestic/general

waste provided on site and clearly marked as such?

Yes



Photo 10

Are construction labourers sensitised to dispose of waste in a responsible manner and to not litter?

Yes

HEALTH AND SAFETY

Road Safety

Are all vehicles that transport materials to and from the site, road-worthy?

Yes

Do all drivers that transport materials have a valid driver's license and adhere to all traffic rules?

Yes

Safety Around Excavated and Work Areas

Are 2 fire extinguishers available at the fuel storage area and are they charged?

Yes

Toilets

Is there 1 toilet for every 50 males?

Yes



Photo 11

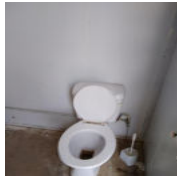


Photo 12

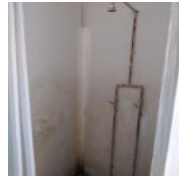


Photo 13

Are the toilets no further than 250m from the workers?

Yes

Is the adequacy of the number of toilets on sites closely monitored?

Yes

General

Are there any trees or natural vegetation removed on-site to create open fires?

No

Do all employees have the needed PPE (hard hat, gloves, overalls, safety shoes and protective glasses)?

Yes

Is potable water provided to employees on site?

Yes



Photo 14



Photo 15

Do workers drink alcohol during work hours?

No

Is unauthorized public access controlled?

Yes

DUST AND NOISE

Noise

Are work hours restricted to between 07h00 and 17h00 where construction involving the use of heavy equipment, power tools and the movement of heavy vehicles are less than 500m from residential areas?

Yes

Do vehicles have regular engine maintenance programs, to control vehicle emissions?

Yes



Photo 16



Photo 17

Service records



Photo 18

ENVIRONMENTAL TRAINING AND AWARENESS, ENVIRONMENTAL CONSERVATION

Environmental Induction (Training)

Is the importance of complying with the EMP explained to workers?

Yes

Training material containing EMP details.



Photo 19

Is the potential environmental impacts of construction activities discussed?

Yes

Training material containing potential environmental impacts.



Photo 20



Photo 21

Are employees trained on their roles and responsibilities, including emergency preparedness?

Yes

Training material

Emergency plan



Photo 22

Is there an explanation of the mitigation measures that must be implemented when particular work groups carry out their respective activities?

Yes

Conservation of Vegetation

Is there evidence of driving beyond demarcated areas and off established roads taking place?

No

Is there evidence of movement of staff or visitors beyond the

No

project site?



Is the collection of plants or wood for cooking beyond the project site strictly prohibited?



Conservation of Water

Is water effective equipment used?



Photo 23



Photo 24

Are all leaking fittings repaired or replaced timeously?



Are brooms used to clean floors rather than hosing them down with a pipe?



Conservation of Vegetation, birds and bats

Is construction or movement limited to the site boundaries and demarcated areas, unless approved by a specialist?



Photo 25



Photo 26

Is there appropriate stormwater management in place?

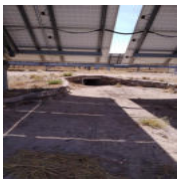


Photo 27



Photo 28



Photo 29



Photo 30



Photo 31

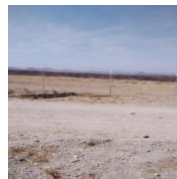


Photo 32

EMPLOYMENT/RECRUITMENT,

Legislation and Recruitment

Has a recruitment process been developed?

Yes

Does the process include local authority (town council, local headman etc.) assistance with the recruitment process?

Yes

APS services do most of the recruitment

Are all sub-contractors aware of recommended recruitment procedures and discourage any recruitment of labour outside the agreed upon process?

Yes

Are the terms and conditions of their respective employment contracts (e.g., period of employment etc.) clearly explained to all jobseekers?

Yes

STAKEHOLDER COMMUNICATION

Communication Plan

Has the contractor developed a Communication Plan?

Yes



Photo 33

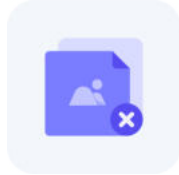


Photo 34

Does the Communication Plan include how stakeholders, who require ongoing communication for the duration of the construction period, will be identified, recorded and who will manage and update these records?

Yes

Does the Communication Plan make provision for grievance mechanisms - i.e., how concerns will be lodged and recorded and how feedback will be delivered as well as further steps of arbitration in the event where feedback is deemed unnecessary?

Yes



Photo 35



Photo 36

General Communication Matters and Communication with Property Owners

Is a copy of the EMP available at the site office and accessible to all stakeholders?

Yes

SOCIO-ECONOMIC AND MISCELLANEOUS

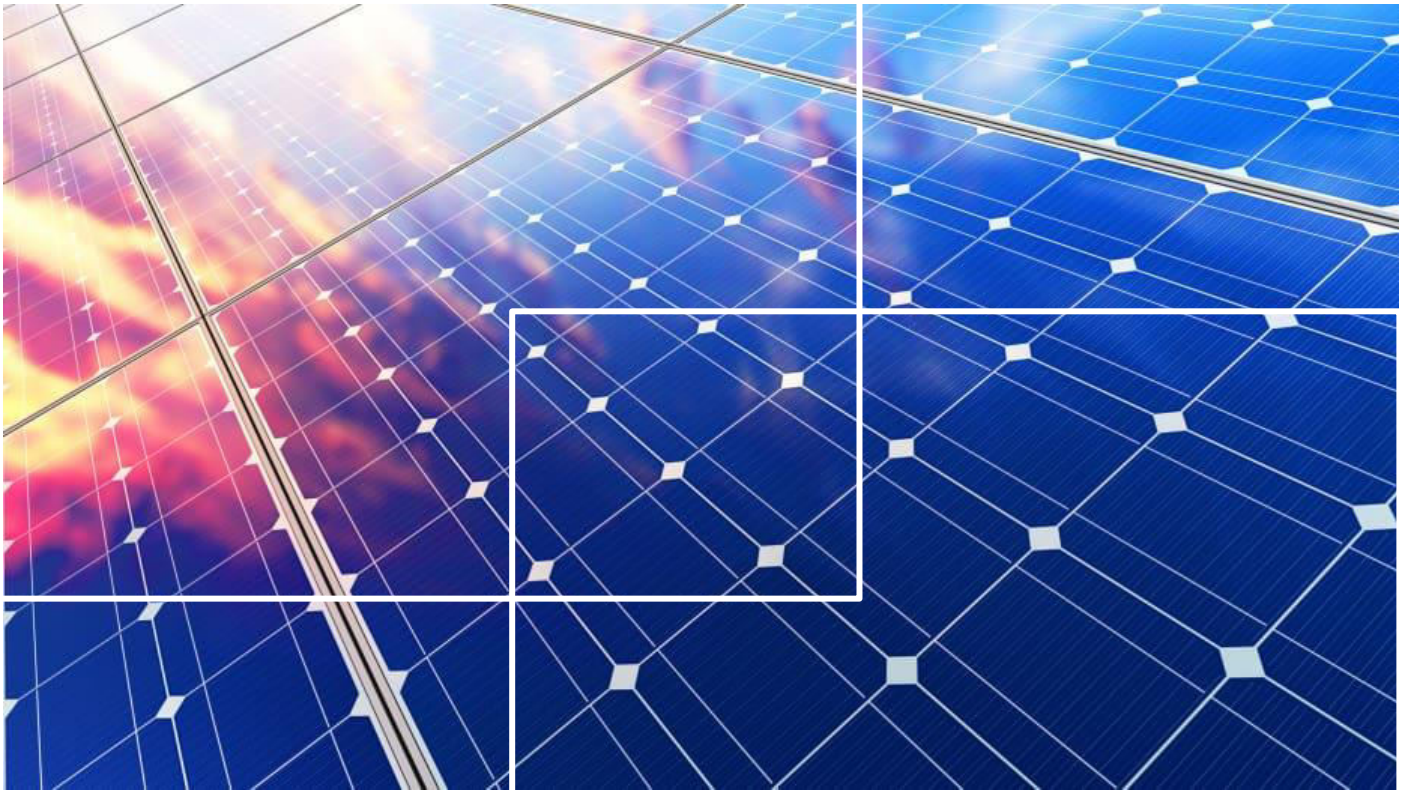
Archaeology and Heritage Resources

Has a chance find procedure been developed according to the requirements set out in the EMP?

Yes

Have there been any chance finds?

No



Submitted to: Osona Sun Energy (Pty) Ltd.
Attention: Mr Alexandre Matton
13 Feld Street
P O Box 3489
Windhoek, Namibia

REPORT:

OSONA 5MW SOLAR PV PARK COMBINED OPERATIONAL HEALTH, SAFETY AND ENVIRONMENTAL REPORT

PROJECT NUMBER: ECC-43-414-REP-03-D

REPORT VERSION: REV 01

PERIOD: JULY 2023

Prepared by:



TITLE AND APPROVAL PAGE

Project Name: Osona 5MW Solar PV Park Combined Operational Health, Safety and Environmental Report
Client Company Name: Osona Sun Energy (Pty) Ltd.
Client Name: Mr Alexandre Matton
Ministry Reference: NA
Authors: Environmental Compliance Consultancy
Status of Report: Final for client submission
Project Number: ECC-43-414-REP-03-D
Date of issue: July 2023
Review Period NA

ENVIRONMENTAL COMPLIANCE CONSULTANCY CONTACT DETAILS:

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TERMS AND ABBREVIATIONS

ABBREVIATIONS	DESCRIPTION
AC	Alternating current
DEA	Directorate of Environmental Affairs
ECC	Environmental Compliance Consultancy
ECO	Environmental control officer
EMP	environmental management plan
ER	Employer's representative
ha	Hectare
I&APs	Interested and affected parties
kV	Kilovolt
MVA	Megavolts-amperes
HSE	Health, Safety and Environment
PV	Photovoltaic
MEFT	Ministry of Environment, Forestry and Tourism
MME	Ministry of Mines and Energy

1 INTRODUCTION

1.1 PROJECT BACKGROUND

Osona Sun Energy (Pty) Ltd which is 100% owned by InnoSun Energy Holding (Pty) Ltd operates a 5MW AC Solar PV Plant constructed in 2015 on a privately owned Farm Osona Commonage No. 65, Portion 82 located near Okahandja in the Otjozondjupa Region. The land is situated 750 m northeast of Osona NamPower's substation (66/22kV, 10 MVA), which is 16 km southwest of the Osona settlement. The Osona Solar AC Plant comprises approximately 21,600 solar panels on a Solar AC Plant which occupy a maximum of 16 ha out of 26 ha of leased land, thus ensuring a minimum distance from the existing NamPower substation. The site can be accessed via the B1 main road.

The Proponent currently holds a valid environmental clearance certificate for the operation of the Osona solar plant. Onsite environmental compliance audits take place on a bi-annual basis to determine the status of compliance with the environmental management plan.

1.2 THE PROPONENT OF THE PROJECT

Table 1 - Proponent's details

Company Representative:	Contact Details:
Mr Alexandre Matton	Osona Sun Energy (Pty) Ltd: 2 Schutzen Str P O Box 27527 Windhoek, Namibia

1.3 PURPOSE OF THE HEALTH, SAFETY AND ENVIRONMENTAL REPORT

The purpose of this report is to report on the compliance of the Proponent and its employees with their environmental management plan (EMP). This means that the Proponent and its employees should adhere to all rules, regulations, and policies stipulated in their EMP. This enables the Proponent to ensure that the activities of their project do not put their employees' health and safety at risk, while also ensuring no excessive negative impacts are caused to the environment. This enables the Proponent to comply with all legal standards by pointing out areas of non-compliance and allowing them to take immediate action on implementing corrective actions. This creates a healthy and safe working environment for all the proponent's employees and the receiving environment of the Project.

1.4 ENVIRONMENTAL ASSESSMENT PRACTITIONER

The report has been prepared by Environmental Compliance Consultancy Pty Ltd (ECC) (Reg. No. 2022/0593) on behalf of the Proponent. Authored by ECC employees with no material interest in the report's outcome, ECC maintains independence from the Proponent and has no financial interest in the Project apart from fair remuneration for professional fees. Payment of fees is not contingent on the report's results or any government decision. ECC members or employees are not, and do not intend to be, employed by the Proponent, nor do they hold any shareholding in the Project. Personal views expressed by the writer may not reflect ECC or its client's views. The environmental report's information is based on the best available data and professional judgment at the time of writing. However, please note that environmental conditions can change rapidly, and the accuracy, completeness, or currency of the information cannot be guaranteed.

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 HEALTH, SAFETY AND ENVIRONMENTAL MONITORING PROGRAMME

2.1 HSE POLICY AND REGULATIONS

The health, safety, and environmental monitoring of the Project were undertaken by the conditions of the Project’s environmental clearance certificate and the various domain-specific management plans stipulated in the legally binding EMP. Osona Sun Energy (Pty) Ltd has incorporated their EMP in the environmental management systems of the company, national and international environmental best practice standards for Solar PV operational and decommissioning planning. The monitoring results outlined in this report, therefore, outline the actions that were undertaken and implemented during the validity period of their environmental clearance certificate.

2.2 EMPLOYMENT STRUCTURE, ROLES AND RESPONSIBILITIES

Table 2 - outlines the roles and responsibilities of the Proponent and their employees for the operation of the solar plant

ROLE	RESPONSIBILITY
Proponent	<ul style="list-style-type: none"> - Responsible for the overall management and implementation of the EMP; - Ensure environmental policies are drafted/updated and communicated to all personnel throughout the company; - Responsible for providing the resources required to effectively run operations and comply with the EMP; - Appoint all managers needed to ensure the effective running of operations, and - Ensure systems for proper induction and training of personnel and contractors are in place.
Project Manager/ Employer’s Representative (ER)	<ul style="list-style-type: none"> - Act as employer’s on-site project manager and implementing agent; - Appoint the ECO; - Ensure that the employer’s responsibilities are executed in compliance with the relevant legislation and the EMP; - Ensure that all the necessary environmental authorizations and permits have been obtained and are kept up-to-date; - Assist the Proponent in finding environmentally responsible solutions to challenges that may arise with input from the ECO; - Should the ER think that a serious threat to, or impact on the environment may be caused by the construction operations, he/she

ROLE	RESPONSIBILITY
	<p>may stop work; the Employer must be informed of the reasons for the stoppage as soon as possible:</p> <ul style="list-style-type: none"> - The ER has the authority to issue fines for transgressions of basic conduct rules and/or contravention of the EMP; - Report to the Employer on the implementation of this EMP on site (with input from the ECO and/or independent environmental auditor); - Maintain open and direct lines of communication between the Employer, ECO, and Interested and Affected Parties (I&APs) with regards to environmental matters, and; - Attend site meetings and inspections.
<p>Environmental Control Officer (ECO)</p>	<ul style="list-style-type: none"> - Comply with the relevant legislation and municipal by-laws; - Preparation and submission to Osona Sun Energy (Pty) Ltd of the following Management Plans: <ul style="list-style-type: none"> o Environmental Awareness Training and Inductions; o Emergency Preparedness and Response; o Waste Management, and; o Health and Safety. - Ensure adequate environmental awareness training for site personnel; - Environmental awareness presentations (inductions) to be given to all site personnel before work commencement; the ECO is to provide the course content and the following topics, at least but not limited to, should be covered: <p style="margin-left: 40px;">The importance of complying with the relevant Namibian, International and Best Practice Legislation;</p> <ul style="list-style-type: none"> o Roles and Responsibilities, including emergency preparedness; o Basic Rules of Conduct (Do's and Don'ts); o EMP: aspects, impacts and mitigation; o Fines for Failure to Adhere to the EMP; o Health and Safety requirements. - Record keeping of all environmental awareness training and induction presentations, and; - Attend regular site meetings and environmental inspections.
<p>Constructing Supporting Teams</p>	<ul style="list-style-type: none"> - Solar panels suppliers, installers, mechanical and crane contractors, electrical contractors and civil/structural contractors, each with their respective subcontractors and suppliers, would report directly to the Employer's Representative (ER), acting as the onsite Project Manager

2.3 MONITORING METHODOLOGY

This reporting process forms part of the ongoing monitoring programme as part of the EMP performance assessment. The monitoring and reporting process per each domain, to track performance against objectives and document all operational health, safety and environmental activities. This will form part of the Project's external auditing. This ensures that corrective actions are reviewed and where applicable used to update the existing EMP during the next ECC renewal application. This will ensure that steps are taken to ensure improved compliance for future years. This report further outlines the status of the environment and any likely environmental liability that may occur after the decommissioning of the plant.

2.4 REPORTING PROCESS

As per the requirements of the EMP, independent audits should be conducted bi-annually to complement the Proponent's annual report obligation to be submitted to the Ministry of Mines and Energy and for the renewal of their environmental clearance certificate with the Ministry of Environment, Forestry and Tourism.

3 OHSE PERFORMANCE MONITORING RESULTS.

3.1 OVERVIEW OF ACTIVITIES CARRIED OUT FOR THE PERIOD JANUARY 2020- JUNE 2022

The following activities were undertaken for the period January 2020 – June 2022:

- Energy generation;
- Solar plant operation and
- Maintenance of solar plant, panels, maintenance and equipment shed and overall site.

3.2 WATER SUPPLY

Water is supplied to us from an offtake line that belongs to NamWater. No treatment is done on the water for toilets, showers and panel cleaning. Water is mainly used for drinking water for the two security guards that stay on-site to provide security to the plant. 30 000 Litres is used to clean the panels three times a year.

This wastewater is allowed to drain off the panels onto the soil beneath the panels as it has been assessed to have a very low potential of polluting impacts on the soil in the receiving environment.

3.3 ON-SITE OBSERVATIONS



Figure 1 - Solar geysers



Figure 2 - Clean restrooms

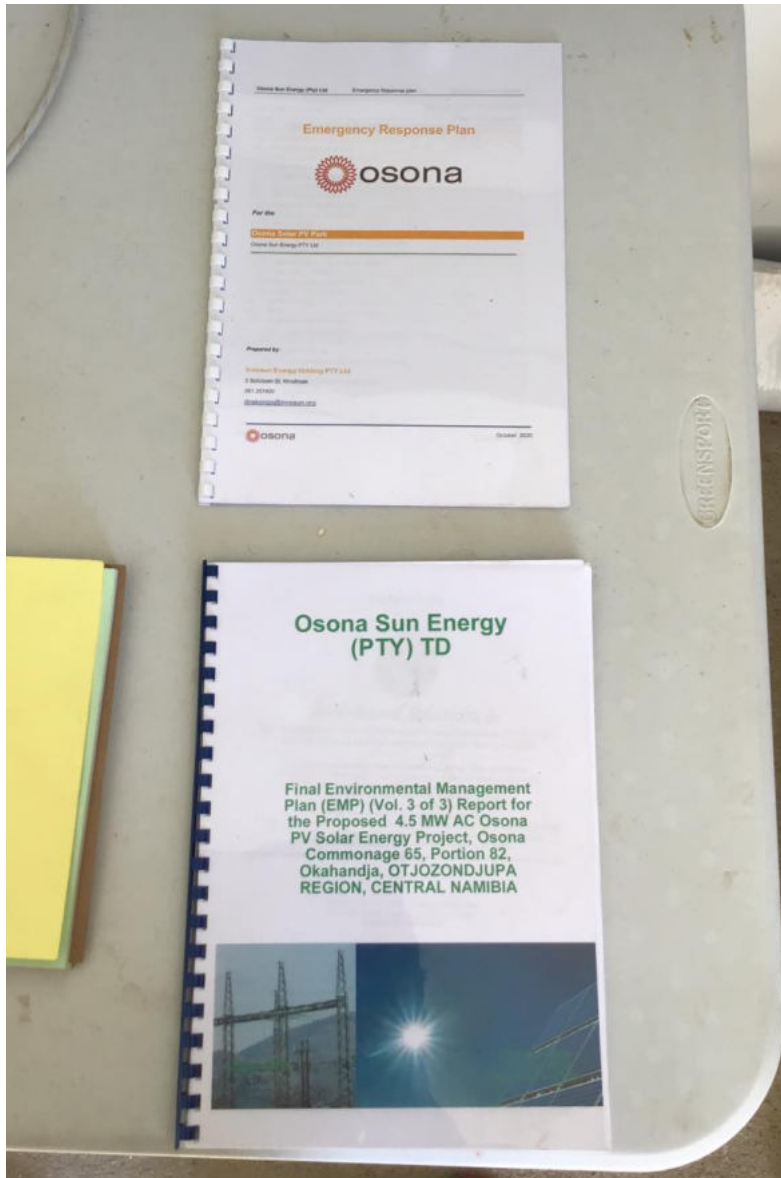


Figure 3 - Emergency response plan and latest updated EMP on site

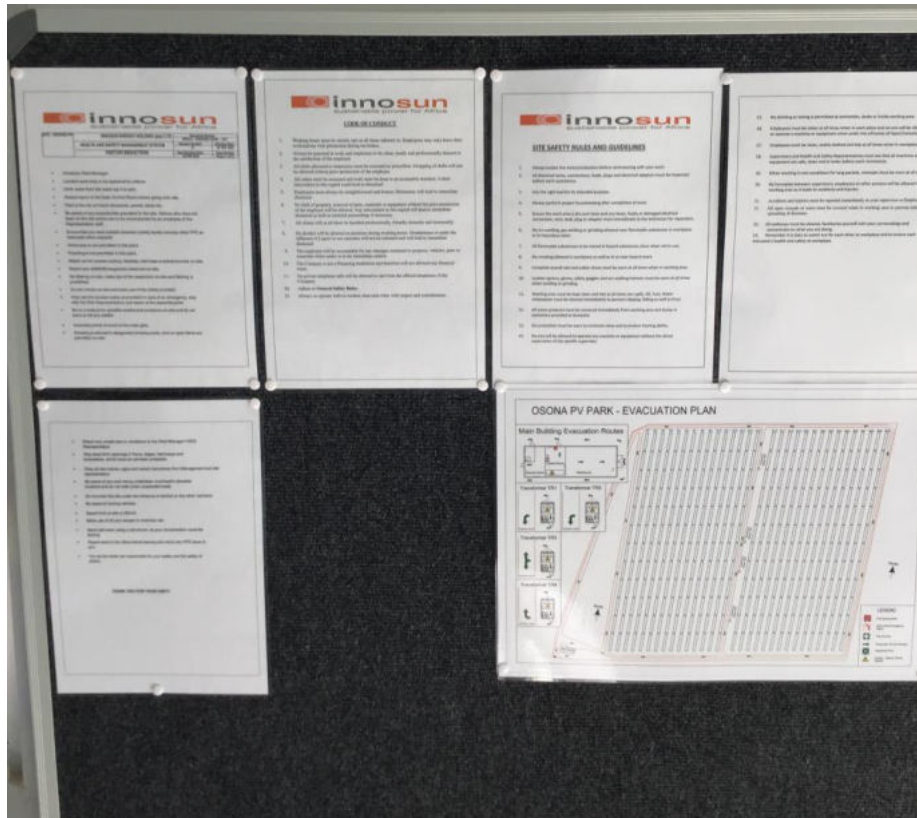


Figure 4 - safety rules and guidelines and emergency numbers adequately presented



Figure 5 - First aid kit on site

Table 3 - Monitoring of environmental performance implementation/environmental awareness training

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
Is there an Environmental awareness training programme?	Compliant	NA	NA	NA	NA
How many people have been given environmental awareness training?	Compliant	NA	NA	NA	NA
Is a copy of the EMP on site?	Compliant	NA	NA	NA	NA
How effective is the awareness training? Do people understand the contents of the EMP? Where are the weaknesses?	Compliant	NA	NA	NA	NA

Table 4 - Monitoring of environmental performance for the temporal and permanent structures

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
Are the temporal and permanent structures positioned to avoid sensitive potential sensitive sites?	Compliant	NA	NA	NA	NA
Has new infrastructure been created?	No	NA	NA	NA	NA

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
If so, what, and how well planned/built concerning the environment?	Compliant	NA	NA	NA	NA
Have toilets been provided?	Compliant	NA	NA	NA	NA
Where are they situated?	Next to the staff accommodation	NA	NA	NA	NA
Do receptacles for waste have scavenging animal-proof lids?	Compliant	NA	NA	NA	NA
What litter is there – who is littering?	No Litter - Compliant	NA	NA	NA	NA
Are there facilities for the disposal of oils / etc and how often is it removed to an approved disposal site?	Compliant - Waste is removed weekly	NA	NA	NA	NA
Is there evidence of oil/diesel spills?	NO	NA	NA	NA	NA
Bunding or not?	NA	NA	NA	NA	NA
What fuel source is being provided for cooking?	Gas	NA	NA	NA	NA

Table 5 - Environmental data collection

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
Are records being kept?	Compliant	NA	NA	NA	NA
Birds' mortality records as a result of a collision with the powerline?	Compliant	NA	NA	NA	NA
Birds nesting activities around the solar park and powerline area?	Compliant	NA	NA	NA	NA
Noise level?	Compliant	NA	NA	NA	NA
Air Quality?	Compliant	NA	NA	NA	NA
Have archaeological sites been found/disturbed/described?	Compliant	NA	NA	NA	NA
Other key environmental data sets?	Compliant	NA	NA	NA	NA

Table 6 - Health and safety

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
Is there a First Aid Kit containing antihistamines etc?	Compliant	NA	NA	NA	NA
Are dangerous areas marked off?	Compliant	NA	NA	NA	NA

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
Do vehicles appear to maintain the recommended speed limits?	Compliant	NA	NA	NA	NA
Do vehicles drive with headlights on gravel roads at all times?	Compliant	NA	NA	NA	NA

Table 7 - Recruitment labour

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
What labour source is used?	Local labour	NA	NA	NA	NA
How has the recruitment practice been done?	According to national labour regulations	NA	NA	NA	NA

Table 8 - Management of the natural habitat and surficial materials management

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
Has there been any development done on or close to sensitive areas?	No - Compliant	NA	NA	NA	NA
Has anyone been caught with Parks or animals in their possession?	No - Compliant	NA	NA	NA	NA

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
Has there been wilful or malicious damage to the environment?	No - Compliant	NA	NA	NA	NA
Has the topsoil/seed bank layer been removed from demarcated development areas and appropriately stored	No - Compliant	NA	NA	NA	NA

Table 9 - Tracks and off-road driving

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
Are existing tracks used and maintained?	Complaint	NA	NA	NA	NA
What new tracks have been developed and are they planned?	No - Complaint	NA	NA	NA	NA
What evidence is there of off-road driving? Who appears to be responsible?	No - Complaint	NA	NA	NA	NA
Are corners being cut, what type of turning circle are there? Three-point turns vs. U-turns?	No - Complaint	NA	NA	NA	NA
Have unnecessary tracks been rehabilitated and how well?	None needed to be rehabilitated	NA	NA	NA	NA
Comments	NA	NA	NA	NA	NA

Table 10 - Management of surface and groundwater

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
How is potable water supplied and how often? Position of tanks?	Via a NamWater supply line	NA	NA	NA	NA
Is water being wasted?	No - Compliant	NA	NA	NA	NA
Is there any leakage from pipes or taps?	No - Compliant	NA	NA	NA	NA
Has casing been left when boreholes hit the water and have any records of water strikes been kept? Were water samples taken and RWL measured?	NA	NA	NA	NA	NA

Table 11 - Public relations

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
Have any complaints been made about the solar park construction and or operational activities by the different I&APs? If so, what, and how was the issue resolved?	None - Compliant	NA	NA	NA	NA

3.4 PERMIT/AUTHORISATION REQUIREMENTS FOR OPERATION

Activity	Applicable legislation	Permitting authority	Current status
Generation Licence (GL)	Electricity Act 2007 (Act No. 4 of 2007)	Electricity Control Board through approval by the Ministry of Mines and Energy (MME)	GL issued and valid for 25 years
Environmental clearance certificate	Environmental Management Act, 2007, (Act No.7 of 2007)	Ministry of Environment, Forestry and tourism (MEFT), Department of Environmental Affairs and Forestry (DEAF)	The ECC is valid until 24 January 2024
Land rights covering the operational solar park area	None	Private land	Lease agreement is in place
Removal, disturbance or destruction of eggs	Nature Conservation Ordinance 4 of 1975	Ministry of Environment, Forestry and tourism (MEFT), Department of Environmental Affairs and Forestry (DEAF)	No removals
Removal, destruction of indigenous trees, bushes or plants within 100 meters of a stream or watercourse		Ministry of Environment, Forestry and tourism (MEFT), Department of Environmental Affairs and Forestry (DEAF)	No removals

3.5 NON-COMPLIANCES

The following issues of non-compliance were either reported or observed on-site:

No issues of non-compliance were noticed on site.

3.6 CORRECTIVE ACTIONS

The corrective actions that need to be taken are listed in the table below (Reference to section 3.4 of the EMP):

No issues of non-compliance we noted for corrective actions.

4 CONCLUSION AND RECOMMENDATIONS

All activities are carried out in compliance with the relevant requirements and conditions of the granted licence by the approved EMP. It is recommended that the Proponent continue to take erosion-preventative measures around the fence of the site by placing large rocks around the perimeter to prevent erosion during heavy rainfall and storm events. The Proponent should also commission safe snake handling training for employees on-site as the general surrounding area is prime reptile habitat and accounts of snake encounters have been reported.

The proponent should continue to adhere to all environmental legislation and company standards to ensure that the best practical environmental protection continues as the project activities continue.

APPENDIX A – ENVIRONMENTAL CLEARANCE CERTIFICATE

ECC – 01200	Serial: 4iFSmZ1200
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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

Osona Sun Energy (Pty) Ltd
P. O. Box 27527, Windhoek

TO UNDERTAKE THE FOLLOWING LISTED ACTIVITY

**Operation of the existing 5MW AC solar park, located on a portion of farm
Osona Commonage 65, portion 82 near Okahandja, Otjozondjupa Region**

Issued on the date: **2021-01-29**
Expires on this date: **2024-01-29**

(See conditions printed over leaf)

This certificate is printed without erasures or alterations



ENVIRONMENTAL COMMISSIONER
REPUBLIC OF NAMIBIA


04 FEB 2021



Reduce
Reuse
Recycle


NAMIBIA
TRASH
BIN
RIGHT
THING


APPENDIX B – GENERATION LICENCE



GENERATION LICENCE
NO G-130-011113-25
Issued to
Osona Sun Energy (Pty) Ltd
(Registration number: 2012/0670)

The ELECTRICITY CONTROL BOARD, in exercise of the powers conferred by section 20 (8) of the Electricity Act, 2007, and upon approval to grant a Generation Licence by the Minister in terms of section 20(6), hereby issues a Generation Licence to **Osona Sun Energy (Pty) Ltd** to generate electricity from Solar PV at Osona for the purpose of enabling a supply to be offered by suppliers to customers subject to the conditions as imposed by the Minister and set out in this Licence and the Electricity Act, 2007.


Jason Nandago
Chairman


Siseho C. Simasiku
Chief Executive Officer

NOT VALID WITHOUT LICENCE CONDITIONS

APPENDIX C - ENVIRONMENTAL MANAGEMENT PLAN