

**ENVIRONMENTAL SCOPING & MANAGEMENT PLAN
FOR A 1000 MW SOLAR PLANT AT ENGHONO FARM, IN TSUMEB:
OSHIKOTO REGION.**

**FOR
ENGHONO POWER (PTY) LTD**



PREPARED BY




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PROJECT DETAILS

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REPORT STATUS	FINAL ENVIRONMENTAL SCOPING & MANAGEMENT PLAN
CONSULTANT	OUTRUN CONSULTANTS CC
ENVIRONMENTAL IMPACT ASSESSMENT PRACTITIONER'S NAME AND SIGNATURE	JOSIAH T. MUKUTIRI 
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ABBREVIATIONS

EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ESMP	Environmental Scoping & Management Plan
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EO	Environmental Officer
ER	Employer Representative
RA	Roads Authority
NHC	National Heritage Council
EMA	Namibia Environmental Management Act (No. 7 of 2007)
METF: DEA	Ministry of Environment, Tourism & Forestry: Directorate of Environmental Affairs
MME	Ministry of Mines and Energy
NEP	National Energy Policy

i. Purpose of this Document

An Environmental Scoping report is one of the most important products of an Environmental Assessment (EA) process. It gives the environmental description of the project area with more details being focused on the compartments of highest risk of being negatively impacted. It is a legally binding document and has been compiled in accordance with the Namibian Environmental Management Act (No. 7 of 2007) and its Environmental Impact Assessment Regulations (2012) (METF, 2008). It should be read together with the accompanying Environmental Management Plan (EMP).

The report summarizes the identified potential negative impacts, their importance and / or significance and description of the impacts addressed by the EMP. It also presents all the legal and policy instruments governing the proposed project including licencing and issuing of permits for certain project activities.

Executive Summary

The applicant, Enghono Power (Pty) Ltd (EP) is a wholly Namibian owned and are planning to set up a 1000 MW Solar Plant at Tsumeb in Oshikoto Region. Construction of energy related infrastructure is a listed activity in the Environmental Management Act of 2007 making it mandatory to conduct an Environmental Impact Assessment and apply for an Environmental Clearance Certificate before implementing the project. Outrun Consultants CC an independent consulting company, conducted the EIA process for EP.

The EIA was conducted in 2 phases, the Scoping Phase during which interested and affected parties were given the opportunity to comment on the proposed project activities. Comments received during the scoping exercise were incorporated. The proposed construction and operation of a solar plant poses potential environmental damage in the form of air pollution due to dust generated during land clearing, destruction of the landscape, aesthetic view, visual impacts and potential impacts on avian fauna. The predicted environmental impacts can be managed resulting in minimal or insignificant residual effects through the successful implementation of the proposed Environmental Management Plan accompanying this report. Specific instructions have been formulated as part of the EMP.

1. INTRODUCTION

The ever-increasing demand for energy and need to find more sustainable and environmentally friendly energy resources have prompted developers to explore new energy generation options. Increasing economic growth and social development in Namibia is placing a growing demand on energy supply. Coupled with the rapid advancement in economic and social development, is the growing awareness of environmental impact, climate change and the need for sustainable development. Namibia's abundance of solar resources and the increasing of solar technologies and applications are of a high priority for the country.

In an effort to utilise renewable energy resources, Enghono Power (Pty) Ltd (EP) is proposing to construct a 1000 Megawatt (MW) Solar Power Plant on a private commercial farm in Oshikoto Region. This project will be comprised of Photovoltaic (PV) solar technology.

This document has been drafted according to the Namibian Environmental Management Act (No. 7 of 2007) and its Regulations of (2012) whereby various aspects of the intended development were considered under the listed activities with potential impacts on the environment. Therefore, this development requires authorisation granted in the form of an Environmental Clearance Certificate (ECC) by the Environmental Commissioner (Ministry of Environment and Tourism).

EP (Applicant) appointed Outrun Consultants cc, an independent environmental Consultant to conduct the impact assessment and subsequently apply for the ECC in fulfilment of the Environmental Management Act (2012). The commitments described here form part of the Environmental Clearance Certificate (ECC) between EP and the state, as represented by the Ministry of Environment and Tourism (METF). Non-compliance is considered illegal and may have legal consequences. The amendment, transfer or renewal of the ECC should be communicated to the Environmental Commissioner as stipulated in the Environmental Management Act (EMA) of 2007 and its EIA Regulations 2012. Any changes to this EMP will require an amendment to the ECC for these developments.

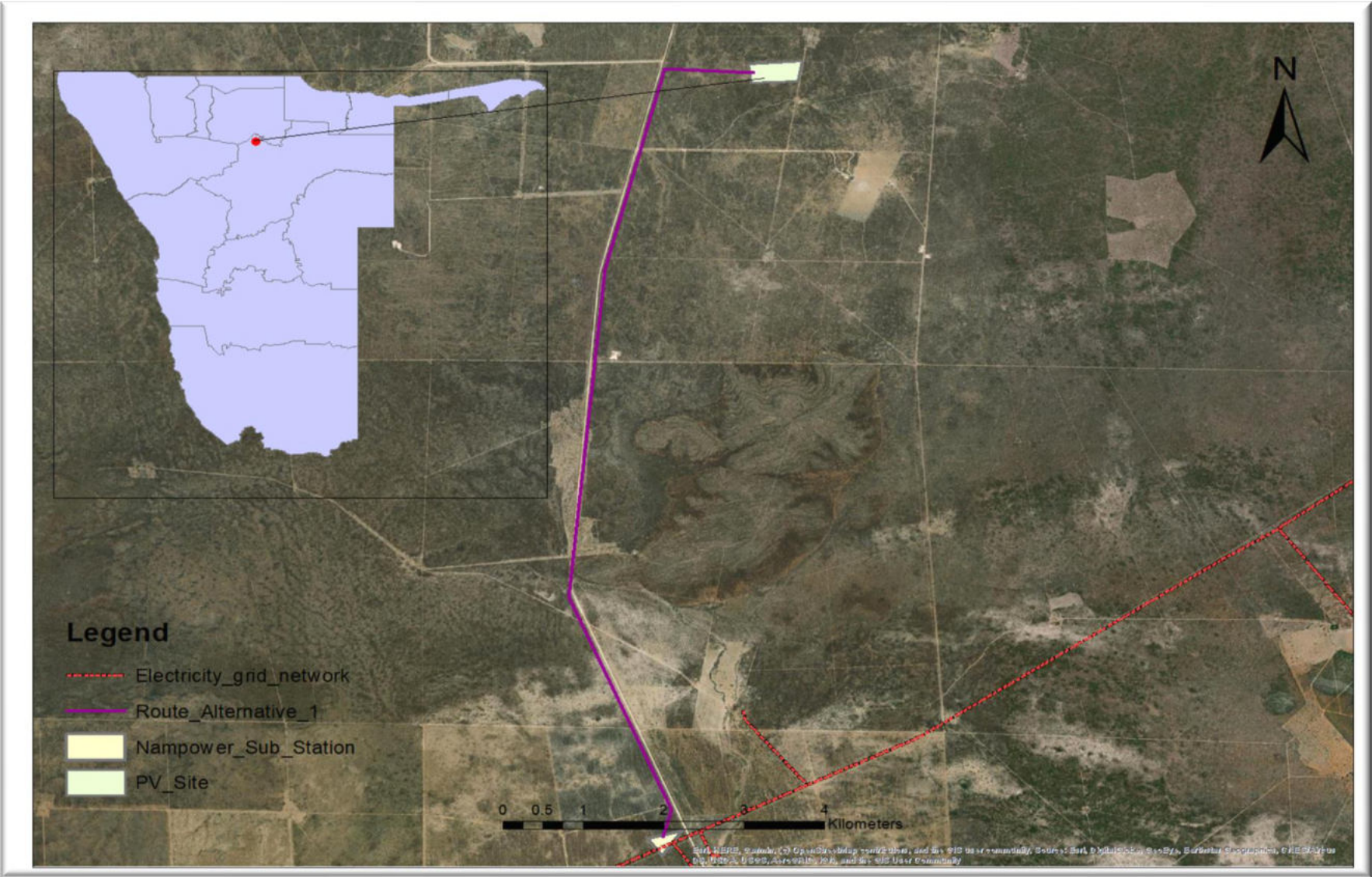


Figure 1: Project Locality

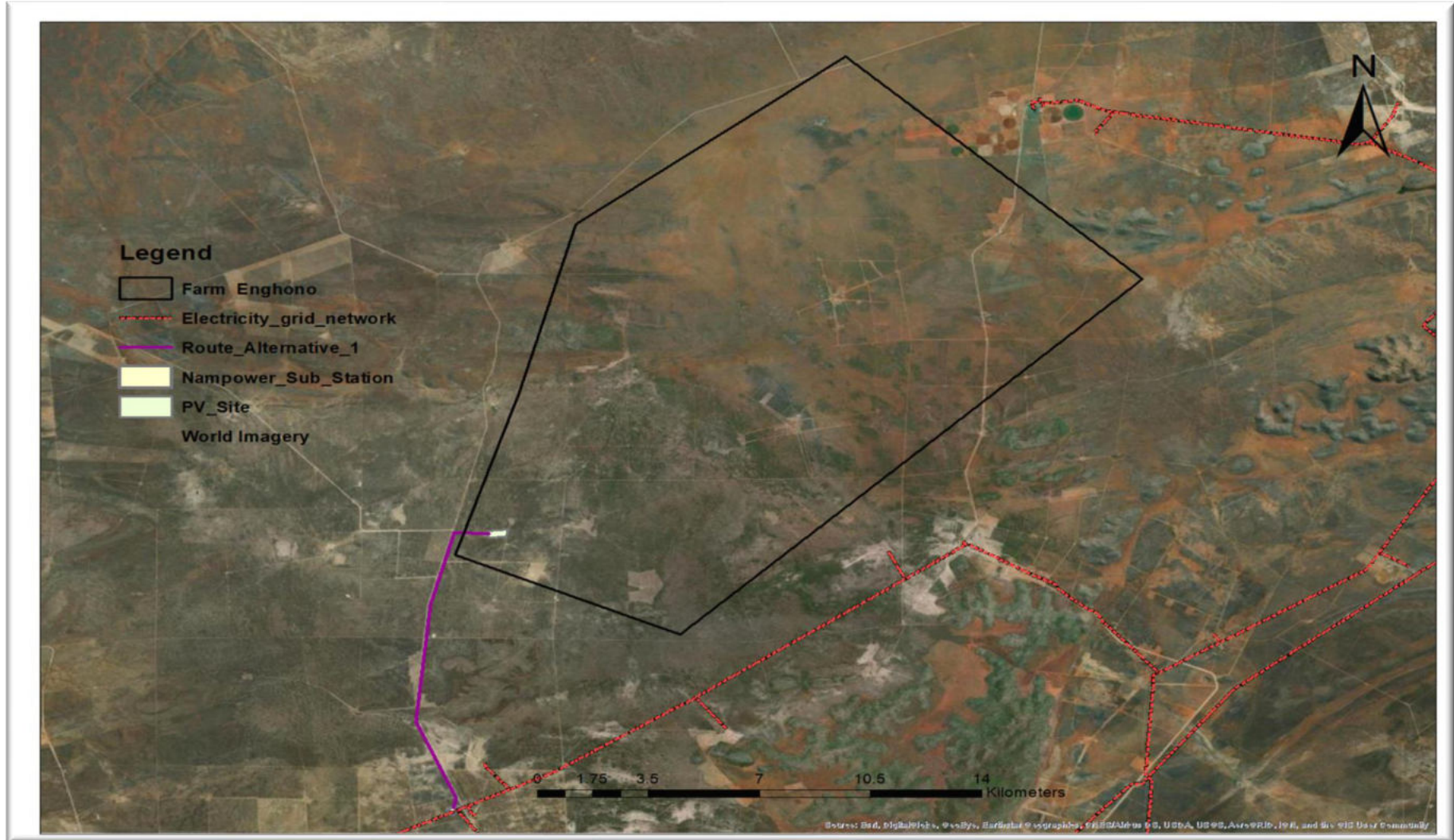


Figure 2: The proposed project site in relation to existing infrastructure in and around the project area.

1.1. Project Concept

1.1.1. Solar technologies

Solar panels technology has become one of the renewable energy systems making inroads into the energy sector to replace the ozone depleting fossil powered energy plants. This section gives a description of how this technology works. The solar panels allow photons also known as light particles to knock electrons from atoms (the smallest particles of matter) causing them to move. The flow of those electrons is called electricity. Solar panels actually comprise many, smaller units called photovoltaic cells. (Photovoltaic simply means they convert sunlight into electricity.) Many cells linked together make up a solar panel.

Each photovoltaic cell is basically a sandwich made up of two slices of semi-conducting material, usually silicon the same stuff used in microelectronics. The solar plant is connected to the national electricity grid through cabling allowing the electricity to be available to consumers.



Figure 3: Completed PV Panel Mounting

Figure 4: Completed PV Panel Structures

Figure 5: PV Panel Inverters

1.2. Project Overview

EP intends to construct and operate a solar panel based photovoltaic (PV) plant in Tsumeb, Oshikoto Region. The proposed Solar Power Plant entails the construction and operation of a 1000 MW solar plant, associated infrastructure and services for the provision of renewable electricity to the national power grid primarily for the export market to the Southern Africa Power Pool (SAPP).

The proposed solar plant entails the transformation of the undisturbed farm land covered by the evading thorny bushes to accommodate the proposed plant, associated infrastructure and services. The infrastructure and structures for the proposed project includes but is not limited to inter alia:

The project includes the following components:

- Photovoltaic infrastructure: numerous rows of PV panels and associated support infrastructure to generate electricity.
- Buildings: operation and maintenance buildings to house equipment and a guard cabin for security.

1.3. Phases of the Project

The process which was followed in compiling this report is in compliance with the Environmental Management Act of (2007) and Environmental Impact Assessment Regulations 2012, and applies the principles of sustainable development. The purpose is to predict potential impacts and formulate mitigation measures that are made binding on all contractors during the construction phase as well as during the operational phase. The point of departure from the formulation of the EMP is to take a proactive route by addressing potential problems before they occur. This should limit corrective measures needed during the construction and operational phases of the development. Additional mitigation will be included throughout the project's various phases, as required and if necessary. This assessment deals with the following phases as detailed below:

1.3.1. Planning and Design Phase

This stage offers an ideal opportunity to incorporate proactive environmental management measures with the goal of attaining sustainable development. While there is still the chance of accidental impacts taking place; however, through the incorporation of contingency plans (e.g. as proposed in the EMP) during the planning phase, the necessary corrective action can be taken to further limit potential impacts.

1.4. The Construction Phase

Most of the impacts during this phase will have immediate effects (e.g. noise, dust and water pollution). If the site is monitored on a continual basis during the construction phase, it is possible to identify these impacts as they occur. These impacts can then be mitigated through the contingency plans identified in the planning phase, together with a commitment to sound environmental management.

1.5. Operation and Maintenance

By taking proactive measures during the planning and construction phases of the solar plant, potential environmental impacts emanating during the operational phase will be minimised. This, in turn, will minimise the risk and reduce the monitoring effort, but it does not make monitoring obsolete. It is therefore a goal of this report to reduce the impact on the immediate and surrounding environment by minimising environmental harm and preventing environmental incidents

- Systematically manage environmental risk
- Where practicable eliminate environmental risk, or if not practicable adequately control via application of a hierarchy of risk control measures.
- To comply with requirements of:
 - The contract specifications
 - Legislation prescribed by the relevant Regulatory Authorities METF
 - Namibia Energy Policy

1.6. Need for the Project

EP intends to invest equity in all of its projects and maintain that equity over a long period of time, for this reason EP has a truly vested interest in the long-term success of the proposed project and the renewable energy sector as a whole. The achievement of this goal can only be realised when it is aligned with the policies, plans and targets for the sector set by the government.

The primary objectives of EP are:

- To transfer knowledge and skills where Parties work together;
- To create jobs in a new industry in order to position ourselves in the regional and world markets; and
- To reduce the price of electricity produced through a concerted joint R&D program which will look to improve performance and reduced the cost of installation, operation and maintenance.

The proposed project enables EP to construct, operate and maintain an efficient, economic, reliable, safe and environmentally-sound, solar-powered generating facility. The facility will help Namibia to meet the regional and national objectives mandated for renewable electric energy and above all save foreign currency spent on importing electricity. The site selected is located in an area where there is excellent solar resource.

The project cost would be substantial of which could potentially be spent in Namibia on procurement of local materials, services, and labour. It is estimated that the project could create a number of jobs during the peak of construction and a few during operations. Given the aforementioned, the project will make a notable contribution towards the achievement of the government's job creation targets.

The Project is designed to meet the increasing demand for clean, renewable electrical power in Namibia. The multiple benefits associated with developing renewable energy infrastructure have been recognized by both local regional and National policy-makers. Development of solar resources reduces reliance on foreign sources of energy, promotes national energy security, diversifies energy portfolios and contributes to the reduction of greenhouse gas emissions at the same time creating a large number of jobs within a new industry at the same time raising the core knowledge bases of the country.

In addition, the Kyoto Protocol, as a result of concern about climate change, advocates for energy efficiency and the use of renewable energy sources are presented as sustainable solutions leading to a reduction in CO₂ emissions into the atmosphere. Namibia's climate is ideal with regards to solar resources, with a high level of energy generation potential.

1.7. Practitioners' Details

1.7.1. Details of Environmental Assessment Practitioner

EP appointed Outrun Consultants cc to conduct the EIA for the application of the ECC for this particular project. Outrun Consultants CC is a privately owned consulting company doing various projects in Southern Africa Development Community (SADC) countries. Our core services are:

- Environmental Impact Assessment
- Strategic Environmental Assessment
- Environmental Investigations
- Research and Training
- Feasibility Studies
- Agronomy
- Monitoring and Evaluation

Outrun draws its experts from regional and international universities. Outrun declares that we have no interests in this project and are independent and will act as such during the EIA process as required by the EIA regulations. The team members who participated in the EIA are presented in Table 1 below.

Table 1: Outrun Team of Experts and their responsibilities in this study.

ORGANIZATION	AREA OF RESPONSIBILITY / FIELD OF EXPERTISE	TEAM MEMBERS
OUTRUN	Project management EIA coordination	Josiah T. Mukutiri
OUTRUN	EIA process	Emmerencia Montzinger
EP CC	Development of the concept	F. Neshila (Mr)
OUTRUN	Literature review / Desk study	Josiah T. Mukutiri, Fillemon Shatipamba and Emmerencia Montzinger
OUTRUN	Legislation & Policy Review	Josiah T. Mukutiri
OUTRUN	Development of Environmental Management Plan (EMP)	Fillemon Shatipamba
OUTRUN	Public Consultation and Facilitation	Josiah T. Mukutiri, F. Neshila

1.8. Process and Methodology

Given that construction of a solar plant is a prescribed activity under the Environmental Management Act (2007), the process started with the appointment of the consultant as presented above. The Consultants carried out a full EIA as required and this chapter describes the EIA process followed during the study. The EIA study was guided by the Namibian Environmental Impact Assessment Policy of 1994 and the Namibian Environmental Management Act of 2007. Various Methodologies were implemented to fulfill the requirements of each step in the EIA process list as shown below.

1.9. EIA Process

The EIA study was conducted as follows:

- Preliminary Activities setting terms of reference for the EIA, selecting consultant (agent who would prepare the EIA) to do the EIA,
- Literature review of all relevant information;
- Field work for making of detailed studies of the baseline situation. This included bio-physical environment and socio-economic conditions.
- An analysis of the potential environmental impacts. This included impact prediction and significance assessment;
- Public participation
- The preparation of an environmental management plan for the project and finally;
- The compilation of the EIA report.

Below is an illustration of the EIA approach adopted by the consultant, the process entails the conducting of a mandatory EIA as required by the relevant environmental legislation and requires four (4) primary activities to be undertaken to ensure the successful completion of the process. These four (4) activities form the Scope of Work for the study and are described below:

Activity 1: EIA Process Development and Initiation

It is required that proper planning is be done in order to ensure that the EIA is conducted according to the legislative requirements and that the process is sound. In order to develop a sound EIA process, it is required that an extensive legal gap analysis is conducted and a proper program developed, scheduling all the required activities.

The initiation of the EIA process must involve consultation with institutional stakeholders in order to identify potential impacts, alternatives and key burning points relating to the project early in the process. During the initiation of the EIA it is important that the project alternatives identify and assessed.

Activity 2: The Scoping Process

The Scoping process must involve the identification of key issues, concerns, alternatives and impacts, over and above what has been identified and assessed during the initiation phase. The vehicle for this process is the public participation process (PPP), whereby I&APs has to be identified and engaged with to exchange information and to establish a platform of engagement. The information needs to form the basis from which to prepare the Environmental Scoping Report (ESR) as well as the various terms of reference for the required Specialist Studies. The environmental baseline needs to be determined from which to assess the likely impacts of the proposed development. Issues raised in the course of scoping must be presented in both the SR and the Comments and Response Report (C&RR).

Activity 3: Detailed Impact Assessment

The impacts, alternatives and issues identified during the scoping needs to be assessed during this phase of the process by means of the identified specialist assessments. Mitigation measures must be proposed and the likely residual impacts highlighted in the EIAR. It is crucial that the PPP be continued throughout this phase as well in order to involve I&APs and ensure transparency in the reporting.

Activity 4: Environmental Management Plan

A crucial aspect of the EIA process is the formulation of the Environmental Management Plan (EMP). This programme must be contained within the EIAR and is a concurrent activity to the Detailed Impact Assessment phase of the project. It must state the actions to be implemented during the construction, operation and decommissioning phases of the proposed project in order to achieve the mitigation targets

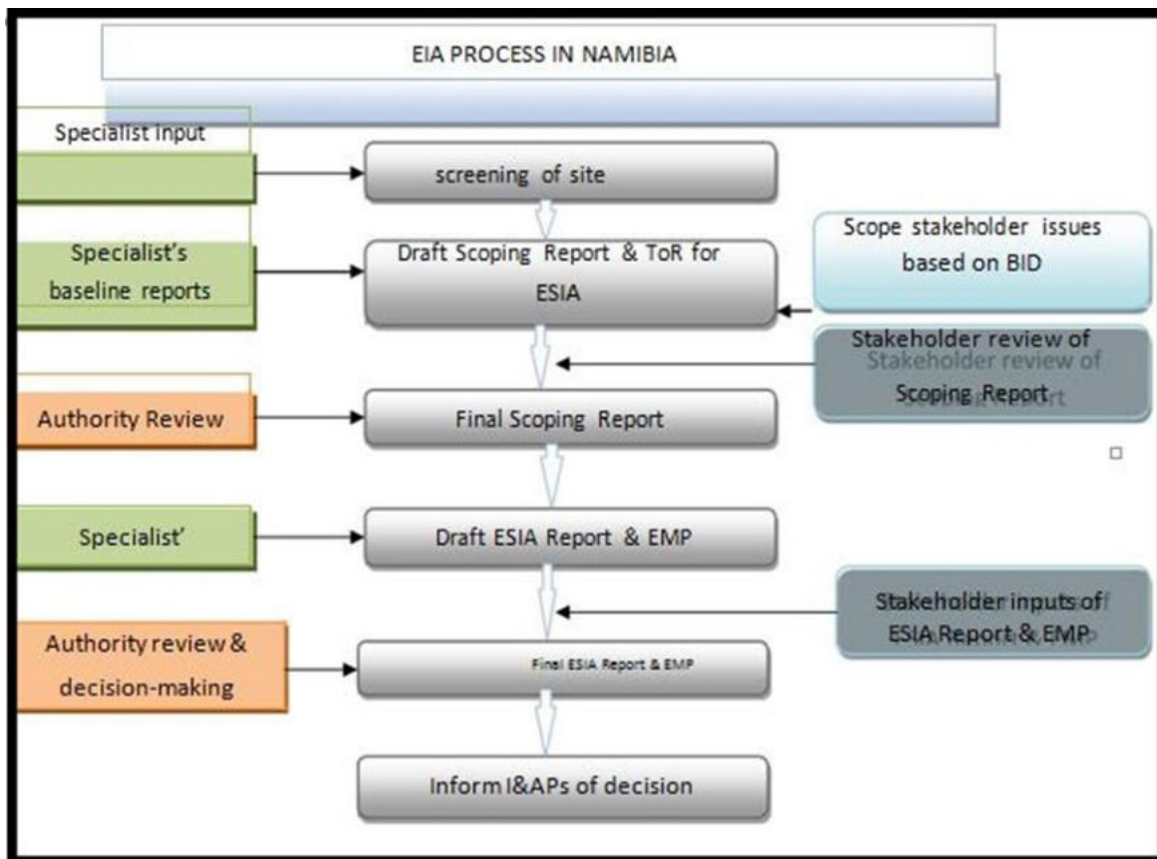


Figure 6: Schematic representation of the EIA Process followed in this study

2. LEGAL AND POLICY AND ADMINISTRATIVE REQUIREMENTS

2.1. Introduction

An important part of the EIA is identifying and reviewing the administrative, policy and legislative situation concerning the proposed activity, to inform the proponent about the requirements to be fulfilled in undertaking the construction and land servicing activities. This section looks at the legislative framework within which the proposed project will operate under. The focus is on the compliance with the legislation during the planning, construction and operational phases. All relevant legislations, policies and international statutes applying to the project are highlighted in Table 1: Legal Compliance below as specified in the Environmental Management Act, 2007 (Act No.7 of 2007) and the regulations for Environmental Impact Assessment as set out in the Schedule of Government Notice No. 30 (2012).

2.2. Relevant Treaties, International agreements and Protocols, policies and legislation.

2.2.1. Environmental Management

Table 2: Treaties and International Agreements, Policies and Laws governing the proposed project.

<p>Environmental Management Act (2007)</p>	<p>The Namibian Environmental Management Act of (2007) guided the EIA study and made reference to the principles contained in the Act. This is the very Act that binds all the responsible parties against their respective environmental obligations against which the EIA clearance is issued. Failure to comply attracts fines and / or prosecution depending on the severity of the matter. The Proponent should meet environmental conditions upon which the Environmental Clearance Certificate will be issued.</p>
<p>Namibia’s Environmental Assessment Policy of 1994.</p>	<p>The policy contains a list of prescribed projects that may have significant negative impacts on the environment. Such projects require authorisation from the Ministry of Environment & Tourism (METF) - Directorate of Environmental Assessment (DEA). Energy projects are listed activities that warrants an EIA since it involves the following activities:</p>

	<ul style="list-style-type: none"> • Land clearing and removal of overland vegetation though its minimal or insignificant. • Excavation of the land <p>Accordingly, the project requires authorisation from METF: DEA, which will be based on the findings of the detailed EIA study. This is EIA was done in accordance with the policy guidelines.</p>
Electricity Act No. 4, 2007.	To establish the Electricity Control Board and provide for its powers and functions; to provide for the requirements and conditions for obtaining licences for the provision of electricity; to provide for the powers and obligations of licensees; and to provide for incidental matters.
Water Act (1956)	Water Act 54 of 1956 and the Water Resources Management Act 24 of 2004, provides the general protection against surface and ground water pollution. It prohibits the pollution of underground and surface water bodies including liability of clean-up costs after closure / abandonment of an activity. Potential groundwater contamination is anticipated during the operation of the solar plant. On the same note it is important to ensure that lubricants and other petroleum waste generated through equipment repair and servicing be handled appropriately reducing the chances of ground water contamination.

2.2.2. Waste Management

Hazardous Substances Ordinance 14 of 1974	The hazardous substances ordinance 14 of 1974 controls substances with potential to cause injury or ill-health or death of human beings because of their toxic, corrosive, irritant, strongly sensitizing or flammable nature. There are many products that are covered under this Act including petroleum fuels and lubricants. Care should be taken throughout the product lifecycle right from receiving, storage, product use and disposal. In cases were special storage facilities are required the Proponent should provide as such.
Petroleum Act (Act 2 of 1991)	This Act gives control over the storage of refined petroleum products, and to provide for matters

	incidental thereto. Handling and discharge of oil products is also regulated under this Act.
Pollution Control and Waste Management Bill	This bill aims to prevent and regulate the discharge of pollutants to air, water, and land. It further aims to promote the establishment of a system of waste management, and enable Namibia to meet its international obligations. Waste management should be guided by the 3R principle, Reduce, Reuse and Recycle. Only unrecyclable and unusable materials will be disposed of at a designated disposal site.

2.2.3. General Environmental Protection and Management

Environmental Management Act (2007)	Requires that projects with significant environmental impacts be subjected to an environmental impact assessment (EIA) process and is presented above under, "item 4.1.1."
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2.2.4. Noise and Vibration

Labour Act (1992)	The labour Act governs the employer to employee relationship including issues pertaining to occupational health and safety, remuneration, provision of appropriate protective clothing, grant of leave etc. It is important to refer to the Act and ensure compliance with fair labour practices especially during the construction and operation phases.
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2.2.5. Land Use and Planning Issues

The Forest Act (2001)	Forests are extremely important resources. They conserve soil and water, maintain biological diversity, and provide many products such as wood and foods. The Forest Policy and Forest Act enable us to protect our forests. The basic aim of the Forest Policy is to protect and make our forests productive to improve the economic welfare of rural communities as part of the national poverty reduction plan. The Forest Act (No. 12 of 2001), as amended by the Forest Amendment Act (No. 13 of 2005), is the law through which the Forest Policy is implemented. Basically, the
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	<p>Act stipulates how forest resources may be used and the responsibilities of the users.</p> <p>It aims to prevent deforestation by making it illegal to clear woody vegetation on more than 15 hectares of land or remove more than 500 cubic meters of forest produce per year. Removal of forest produce on any piece of land requires approval by the Directorate of Forestry. Considering the vast land to be cleared the Proponent requires permit issued by MAWF before clearing.</p>
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The table below forms the core of this ESMP for the construction and operational phases of the solar power development. Table three (3) can be used as a checklist on site, especially during the construction phase. Compliance with this EMP must be monitored on a timely basis during the design, constructions, and operational phases of this project.

Table 3: Summary of permit requirements.

THEME	LEGISLATION INSTRUMENT	MANAGEMENT REQUIREMENTS	STATUS
Archaeology	National Heritage Act 27 of 2004	All protected heritage resources (e.g. human remains etc.) discovered need to be reported immediately to the National Heritage Council (NHC) and require a permit from the NHC before they may be relocated.	To be applied from the NHC.
Forestry	Forest Act 12 of 2001 (guideline) Nature Conservation Ordinance 4 of 1975 (Guideline only). Permit for removal of protected and unique species.	Protected tree species as listed in relevant legislation and any vegetation within a 100 m from a water course may not be removed without permission from the relevant officials from Ministry of Environment, Tourism & Forestry (METF).	To be applied from METF.

Environment	Environmental Management Act (EMA) of 2007 EIA Regulations (2012).	The amendment, transfer or renewal of the Environmental Clearance Certificate (ECC). Amendments to this EMP will require an amendment of the ECC for the development.	ECC from the METF: DEA
	List of activities that may not be carried out without an ECC.	Any activities listed in this listing notice require an ECC and therefore an Environmental Assessment.	
Labour	Labour Act 11 of 2007 Health and Safety Regulations (HSR). Local recruitment and procurement policy; training and skills development, and awareness programmes.	Adhere to all applicable provisions of the Labour Act and the Health and Safety Regulations.	To be compiled by the project proponent during the planning phase and implemented by the Contractor during construction, operational and decommissioning phases
Roads	Obtain permission from Roads Authority to construct access route and to upgrade existing roads.	Obtain permission from Roads Authority to construct access route and to upgrade existing road	To be applied for from Roads Authority by the Contactor prior to commencement of construction activities.

Water supply	Water Act 54 of 1956	Rural water supply regulated by NAMWATER and MAWF. Section 21 details provisions relating to the effluent discharge permits.	Apply to NAMWATER for water supply. Water discharge permit to be applied for from Ministry of Agriculture, Water and Land Reform (MAWLR) by the IPP Contractor prior to commencement of construction activities. This will mainly be domestic from the ablution toilet.
Energy	Electricity Act 2 (2000) The National Energy Policy	Adhere to all the recommendations and permissions granted by the Act and supporting policies.	Electricity generation licence to be applied for from the Electricity Control Board (ECB)

3. PUBLIC PARTICIPATION PROCESS

Public consultation is an integral part of a comprehensive EIA and is done to ensure that issues are identified early during the process before major decisions are made. It is a requirement to carry out public consultations under the Namibia Environmental Assessment Policy of 1994 and also to achieve principles of best practice during the EIA process.

3.1. Purpose of the Public Participation Process

The purpose of the public participation process is to:

- Provide information to IAPs and other stakeholders about the project background, proposed site, project concept and predicted potential impacts.
- Establish the public's interests, concerns and expectations regarding the proposed project.
- Obtain input from IAPs, the public and other key stakeholders.

3.2. Identification of Key Stakeholders

The following key stakeholders were identified for consultation purposes:

- Ministry of Mines & Energy
- Electricity Control Board
- Nampower
- Oshikoto Regional Council
- Other members with interest or affected by the project.

3.3. Initiation of Environmental Scoping Process

The scoping process was initiated by publicising it through the local print media and stakeholders were formerly engaged through email. The publications announced the beginning of the scoping process and invited stakeholders and members of the public to register as IAPs so as to participate in the EIA for the construction of the 1000 MW solar plant. A Background Information Document (BID), see attached copy in Annexure 3, was forwarded to stakeholders.

The BID contained the relevant information about the proposed project and promoted stakeholders and public participation in the scoping process. A comment sheet was provided at the end of the BID report inviting comments on issues of interest and importance to the stakeholders.

3.4. Public Consultation

Responses to the call were very poor and dominated by inquiries for business opportunities and employment. The environmental impact assessment scope generated from this process was used to guide the EIA study. All the factors identified during the environmental scoping phase were studied and the findings were documented as required.

3.5. Issues & Concerns Raised

The issues, concerns and interests raised during the consultations are summarised in the following table.

Table 4: Issues / concerns and interests identified during public consultations.

Interested & Affected Party (IAP)	Issue / Concern raised	Remark
Ministry of Mines & Energy (MME)	The MME's position regarding the proposed project.	The Ministry gives full support of the project and recommends all other public and private stakeholders be consulted as necessary. See attached letter from the Honourable Minister of Mines and Energy, Honourable Tom. K Alweendo.
Ministry of Public Enterprises	Engagement	Recommends that the consultation engages NAMPOWER directly to avoid conflict of interest since Nampower falls under this Ministry. See attached letter.
Ministry of Industrialization, Trade and SME Development (MITSMED)	The MITSMED's position regarding the project.	The Ministry has full support of the project and welcomes participation by Namibians in a sector that has been de-regularised and opened for more players to participate.
Office of the Vice President: Deputy Minister: Marginalized Communities	Support towards setting up of the Solar power Plant in Tsumeb.	The Ministry fully supports the project and pledged all the assistance that may be required within its power and mandate.

3.5.1. Review of Draft Environmental Scoping and Management Plan Report

The draft report was shared with stakeholders and was also posted at the Ministry of Mines and Energy resource centre for public review and commenting for a minimum period of 2 weeks.

3.5.2. Public Participation: Way Forward

Comments on the reports were incorporated to generate the final report before submission to the Competent Authority: MME and the decision regarding the EIA report will be published.

3.6. Project Alternatives

3.6.1. Site Location Alternatives

An integrated site selection study was done in order to identify a suitable site for the proposed solar power plant. The proposed solar energy site on the site is considered highly desirable due to the following considerations:

- Solar resource: Analysis of available data from existing weather stations suggests that the site has sufficient solar resource to make a solar energy facility viable.
- Site extent: Sufficient land was secured under long-term lease agreements with the landowner to enable sufficient power supply and to allow for a number of heliostats to make the project feasible.
- Land suitability:

-Sites that facilitate easy construction conditions (relatively flat land with few rock outcrops or water-bodies) were favoured during site selection.

-The site position will strategically strengthen the national grid.

-Avoidance of obvious environmentally sensitive areas.

- Landowner support: The selection of sites where the land owner is supportive of the development of renewable energy is essential for ensuring the success of the project, in this instance, the proponent is the rightful owner of the land.

Consideration of the above criteria resulted in the selection of the preferred site. No further site location alternatives are considered in the EIA process.

3.6.2. Site Layout Alternatives

The PV layout and project component design underwent a number of iterations based on technical aspects and the environmental and social considerations assessed during the EIA process. From a layout perspective, the position of the proposed site infrastructure was determined by the consideration of the following aspects:

- Local topographical conditions:

- The position of environmentally sensitive features as assessed by the specialists depicted in the sensitivity analysis.

- The detailed sensitivity analysis was utilised to position the infrastructure in areas, which would be impacted least, yet be technically feasible. The assessment of the environmental attributes (specialist areas) that informed the sensitivity analysis essentially determined the site layout. The attributes that were included in the sensitivity analysis are: Ecology; Wetlands; Surface Hydrology; Soil Sensitivity; Visual Quality.

3.7. Technology Alternatives

3.7.1. Concentrated Solar Power (CSP) Systems

There are three CSP systems that were analysed for the proposed project. These are the 3 prominent systems used worldwide and are described below. More details are provided for the chosen Photovoltaic technology chosen for this project.

3.7.2. Linear systems

Linear CSP systems typically consist of a large number of parallel rows of parabolic (u-shaped) reflectors that track the sun from east to west during the day and concentrate the sunlight on a pipe that runs down the focal line of each trough.

The concentrated sunlight is amplified 30 to 100 times its normal intensity on the pipe containing heat transfer fluid (oil). The fluid flows through the pipe and is used to boil water and generate steam. The steam is used in a conventional steam turbine to generate electricity. Linear Fresnel reflector concentrating systems are configured similarly to that of the linear CSP. It uses Fresnel

lenses and mirrors to concentrate the sunlight onto a fixed receiver tube above the mirrors. The mirrors are mounted on trackers that are configured to follow the sun and ensure that the rays are concentrated on the focal point of the receiver. The mirrors are flat or slightly curved and are not as optically efficient as the trough reflectors.

3.7.3. Power Tower

Power tower systems utilize many flat, sun-tracking heliostats (mirrors) to concentrate sunlight onto a receiver on top of a central receiver tower. Heat transfer fluid flowing through the receiver is heated by the concentrated sunlight and the heated fluid generates steam, which by means of a steam turbine generates power. Molten salt is the preferred heat transfer fluid for the power tower system due to its superior heat transfer and heat storage capabilities which enables it to be effective in generating steam even when the sun is not shining or during cloudy conditions.

3.7.4. Dish Engine

The dish engine uses mechanical energy rather than steam to generate electricity. A large mirrored dish tracks the sun and concentrates the sunlight onto a receiver at the focal point of the dish. The receiver is integrated into a high efficiency combustion engine that has thin tubes containing helium or hydrogen gas that expands when heated. The tubes run on the outside of the engine's four piston cylinders and open into the cylinders. As the gas is heated to high temperatures it expands in the cylinders driving the pistons and effectively drives an electric generator. This system does not lend itself to thermal storage and will only generate electricity when the sun is shining.

3.7.5. Heat transfer mediums

There are three main heat transfer mediums used in utility scale concentrating solar power facilities. Oil, or Therminol, is the liquid used in a typical parabolic trough solar power project (molten salt is typically not used as there are many kilometres of horizontal piping, unlike a central tower project, which has only short lengths of almost exclusively vertical tubing). The main heat transfer mediums used in central power tower projects are steam ("Direct Steam" method) or

molten salt. The comparative advantages of these heat transfer mediums are summarised in the following table below:

Table 5: Comparative analysis of heat transfer systems.

Oil	Direct Stream	Molten Salt
Issues:	Issues:	Advantages:
1.6 km of tube per MW Sourcing Vacuum Tubes Toxic Therminol Curved, Stressed Glass Requires Natural Gas Loses Energy at Night Requires large volume of water Low temperature change No inherent storage Low quality steam	High pressure piping (thick wall, expensive, safety) Two phase flow (erratic flow control, high stress, turbine erosion, more complex start up) Typically requires natural gas No inherent storage Complex water / steam control	Primary heat transport meters of tube, not kilometers Inherent storage Dispatchable / On Demand No Natural Gas required No energy loss at night High quality steam Standard steam turbine

3.7.6. Cooling Alternatives

In thermal power generation there are predominantly three types of cooling systems that are in use. These are wet cooling, dry cooling and hybrid wet/dry cooling systems. These systems were evaluated and compared and the most suitable alternative recommend.

- **Wet Cooling**

Evaporative wet cooling is widely considered to be the most common method for new power plants due to its economical and high performing cooling technique. This technique however consumes high volumes of water, in excess of 1 million cm³ per annum. Waste heat energy dissipated from the power plant is rejected to the air through evaporation of the cooling water. The cooling water evaporates in a cooling tower. As a result of the continuous evaporation, water treatment chemicals and minerals contained in the water become concentrated over time and require that a portion of the cooling water (“blowdown”) be drained to remove high concentrations of accumulated salts and particulates. This is a potential source of an environmentally hazardous substance.

- **Dry Cooling**

Dry cooling uses considerably less water than dry cooling and is becoming more prevalent in new power plants due to the limitations on water in arid areas, where most solar thermal power plants are established. All of the waste heat from the plant is rejected to the air. Air has a much lower capacity to carry heat and is considered less efficient than water as a cooling medium. Large fans are required to remove the heat from the pipe array in the cooling system and often these fans use a portion of the power generated by the plant. This effectively causes dry cooling to have a reduced thermal efficiency compared with wet cooling. The dry cooling system does not create any environmentally hazardous blowdown. In summary dry cooling uses less water but the plant produces slightly less power as a result.

- **Hybrid Wet / Dry Cooling**

Hybrid cooling involves a combination of wet and dry cooling. Hybrid designs are aimed at reducing water consumption in comparison with wet cooling and enhance the plant’s performance in warm weather when the thermal efficiency of dry cooling is least effective. Hybrid systems either involve separate wet and dry systems that operate in parallel or use water to cool the air used in the air-cooled condenser. This system uses a fraction of the water of wet cooling and the turbine performance can be maintained on or close to design conditions. Considerably less blowdown will be resultant when compared with wet cooling. It is less expensive than an air-cooled plant and more expensive than a water-cooled plant.

3.8. Photovoltaic Power (PV) Systems

There are two PV technologies that were considered for the proposed project. The two technologies are the most prominent technologies in use worldwide and are described below:

3.8.1. Crystalline Technologies

By far, the most prevalent bulk material for solar cells is crystalline silicon (C-Si). Bulk silicon is separated into multiple categories according to crystallinity and crystal size in the resulting ingot, ribbon, or wafer.

Monocrystalline silicon (c-Si):

Often made through the Czochralski process. Single-crystal wafer cells tend to be expensive, and because they are cut from cylindrical ingots, do not completely cover a square solar cell module without a substantial waste of refined silicon. Hence most c-Si panels have uncovered gaps at the four corners of the cells.

Poly- or Multi-crystalline silicon (poly-Si or mc-Si):

Made from cast square ingots of large blocks of molten silicon carefully cooled and solidified. Poly-Si cells are less expensive to produce than single crystal silicon cells, but are less efficient.

Ribbon silicon is a type of multi-crystalline silicon:

It is formed by drawing fiat thin films from molten silicon and results in a multi-crystalline structure. These cells have lower efficiencies than poly-Si, but save on production costs due to a great reduction in silicon waste, as this approach does not require sawing from ingots. Prices of polycrystalline silicon have gradually dropped as companies build additional polysilicon capacity quicker than the industry's projected demand. Manufacturers of wafer-based cells have responded to high silicon prices in 2004 - 2008 prices with rapid reductions in silicon consumption.

3.8.2. Thin film Technologies

Thin-film technologies reduce the amount of material required in creating a solar cell. Though this reduces material cost, it also reduces energy conversion efficiency. Thin-film solar technologies have enjoyed large investment due to the success of First Solar and the promise of lower cost and flexibility compared to wafer silicon cells, but they have not become mainstream solar products due to their lower efficiency and corresponding larger area consumption per watt production. The choice of the technology ultimately will lie with the Proponent and his design team based on the technical factors highlighted

3.8.3. Conclusion

The project will consider thin film technology because the technology reduces the amount of material required when creating a solar cell. Therefore, this reduces material cost. Other two options, crystalline technology and no-go alternative were discarded.

3.9. Transmission Line Right of Way Alternatives

For transmission line, two routes were considered; route 1 and route 2. Route 1 was chosen because of the following reasons;

- the line will be near an existing road hence easy access and no clearing of vegetation for road construction,
- existing servitude of the telephone line means less disturbance of the environment in terms of vegetation clearing.
- The route will use same servitude of the existing decommissioned telephone line.
- The area is already affected by human activities hence less environmental damage compared to route two that will involve clearance of virgin land for the line.
- Above all, this route is cost effective, route two was vetoed because it involves clearance of the land hence excessive environmental impacts, no road access and this may result in clearing of more vegetation, its long and expensive.

Figure 7 is clearly showing these two routes and the preferred one. Also Figure 3 is showing the nearby existing access road on route 1 and existing infrastructure.

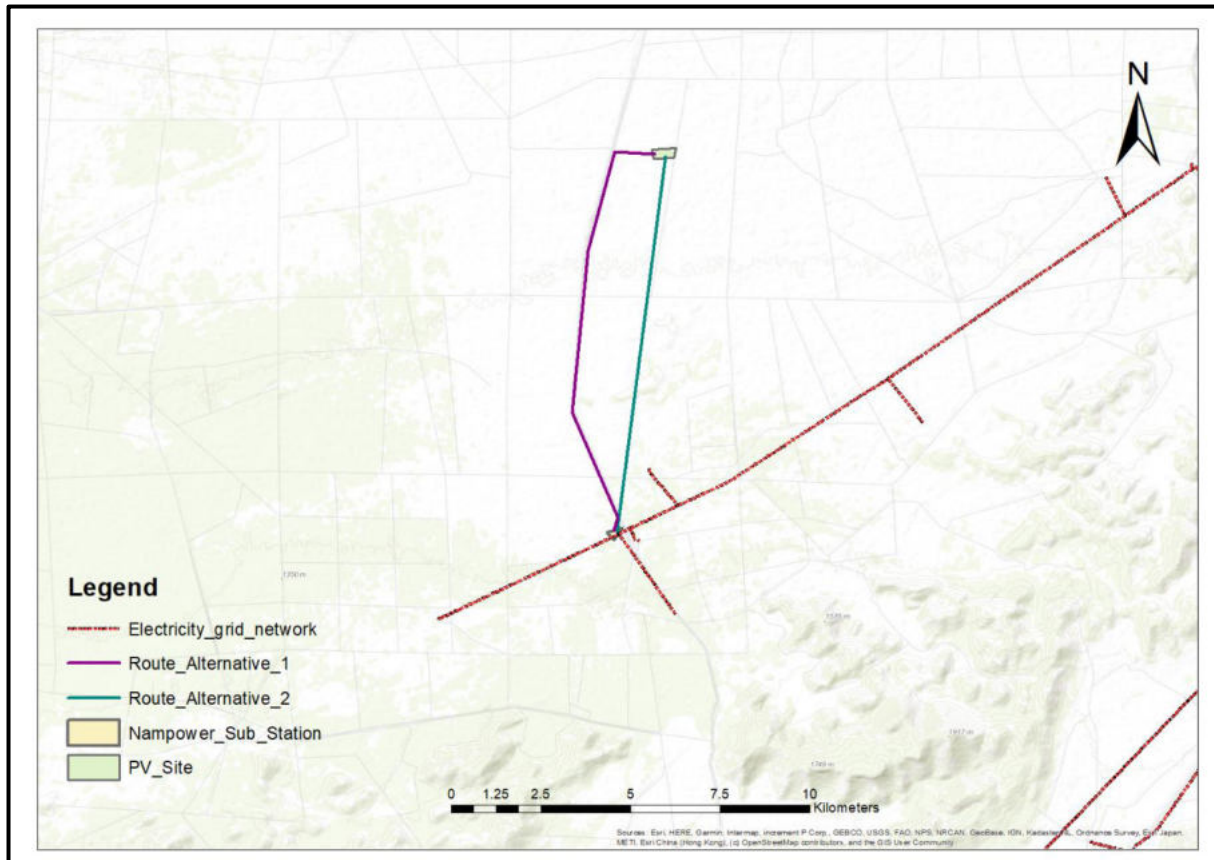


Figure 7: OHL Right of way alternatives

4. DESCRIPTION OF THE RECEIVING ENVIRONMENT

In this chapter, the findings of the EIA Team on baseline surveys, public consultation and desk reviews undertaken are in respect to the ecology, society, economy and geo-political set up of the proposed project area. The geological make up and meteorology of the project site will also be discussed in this chapter to give an in-depth understanding of the project area in question

4.1. Land use on the Project Site and the Surrounding Areas

The project area is on a commercial farm and the area of Tsumeb is farming area comprised of integrated crop and livestock production. There is also huge interest in mining. There Proponent has divided his farm to cater for the proposed solar plant and the remaining part of the farm will still be utilized for agricultural purposes.

4.2. Soils

Cambisols are characterized by the absence of a layer of accumulated clay, humus, soluble salts, or iron and aluminium oxides. They fairly young soils, these differ from un-weathered parent material in their aggregate structure, colour, clay content, carbonate content, or other properties. The soils are deep enough for agricultural activities such as crop production and animal grazing.



Figure 8: Left - Grey Clay soils on site



Figure 9: Right-Termites using clay soils for mounds

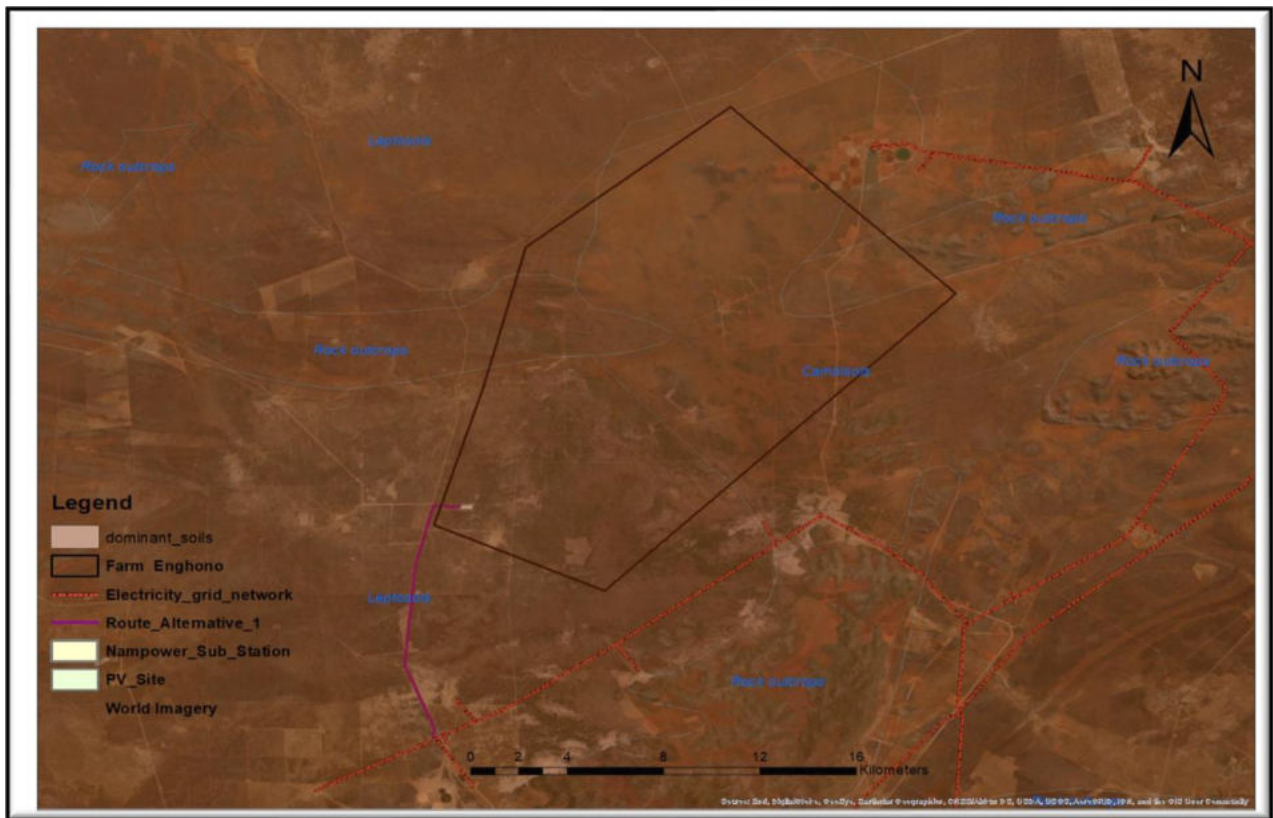


Figure 10: Pedology of the greater area

4.3. Climate

Aspect	Description
Classification of climate	Tsumeb has a hot semi-arid climate (Köppen: BSh), with hot summers and mild winters (with warm days and chilly nights).
Average rainfall:	600 mm per year
Temperature	The temperatures are highest on average in October, at around 25.9 °C. In June, the average temperature is 16.2 °C. It is the lowest average temperature of the whole year.
Humidity	The relative humidity during the least humid months of the year (i.e. September and October) is around 20-30% and the most humid month is March with 70-80% humidity. Namibia has a low humidity in general, and the lack of moisture in the air has a major impact on its climate by reducing cloud cover and rain and increases the rate of evaporation.

Wind direction	Predominantly Westerly winds are experienced in Tsumeb. General wind speed is at an average 2.3 m/s, based on data collected from Tsumeb Weather station.
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4.4. Topography

The site area is gently sloping to the North-east. The farm is located in the northern section of the central Namibian Plateau on the northern edge of the Otavi Mountain land which is characterised by a typical karst landscape. The farm relatively flat (1 300 meters above mean sea level and flanked to the south and east by the Otavi Mountains. The terrain of the area is characterised by gentle undulating relief around the smelter complex. The Waterberg plateau is located approximately 82 km to the south-west of the farm. The project site is generally flat and no earthwork to level it is expected.

4.5. Flora

The vegetation structure reflects the most prominent form of plants present in an area. The area was cleared of vegetation mainly for cultivation purposes and other needs such as firewood, building poles etc. Flora The vegetation in this area is classified as the Acacia tree-and shrub savanna (Kartsveld) made up of mixed woodlands, (Mendelsohn, 2002). The project site is dominated by woody species such as *Combretum apiculatum*, *Dichrostachys cinerea*, *Vachellia* species and *Senegalia* species. The most abundant grasses in this area are *Melinis repens* *Aristida congesta*, *Enneapogon cenchroides*, *Setaria verticillata*, *Stipagrostis uniplumis*, *Chloris virgata*, *Eragrostis trichophora*, *Heteropogon contortus*, *Panicum kalaharensis* and some wild *Sorghum* species. The main bush encroaching species are *D. cinerea* and *S. mellifera* (Mendelsohn, 2002).

4.6. Fauna

Although the project site is a farm with herds of cattle it is home to wild life such as kudu, springbok and warthog. Predators such as jackals roam on the farm but in camps that are far away from the farm house. Small animals such as porcupines and ground squirrels can also be found. The farm is home to a variety of birds such as the Cape turtle and doves.



Figure 11: Top Left-Thorny invasive shrubs on site

Figure 12: Right-Young mopane species spotted around the site

Figure 13: Bottom Left-Already cleared portion of the solar plant site

Figure 14: Bottom Right-General area already degraded by grazing and general development on the farm

4.7. Value of plant resources on the project site

The value of plants found in the study area is rated as poor or low and this is based on a scale of the relative abundance of resources in Namibia. There are basically three measures of value of plant resources used:

- Relative abundance of hardwoods used for timber and firewood,
- Grazing for livestock and wildlife and
- Browse for livestock and wildlife

The overall decision was made based on the location of the proposed solar plant location which is not in use at the moment.

5. ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS

5.1. Overview

The proponent is committed to sustainability and environmental compliance through coming up with a corrective action plan for all anticipated environmental impacts associated with the project. This is also in line with the Namibian Environmental Management legislation and International best practices on energy generation, transmission and linear infrastructure. The proponent will implement an Environmental Management Plan (EMP) in order to prevent, minimise and mitigate negative impacts. The environmental management plan is being developed to address all the identified expected impacts, the plan will be monitored and updated on a continuous basis with aim for continuous improvement to addressing impacts.

5.2. Assessment Of Impacts

This section sets out the overall approach that was adopted to assess the potential environmental and social impacts associated with the project. To fully understand the significance of each of the potential impacts each impact must be evaluated and assessed. The definitions and explanations for each criterion are set out below in **Error! Reference source not found.** and

Table 6: Assessment Criteria

Duration – What is the length of the negative impact?	
None	No Effect
Short	Less than one year
Moderate	One to ten years
Permanent	Irreversible
Magnitude – What is the effect on the resource within the study area?	
None	No Effect
Small	Affecting less than 1% of the resource
Moderate	Affecting 1-10% of the resource
Great	Affecting greater than 10% of the resource
Spatial Extent – what is the scale of the impact in terms of area, considering cumulative impacts and international importance?	
Local	In the immediate area of the impact

Regional / National	Having large scale impacts
International	Having international importance
Type – What is the impact	
Direct	Caused by the project and occur simultaneously with project activities
Indirect	Associated with the project and may occur at a later time or wider area
Cumulative	Combined effects of the project with other existing / planned activities
Probability	
Low	<25%
Medium	25-75%
High	>75%

(Adopted from ECC-Namiba, 2017)

Table 7: Impact Significance

Class	Significance	Descriptions
1	Major Impact	Impacts are expected to be permanent and non- reversible on a national scale and/or have international significance or result in a legislative non- compliance.
2	Moderate Impact	Impacts are long term, but reversible and/or have regional significance.
3	Minor	Impacts are considered short term, reversible and/or localized in extent.
4	Insignificant	No impact is expected.
5	Unknown	There are insufficient data on which to assess significance.
6	Positive	Impacts are beneficial

(Adopted from ECC-Namiba, 2017)

Table 8: Environmental Impacts and Aspects Assessment

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure
TOPOGRAPHY	Landscape Scenery	Visual aesthetic impact	Construction and Operation	Moderate	Moderate	Local	Direct	Medium 25 - 75%	Minor	PV Plant & Transmission line
SOIL	Soil	Contamination to soil from waste disposal	Construction and Operations	Moderate	Small	Local	Direct	Low <25%	Minor	PV Plant
	Soil	Spillages of fuel, oil and lubricants.	Construction	Short	Small	Local	Direct	Low <25%	Minor	PV Plant & Transmission line
	Soil	Erosion	Operations	Moderate	Small	Local	Direct	Low <25%	Minor	PV Plant & Transmission line
LAND CAPABILITY	Terrestrial ecology and aquatic ecosystems	Change in land use	Construction and Operations	Permanent	Great	Local	Direct	Low <25%	Moderate	PV Plant
	Carrying capacity	Increase in human activities in the environment	Construction and Operations	Moderate	Moderate	Regional	Direct	Medium 25 - 75%	Moderate	PV Plant & Transmission line
WATER	Surface water quality	Water pollution from oils and lubricants from vehicles and machinery.	Construction and Operations	Moderate	Moderate	Local	Direct	Medium 25 - 75%	Moderate	PV Plant and Transmission line

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure
	Surface water quality	Turbidity and high sediment load	Construction	Moderate	Small	Local	Direct	Low <25%	Moderate	PV Plant
AIR QUALITY	Air Quality	Construction phase dust	Construction	Short	Small	Local	Direct	Low <25%	Minor	PV Plant
WASTE	Groundwater quality	Hazardous waste such as waste oil and lubricants.	Construction and Operations	Short	Small	Local	Direct	Low <25%	Minor	PV Plant
	Surface water quality	Threatened from plant stormwater discharge into the river.	Construction and operations	Moderate	Moderate	Regional	Direct	Medium 25 - 75%	Moderate	PV Plant
	Topography and Landscape	Visual impacts due to use of unsustainable disposal methods	Construction and Operations	Short	Small	Local	Direct	Low <25%	Minor	PV Plant and transmission line
FAUNA	Terrestrial ecology and biodiversity	Loss of habitat and driving away of local animals and aquatic animal species	Construction and Operations	Moderate	Moderate	Local	Direct	High >75%	Minor	PV Plant & Transmission line
	Avifauna	Bird electrocution, and physical crashes	Operations	Moderate	Small	Local	Direct	Low <25%	Minor	Transmission line
	Aquatic life	Antifouling paints	Operations	Moderate	Small	local	Direct	Low <25%	Minor	PV Plant

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure
	Terrestrial ecology and biodiversity	Destruction of vertebrate fauna (e.g. road kills; fence and powerline mortalities)	Construction and Operations	Long	Moderate	Local	Direct	Low <25%	Minor	PV Plant & Transmission line
FLORA	Terrestrial ecology and biodiversity	Proliferation of invasive species inland	Construction and Operations	Long	Moderate	Local	Direct	High >75%	Moderate	PV Plant & Transmission line
	Terrestrial ecology and biodiversity	Illegal collection of firewood	Construction and Operations	Long	Moderate	Local	Direct	Low <25%	Minor	PV Plant & Transmission line
	Terrestrial ecology and biodiversity	Loss of unique flora and special habitats in the local environment because of general nuisance and animal migrate.	Construction and operations	None	Moderate	Regional	Direct	Low <25%	Moderate	PV Plant & Transmission line
	Terrestrial ecology and biodiversity	Uncontrolled fires	Construction	Long	Great	Regional / National	Direct	Low <25%	Major	PV Plant & Transmission line
SOCIAL	Noise Pollution	Increased noise levels	Construction and operations	Moderate	Small	Local	Direct	Low <25%	Minor	PV Plant & Transmission line

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure
	Socio Economic Activities	Temporary and permanent employment prospects.	Construction and operations	Long	Moderate	Regional	Direct	Medium 25 – 75%	Positive	PV Plant & Transmission line
	Socio Economic Activities	Climate change impacts	Operations	Long	Moderate	Regional / National	Direct	High >75%	Positive	PV Plant & Transmission line
	Contribution to National Economy	Employment, local procurement, duties and taxes.	Construction and Operations	Short	None	Regional / National	Direct	Low <25%	Positive	PV Plant & Transmission line
Heritage/Archaeology	Artefacts, archaeological high value components	Destruction or affecting paleontological and archaeological artefacts	Construction and Operation	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate	PV Plant & Transmission line
HEALTH AND SAFETY	Health Sanitation	Poor ablution and waste management facilities may be detrimental to human health.	Construction and Operation	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate	PV Plant & Transmission line
	Property and human life	Electrocution, fires resulting in fatalities, damage to properties, veldt fires and power surges.	Construction and Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	PV Plant & Transmission line

6. ENVIRONMENTAL MANAGEMENT PLAN

6.1. Planning and Design

This section outlines how environmental considerations have informed and been incorporated into the planning and design phases of the proposed 1000 MW (solar) power/energy plant at Enghono Farm.

The following design related mitigation measures have been recommended to reduce the environmental impacts and gave rise to the EMP that follows. This EMP has been structured so as to provide its various intended recipients (Developer, ER, consulting engineers and contractors) with mitigation measures immediately applicable to their respective scopes of work. The management requirements for the various recipients carrying out work for this project are divided according to the main project phases. Namibia is known for its high amount of solar radiation making solar energy an efficient renewable energy source. However, the azimuth changes over time during the day and between seasons and as a result a design factor to consider will be tracking the azimuth to harness maximum insolation.

6.1.1. Biodiversity and Ecology

The following mitigation measures are recommended for the planning and design phase to reduce the impact on the biological environment:

- Minimisation and management of impacts to indigenous or otherwise protected flora that is located on-site, including the protection of habitats therein.
- Locate access routes and other infrastructure to avoid the removal of bigger trees as far as possible.
- Limit development and associated infrastructure in sensitive areas such as riparian vegetation.
- Design electrical boundary fencing if needed, so that the first 50cm from ground level is not electrified to allow for small burrowing animals.
- The design should include covers on transformers to prevent owls and genet from nesting on them.
- Design a bund wall around transformers.

- Ensure landscaping designs prohibits the planting of potentially alien invasive plant species (e.g. *Tecoma stans*, *Pennisetum setaceum*, etc.) for decorative purposes (e.g. around offices, etc.) and incorporates indigenous vegetation (especially the protected species such as *A. erioloba*, *Albizia anthelmintica*, *B. albitrunca*, *B. foetida*, *Faidherbia albida*, *Parkinsonia africana*, *Ziziphus mucronata*) into the developments as far as possible (e.g. around offices, etc.).
- Promptly identify weed species and habitats and adopt specific weed control requirements.
- Design overhead transmission lines to include coils/flappers (approximately two coils/flappers within a pylon at equal lengths apart) on new pylon routes longer than 100 m to increase visibility and reduce bird mortalities.

6.1.2. Socio-Economic

The following mitigation measures are recommended for the planning and design phase to reduce the impact on the socio-economic aspects.

- The contractor should be required to employ local labour (i.e. from Tsumeb area) where possible. The requirements for employing local people should be formalised within the contractor's contract. Should a position be offered to non-local person the contractor should be able to prove that no local person qualifies for such a position, through advertising. Follow up must be undertaken to ensure that the contractor is indeed following the guidelines as prescribed in this EMP.
- A provision stating that all unskilled labour should be sourced from local communities should be included within tenders concerning the construction and/or maintenance of services infrastructure.
- Specific recruitment procedures ensuring qualified local companies enjoy preference during tender adjudication should be included within tenders concerning the construction and/or maintenance of services infrastructure.
- Provisions promoting gender equality pertaining to recruitment should be included within tender documents concerning the construction and/or maintenance of services infrastructure.

- Women and the physically challenged should be given preference for certain unskilled jobs (e.g. flag bearers).
- It is crucial that the project procurement criteria include requirements for training and skills development of the contractor's workforce by the contractor. Furthermore, this training should be able to capacitate the employees to apply for permanent positions during the operations of the solar power facilities.

6.1.3. Heritage

The following mitigation measures have been recommended for the planning and the design phase.

- Should any archaeological artefacts be found on site during excavations, a formal application must be made through the National Heritage Council (NHC)?

6.1.4. Roads

The following mitigation measure is recommended in line with the planning and design phase to reduce the impact on a traffic and roads perspective:

- The intersection of the access road to the Solar Facility site must be designed by a professional engineer and submitted to the Roads Authority (RA) for approval.
- Furthermore, the proponent is required to notify RA well in advance as to when the actual construction phase will begin.

6.1.5. Visual

The following mitigation measures are recommended for the planning and design phase to reduce the impact on visual resources:

- Limit offices and structures to single storey and site carefully to reduce visual intrusion.
- Select colours for buildings to reflect hues of the surrounding vegetation and/or the ground (grey green). Door and window frame colour must reference either the roof or wall colours.
- Locate the construction yard away from the new access road and retain as much of the adjacent vegetation as possible.

- Limit the size of signage and use colour tones that are visible but not dominating, so that size and colour contrast do not dominate the attention of the casual observer.
- Ensure that fencing is grey in colour and located as close as possible around the PV site.
- Keep facility lighting to a minimum, within the requirements of safety and efficiency. Where lighting is required, use energy savers and design low-level lighting shielded to reduce light spillage and pollution. Use down-lighters for external lighting (including security and perimeter lighting) so that no light falls outside the area needing to be lit and ensure that no naked light sources are directly visible from a distance.
- Should single axis tracking PV technology be used, this must be limited to 7m in height.

6.1.6. Noise

The following mitigation measures are recommended for the planning and design phase to reduce the impact from a noise perspective:

- Ensure that the facility is designed to take into account the maximum allowable equivalent continuous day and night rating levels of the potentially impacted sites outside the project boundary. Where the noise levels at such external sites are presently lower than the maximum allowed, the maximum must not be exceeded.
- Design buildings to minimise the transmission of noise from the inside to the outdoors.
- Insulate particularly noisy plant areas and equipment and keep all plant, equipment and vehicles in good repair.
- Where possible, ensure very noisy activities do not take place at night.

6.1.7. Cabling and wiring

- Cables should be installed in line with the manufacturer's recommendations. Installation should be done with care as damage can occur when pulling the cable into position. The correct pulling tensions and bending radii should be adhered to by the installation contractor to prevent damage to the cable. Similarly, cables attached to the mounting structure require the correct protection, attachment and strain relief to make sure that they are not damaged.

- Underground cables should be buried at a suitable depth (generally between 500mm and 1,000mm) with warning tape or tiles placed above and marking posts at suitable intervals on the surface. Cables may either be buried directly or in ducts. If cables are buried directly, they should be enveloped in a layer of sand or sifted soil in order to avoid damage by backfill material.

6.2. Responsibilities

The responsibility for the implementation of the EMP ultimately lies with Enghono Power (Pty) Ltd (the Developer), who is also responsible for the eventual operation of these developments. The implementation of this EMP requires the involvement of several key individuals, each fulfilling a different but vital role to ensure sound environmental management during each phase of these developments.

The Developer should appoint an Employer's Representative (ER) to oversee all aspects of these developments for all development phases (including all contracts for work outsourced). Furthermore, the developer may decide to assign this role to one person for the full duration of these developments, or may assign an ER to each of the development phases i.e. one for the Planning and Design Phase, one for the Construction Phase and one for the Operational and Maintenance Phase. The ER will in turn appoint an Environmental Control Officer (ECO) to oversee the implementation of the whole EMP during the Construction and Operation and Maintenance Phases of the Solar Power Facility. Again, the ER (and/or the Developer) may decide to assign this role to one person for both phases, or may assign a different ECO for each phase – i.e. one for the Construction Phase and another for the Operation and Maintenance Phase. The following positions and their respective responsibilities are outlined below:

- Employer's Representative;
- Environmental Control Officer; and
- Contractor (Construction and Operations and Maintenance).

6.3. Employers Representative (ER)

The ER is appointed by the Developer to manage all contracts for work/services that are outsourced during all development phases. Any official communication regarding work agreements is delivered through this person. The ER should with the commencement of the project appoint a competent ECO who will represent the Developer on-site.

During the Planning and Design and Construction Tender Preparation Phase, the ER will have the following responsibilities regarding the implementation of this EMP:

- Ensuring that the necessary legal authorisations have been obtained;
- Developing, managing implementation of and maintaining all Development;

6.4. Environmental Control Officer (ECO)

The ECO should be a competent person appointed by the ER. The ECO is the Developer's on-site representative primarily responsible for the monitoring and review of on-site environmental management and implementation of the EMP by the Contractor. If no ECO is appointed the duties of the ECO fall upon the ER. During the Construction Phase and Operation and Maintenance Phase the ECO's duties include the following:

- Assisting the ER in ensuring that the necessary legal authorisations have been obtained;
- Maintaining open and direct lines of communication between the ER, Developer, the Construction and/or Operations and Maintenance Contractor, and Interested and Affected Parties (I&APs) with regard to this EMP and matters incidental thereto;
- Monthly site inspection of all construction and/or infrastructure maintenance areas with regard to compliance with this EMP;
- Monitor and verify adherence to the EMP (audit the implementation of the EMP) and verify that environmental impacts are kept to a minimum;
- Be fully conversant with the Environmental Management Plan.
- Be fully conversant with all relevant environmental legislation and the Namibian Energy Policy environmental policies and procedures, and ensure compliance with them.

6.5. Safety Health and Environmental (SHE) Officer

The SHE Officer will:

- Be fully conversant with the Environmental Management Programme.
- Be fully conversant with all relevant environmental legislation applicable to the project, and ensure compliance with them.
- Compilation of Method Statements together with the contractor that will specify how potential environmental impacts in line with the requirements of the EMP will be managed, and, where relevant environmental best practice and how they will practically ensure that the objectives of the EMP are achieved.
- Convey the contents of this EMP to the construction site staff and discuss the contents in detail with the Contractor.
- Undertake regular and comprehensive inspection of the site and surrounding areas in order to monitor compliance with the EMP.
- Take appropriate action if the specifications contained in the EMP are not followed.
- Monitor and verify that environmental impacts are kept to a minimum, as far as possible.
- Order the removal from the construction site of any person(s) and/or equipment in contravention of the specifications of the EMP.
- Report any non-compliance or remedial measures that need to be applied to the appropriate environmental authorities, in line with the requirements of the EMP.
- Submitting a report at each site meeting which will document all incidents that have occurred during the period before the site meeting.
- Ensuring that the list of transgressions issued by the ECO is available on request.
- Maintain an environmental register which keeps a record of all incidents which occur on the site during construction. These incidents include:
 - ✓ Public involvement / complaints.
 - ✓ Health and safety incidents.
 - ✓ Incidents involving hazardous materials stored on site.
 - ✓ Non-compliance incidents.

6.6. Monitoring

A monitoring programme will be in place not only to ensure compliance with the EMP through the contract/work instruction specifications, but also to monitor any environmental issues and impacts which have not been accounted for in the EMP that are, or could result in significant environmental impacts for which corrective action is required.

A monitoring programme will be implemented for the duration of the construction phase of the project. This programme will include

- Monthly audits will be conducted by the ECOs for the duration of the construction phase – the ECO shall undertake this environmental monitoring with the audits considering compliance with the EMP, the EA conditions, as well as the conditions of any permits and/or licences.
- On-going monitoring is to be undertaken by the Contractors' Environmental Manager/Officer – this will include notification to the ECO and proponent EO should an incident take place.
- External auditing may take place at unspecified times by the authorities and/or other relevant authorities.
- An independent, suitably qualified, auditor will need to be contracted to conduct an audit once the construction phase of the project is completed according to the provisions of the EMP.
- The Contractor's Environmental Officer must undertake regular site inspections (at least twice weekly) to ensure all legislative requirements are adhered to. Proof of such inspections shall be kept on file for ease of reference or for audit purposes.

6.7. Contractor

The Contractor is responsible for the implementation of the EMP, on-site monitoring and evaluation of the EMP. It is envisaged that various contractors might be appointed at various periods for various tasks throughout the life cycle (construction through to decommissioning phase) of this project. These can be broadly grouped into Construction Contractors and Operations and Maintenance Contractors. In order to ensure sound environmental management, the relevant sections of this EMP should be included in all contracts of work outsourced thus legally binding all appointed contractors and sub-contractors.

All contractors shall ensure that adequate environmental awareness training of senior site personnel takes place and that all construction workers and newcomers are inducted on the environmental, health and safety issues related to the project as well as importance and implications of the proposed EMP. The induction process shall be conducted, as far as is possible, in the employees' language of choice. The Contractor should keep records of all environmental training sessions, including names, dates and the information presented.

6.8. Environmental Specifications: Awareness, Training and Competence

It is important to ensure that all personnel have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and ongoing minimisation of environmental harm.

To achieve effective environmental management, it is important that employees, Contractors and Subcontractors are aware of the responsibilities in terms of the relevant environmental legislation and the contents of this EMP. Environmental training may typically include the following:

- Employees must have a basic understanding of the key environmental features of the construction site and the surrounding environment;
- Employees will be familiar with the requirements of the EMP and the environmental specifications as they apply to the construction of the power station.
- Basic training in the identification of archaeological artefacts, and rare and endangered flora and fauna that may be encountered on the site.
- Awareness of any other environmental matters, which are deemed to be necessary by the ECO.
- Records must be kept of those that have completed the relevant training.

Training can be done both in a written or verbal format and in an appropriate language, but will be in an appropriate format for the receiving audience. Where training has been done verbally, persons having received training must indicate in writing that they have indeed attended a training session. A regular form of written or verbal testing will have to be designed.

6.9. The Construction Phase and Construction Mitigation Details

All activities involved in the development phases of the solar facility have been identified together with all aspects that may have potential impacts. The construction phase of the EMP aims to address environmental and social risk pertaining to the construction phase. The following table provides a large-scale overview of all the major environmental management themes pertaining to the project activities.

Table 9: Environmental Management Plan.

Section	Aspect	Impact	Mitigation	Indicator	Responsible Party
A	Waste Management Plan	There is a potential environmental contamination and degradation from waste on site.	The Contractor should compile a Waste Management Plan which should address as a minimum the mitigation measures included below		The contractor and the ECO
	Hazardous waste	Impact on soil and water.	<ul style="list-style-type: none"> • All heavy construction vehicles and equipment on site should be provided with a drip tray. <ul style="list-style-type: none"> ✓ Drip trays are to be transported with vehicles wherever they go. ✓ Drip trays should be cleaned daily and spillage handled, stored and disposed of as hazardous waste. • All heavy construction vehicles should be maintained regularly to prevent oil leakages. • Maintenance and washing of construction vehicles should be take place only at a designated workshop area. ✓ The workshop area should be lined with concrete and sloped so as to collect and detain all run-off. 	Correct handling, use and storage of materials, including hazardous material.	The contractor and the ECO

			<ul style="list-style-type: none"> ✓ The workshop should have an oil-water separator for collected run-off from washing. • Spilled cement and/or concrete (wet or dry) should be treated as hazardous waste and disposed of by the end of each day in the appropriate hazardous waste containers. • All hazardous substances (e.g. fuel etc.) or chemicals should be stored in a specific location on an impermeable surface that is bunded. 		
	General waste	<p>The incorrect management of solid waste can result in the pollution of soil, groundwater and the general environment.</p> <p>Windblown litter can also contribute to a negative visual impact.</p>	<ul style="list-style-type: none"> • The construction site should be kept tidy at all times. All domestic and general construction waste produced on a daily basis should be cleaned and contained daily. • No waste may be buried or burned. • Waste containers (bins) should be emptied regularly and removed from site to a recognised (municipal) waste disposal site. All recyclable waste needs to be taken to the nearest recycling depot. • A sufficient number of separate bins for hazardous and domestic/general waste must be provided on site. These should be clearly marked as such. 	<p>No complaints from the neighbours.</p> <p>No windblown waste.</p> <p>No contamination of the ground and water resources</p>	<p>The contractor and the ECO</p>

			<ul style="list-style-type: none"> • Construction labourers should be sensitised to dispose of waste in a responsible manner and not to litter. • No waste may remain on site after the completion of the project 		
	Sewage and grey water.	Incorrect management of sewage and grey waste may contaminate the soil, vegetation and underground water resources.	<ul style="list-style-type: none"> • Sewage should not be discharged directly onto open soil. • All sewage must be removed regularly and disposed of at a recognised (municipal) sewage treatment facility. • Grey water that is not recycled should be removed along with sewage on a regular basis. 	No sewage spills on site. No sewage and grey water pools on site.	ECO
			<ul style="list-style-type: none"> • Separate toilets should be available for men and women and should clearly be indicated as such. • Portable toilets (i.e. easily transportable) should be available at the construction site: • Sewage needs to be removed on a regular basis to an approved municipal) sewage disposal site. Alternatively, sewage may be pumped into sealable containers and stored until it can be removed. • Workers responsible for cleaning the toilets should be provided with latex 		

	Open Fires	Potential for fire outbreak on communal lands.	<ul style="list-style-type: none"> No open fires may be made anywhere on site. 	<p>No sign of burnt material on site.</p> <p>No sign of smoke on site at all times.</p>	Contractor and ECO
B	Environmental Training of workers	Without proper training the health and safety of workers will be at risk and preventable environmental impacts could occur.	<p>All construction workers are to undergo environmental induction (training) which should include as a minimum the following:</p> <ul style="list-style-type: none"> Explanation of the importance of complying with the EMP. Discussion of the potential environmental impacts of construction activities. Employees' roles and responsibilities, including emergency preparedness. Explanation of the mitigation measures that must be implemented when particular work groups carry out their respective activities. Explanation of the specific mitigation measures within this EMP especially unfamiliar provisions. 	<p>All employees adhere to the mitigation measures provided in this document.</p> <p>All operators of Mechanical equipment are trained properly by the contractor.</p>	METF and proponent
C	Communication	Inability to communicate the Environmental obligations effectively to responsible parties can result in unnecessary	To ensure that the construction activities do not result in avoidable impacts on the environment by anticipating and managing the impacts.	The ECO is aware of decisions taken by the engineer and contractors.	ECO, Contractor and proponent

		environmental degradation. It can also compromise the health and safety of employees as well as disruption to existing infrastructure.	<ul style="list-style-type: none"> • The contact details of the key construction team must be available to all relevant parties. • All site instructions pertaining to environmental matters issued by the Contractor are to be copied to the ECO. • All sub-contractors, employees, suppliers or agents etc. must be fully aware of the environmental management requirements detailed in this EMP. • Have a copy of the EMP and ECC available on site at all times for reference purposes. 	All relevant stakeholders are kept in the loop of all activity taking place on site.	
D	Socio-economic impact	The activity could benefit local Communities through job creation, however negative impacts are also possible and must be controlled.	Adhere to the legal provisions in the Labour Act (see Table 1) for the recruitment of labour (target percentages for gender balance, optimal use of local labour and SME's, etc.) in the Contract. The Contractor should compile a formal recruitment process including the following provisions as a minimum: <ul style="list-style-type: none"> • Recruitment should not take place at construction sites. • Ensure that all sub-contractors are aware of recommended recruitment procedures and 	Contribute to employment and capacity building in the local community. Creating awareness amongst employees and the public.	Contractor and ECO

			<p>discourage any recruitment of labour outside the agreed upon process.</p> <ul style="list-style-type: none"> Contractors should give preference in terms of recruitment of sub-contractors and individual labourers to those who are qualified and from the project area and only then look to surrounding towns. Clearly explain to all job-seekers the terms and conditions of their respective employment contracts (e.g. period of employment etc.) – make use of interpreters where necessary. 		
E	Heritage Resources	Heritage resources can be impacted on during the site clearance, earthworks and the construction of the facility.	<p>➤ Should a heritage site or archaeological site be uncovered or discovered during the construction phase of the project, a “chance find” procedure should be applied in the order they appear below:</p> <ul style="list-style-type: none"> If operating machinery or equipment stop work; Demarcate the site with danger tape; Determine GPS position if possible; Report findings to the construction foreman; Report findings, site location and actions taken to superintendent; Cease any works in immediate vicinity; 	No heritage artefacts are disturbed or destroyed on site and the NHC is informed should any heritage artefacts be discovered on site.	ECO, Proponent and Contractor

			<ul style="list-style-type: none"> • Visit site and determine whether work can proceed without damage to findings; • Determine and demarcate exclusion boundary; • Site location and details to be added to the project's Geographic Information System (GIS) for field confirmation by archaeologist; • Inspect site and confirm addition to project GIS; • Advise the National Heritage Council (NHC) and request written permission to remove findings from work area; and • Recovery, packaging and labelling of findings for transfer to National Museum. ➤ Should human remains be found, the following actions will be required: <ul style="list-style-type: none"> • Apply the chance find procedure as described above; • Schedule a field inspection with an archaeologist to confirm that remains are human; • Advise and liaise with the NHC and Police; and • Remains will be recovered and removed either to the National Museum or the National Forensic Laboratory. 		
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F	Ecological conservation	<p>Constructing the facility may have impacts on the fauna and flora. Additional pylon infrastructure to the substation areas is expected to be detrimental to larger avian species – i.e. potentially increase collision rates. Destruction of vertebrate fauna. Destruction of unique flora and special habitats</p>	<p>To prevent unnecessary disturbance to natural flora and fauna.</p> <ul style="list-style-type: none"> • Employ a qualified environmental officer during the construction phase to ensure the appropriate management of the wildlife and ecological processes. • Implement and maintain speed control with maximum speed limits (e.g. 40km/h). Temporary speed humps could also be used to limit the speed at which people travel but care must be taken to ensure these do not cause erosion. • Avoid off-road driving and unnecessary nocturnal driving in the area. • Prevent and discourage the setting of snares (poaching), illegal collecting of veld foods (e.g. tortoises, etc.), indiscriminate killing of perceived dangerous species (e.g. snakes, etc.) and the collection of wood in and surrounding the project area. • Initiate a policy of capture, removal and relocation of fauna (e.g. slow-moving species such as tortoises and chameleon) encountered serendipitously within the project site. 	<p>No animals are injured.</p> <p>No setting of snares</p> <p>No employees enter the no-go areas.</p> <p>No alien vegetation establishment.</p> <p>Implement speed limits and temporary speed humps.</p> <p>No off-road driving</p> <p>No setting of fires</p>	ECO and Contractor
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			<ul style="list-style-type: none"> • Avoid off-road driving and unnecessary nocturnal driving in the area. • Prevent and discourage the setting of snares (poaching), illegal collecting of veld foods (e.g. tortoises, etc.), indiscriminate killing of perceived dangerous species (e.g. snakes, etc.) and the collection of wood in and surrounding the project area. • Initiate a policy of capture, removal and relocation of fauna (e.g. slow moving species such as tortoises and chameleon) encountered serendipitously within the Avoid the removal of bigger trees (especially protected species –e.g. <i>Clospherpemum mopani</i> [Forestry Ordinance No. 37 of 1952) – during the construction phase(s) – including the development of access routes and other infrastructure developments. • Prevent planting of potentially alien invasive plant species (e.g. <i>Pennisetum setaceum</i>) for decoration purposes. • Any alien plants within the control zone of the must be immediately controlled to avoid establishment of a soil seed bank. Control measures must follow established norms and 	<p>Establish an appropriate refuse removal policy.</p> <p>No domestic pests on site</p>	
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			<p>legal limitations in terms of the method to be used and the chemical substances used. Disposal of cleared alien vegetation must be to a licenced landfill site.</p> <ul style="list-style-type: none"> • Normal agricultural activities must continue in unaffected areas. • Land rehabilitation and re-vegetation must commence immediately upon completion of construction. 		
	Topsoil	Top soil may be removed during the site preparation and excavation process, which could lead to land degradation.	<p>To minimise the erosion of topsoil</p> <ul style="list-style-type: none"> • When excavating, topsoil should be stockpiled in a demarcated area. • Stockpiled topsoil should be used to rehabilitate the nearest borrow area (existing borrow pits), if such an area is located less than 20 km from the stockpile. 	All topsoil removed is rehabilitated to its natural state at the end of the construction operations.	ECO and Contractor
G	Storm water runoff, erosion, and pollution of surface water and	Contamination of storm water runoff can impact on the surface and groundwater resources. The mismanagement of storm water can furthermore result in erosion	<p>Prevent storm water from eroding the land and becoming contaminated.</p> <ul style="list-style-type: none"> • Should construction activities for the proposed infrastructure need to take place within the drainage features (i.e. linear development including roads and transmission lines) this must transect the streams at right angles and be 	<p>Storm water not contaminated by construction activities.</p> <p>Storm water control measures are effective</p>	Contractor and ECO

	<p>groundwater resources</p>		<p>limited as far as possible to ensure minimum disturbance of such areas.</p> <ul style="list-style-type: none"> • Demarcate a 100 m no-go zone from ephemeral watercourses during construction to prevent construction activities from occurring near the ephemeral watercourses to prevent further loss of vegetation, erosion and watercourse sedimentation. • Any disturbed areas must be rehabilitated as Rubble, sand and waste material resulting from the construction activities must be cleared up but not disposed in any stream or drainage channels as it will impede on the flow in these channels. • The abstraction of groundwater must be properly controlled within a prescribed water demand management plan and as required by the licence conditions. • A critical groundwater level must be determined and the groundwater table must be maintained above such critical levels during water abstraction periods. 	<p>at regulating runoff from the site and erosion channels do not develop.</p> <p>Freshwater ecosystems are not unduly disturbed by construction activities within the drainage channels.</p>	
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H	Visual impacts	Although the visual resources of the area are degraded the additional PV facility could contribute to negative visual impacts being a communal area.	<p>Limit dust caused by materials haulage to and from the site, site development works</p> <p>Restrict the PV structure height to 7 m.</p> <ul style="list-style-type: none"> • Keep access roads clear and implement measures to minimise dust from construction traffic on gravel roads. • If site clearing is required, the topsoil must be removed and conserved for use in rehabilitation. The remainder could be used for site development, and any surplus disposed of in a manner that appears natural. • Remove all litter and no contaminants shall be allowed to enter the environment by any means. • Rehabilitation of all impacted areas must commence during the construction phase and continue until the state of the vegetation meets the requirements of the ecological assessment and is satisfactory to the ECO. 	No complaints from the public	ECO and Contractor
I	Traffic	During the construction phase, it is expected that there will be regular movement of vehicle to and from	<p>To ensure that increased traffic volume is managed efficiently to minimise associated impacts.</p> <ul style="list-style-type: none"> • Demarcate roads clearly. • Off-road driving should not be allowed. 	Traffic is orderly, free flowing and controlled.	Contractor

		the site for transportation of workers and materials.	<ul style="list-style-type: none"> • All vehicles that transport materials to and from the site must be roadworthy. • Drivers that transport materials should have a valid driver's license and should adhere to all traffic rules. • Loads upon vehicles should be properly secured to avoid items falling off the vehicle. • Access road entrances must be demarcated, both at their exit point from existing roads and the entry point to the site. • Erect signage to warn motorists about construction activities and heavy vehicle movement where appropriate. 		
J	HIV/AIDS and TB training	Possible discrimination of infected people and medical emergencies may occur.	The Contractor should approach the Ministry of Health and Social Services to containing opt a health officer to facilitate HIV/AIDS and TB education programmes periodically on site during the construction phase.	No discrimination in the workplace. Employees are appointed fairly without being discriminated.	Contractor
K	Dust	Dust generated from materials handling, roads and stockpiles can	To avoid nuisance impacts caused by dust as far as possible.	No complaints received from public	Contractor and ECO

		become a nuisance to neighbouring landowners.	<ul style="list-style-type: none"> • A watering truck should be used on gravel roads with the heaviest vehicle movement especially during dry and windy conditions. • However, due consideration should be given to water restrictions during times of drought. 	and or site staff.	
L	Noise	The increase in traffic and operation of equipment such as welding and fixing of the racks may result in noise becoming a nuisance.	<p>To ensure that noise from the construction activities do not exceed unacceptable levels</p> <ul style="list-style-type: none"> • Work hours should be restricted to between 08h00 and 17h00 where construction involving the use of heavy equipment, power tools and the movement of heavy vehicles is less than 500 m from residential areas. If an exception to this provision is required, all residents within the 500 m radius should be given 1 week's written notice. • Workers will be required to wear ear protecting devices whenever possible. • If the contractor needs to undertake activities outside the hours above, the residential and community receptors within audible range of the activity must be notified within 24 hours in advance of the planned activity. 	No noise complaints received.	Contractor and ECO

Table 10: Establishment of the working area / mobilisation.

Section	Aspect	Impact	Mitigation	Indicator	Suggested Responsibility
1	Demarcate the construction site	Without properly demarcating the site, the public would be able to access the site and would be at risk. The surrounding vegetation and watercourse might also be impacted by the activities.	It is of utmost importance to prevent the encroachment of construction areas into the surrounding environments.	Proper fencing in place to demarcate the construction site.	Contractor
2	Stockpiling of equipment and materials	Incorrect storing of materials can result in water and soil contamination, dust and or erosion. Incorrect storage and handling of materials also pose a risk of environmental contamination and could jeopardise the safety of public / site staff.	<p>Ensure that all materials and equipment handled and stored in a manner that environmental contamination and safety hazards are limited.</p> <ul style="list-style-type: none"> The IPP Contractor shall be advised by the Contractor of the housekeeping arrangements including areas intended for the stockpiling of materials. Implement General Specifications as presented in this document. 	<p>No public complaints or water/ soil contamination</p> <p>Correct handling, use and storage of materials, including hazardous materials.</p> <p>No incidents of environmental contamination.</p>	Contractor and ECO

				No accidents or incidents related to the handling of materials. No public complaints	
3	Ablution facility	The lack of adequate ablution facilities and recess areas can compromise the health of site staff and result in environmental degradation.	To minimise the potential environmental impacts associated with workers on the site. <ul style="list-style-type: none"> • Implement General Specifications 	Adequate ablution facilities are in place.	Contractors and ECO
Section	Aspect	Impact	Mitigation	Indicator	Suggested Responsibility
1	Demarcating the site area for	There may be Unnecessary environmental impacts outside the site footprint if the area is not demarcated.	To keep the site area to a minimum to avoid unnecessary impacts to the surrounding environment. <ul style="list-style-type: none"> • The site must be clearly demarcated with fencing or orange construction barrier to keep clearing activities to a minimum. • No site staff must be allowed in the area outside of the demarcated area to 	The site area is clearly fenced off.	Contractor and ECO

			prevent trampling of surrounding vegetation		
2	No-Go areas (Those areas which have been designated by the EAP as sensitive environments).	Without No-Go areas the free moving of site staff could result in impacts to sensitive areas.	To keep the site area to a minimum and to protect sensitive environmental areas. <ul style="list-style-type: none"> • Implement General Specifications. 	Comprehensive record, including photographic record, of compliance available.	ECO and Contractor
3	Removal of vegetation	If the removal of vegetation is done incorrectly it may leave the site prone to erosion and compromise rehabilitation requirements post construction.	To ensure that the site is not prone to erosion and any disturbed areas can be rehabilitated as necessary post-construction. <ul style="list-style-type: none"> • Implement General Specifications. 	Topsoil conserved in stockpiles for later use if necessary.	Contractor and ECO
4	Excavations for bulk earthworks	Created embankments (cut and fill) and retaining walls are required to level and stabilise the site. Excavations are also required to accommodate	To limit the impact to the environment caused by excavations. <ul style="list-style-type: none"> • Implement General Specifications 	No heaps of materials left on site after the construction phase.	Contractor and ECO

		bulk services which might impact on the environment.			
5	Removal of equipment, materials and any temporary structures	If the construction site is not decommissioned it can result in environmental degradation	It is very imperative to leave the impacted area in an acceptable state. <ul style="list-style-type: none"> • Implement General Specifications. 	The area impacted by the construction activities pose no threat to the environment	Contractor and ECO

6.10. The Operational and Maintenance Phase

The following mitigation measures should be complied with and carried out during any maintenance works associated with the services infrastructure within the planned development areas.

Table 11: The proposed mitigation measures for the respective environmental aspects of the project.

Aspect	Mitigation Measure
EMP Implementation	If any construction is to be conducted as part of maintenance works for the services infrastructure within the project area please refer to the construction mitigation measures of this EMP.
Environmental management Documentation and procedures	<p>To ensure that the operation of the facility does not result in avoidable impacts on the environment, and that any impacts that do occur are anticipated and managed.</p> <ul style="list-style-type: none"> • Appoint a suitably qualified, independent ECO to monitor compliance and compile an environmental audit report. • Audit the compliance with the requirements of the environmental specification contained within the EMP
Socio-economic impact	<p>To ensure that the operation of the facility maximises positive impacts on the socioeconomic environment.</p> <p>1) Procurement of materials, goods and services must be from local suppliers, where possible.</p> <p>2) Employ local labour for the operational phase, where possible, and particularly for day to day operations and maintenance.</p> <p>3) The contractor must be required to employ skilled or semi-skilled local labour (depending on their capacity to operate the facility). The requirement to employ local labour must be incorporated in the contractor's contract. Follow-up compliance monitoring shall be undertaken.</p>

	<p>4) Where possible encourage the use of local suppliers for procurement of goods, materials and services.</p> <p>5) Implement training and capacity building programmes to enhance the ability of local community members to take advantage of available employment opportunities.</p>
<p>Protection of ecology</p>	<p>To prevent unnecessary disturbance to natural vegetation and fauna.</p> <ul style="list-style-type: none"> • Any alien plants within the site footprint must be immediately controlled to avoid establishment of a soil seed bank. Control measures must follow established norms and legal limitations in terms of the method to be used and the chemical substances used. • Ensure removal and control of existing invasive alien plant species (i.e. <i>Prosopis</i> sp.) onsite and within the surrounding 6 m wide fire break. • Maintain track discipline with maximum speed limits (e.g. 40km/h). Temporary speed humps could also be used to limit the speed at which people travel but care must be taken to ensure these do not cause erosion. • Avoid off-road driving and unnecessary nocturnal driving in the area. • Remove all refuse on site. • Maintain coils/flappers on new pylon routes longer than 100m to increase visibility and prevent further bird mortalities. • If nesting on pylon structures becomes problematic, “dummy poles” could be erected for species such as sociable weaver to avoid this problem. • Initiate land rehabilitation and re-vegetation as soon as possible and continue to monitor land for early signs of degradation and erosion. • Re-vegetate with more palatable plant species to enable faster stocking initiation. • Prevent and discourage setting of fires as this could easily cause runaway veld fires. • Do not allow domestic pets – e.g. cats and dogs to acing employee’s onsite. • Prevent and discourage the collection of firewood in and surrounding the project area. • Maintain transformer covers to ensure that no owls, genet or other animals are nesting on the transformers. • Ensure that solar panels are cleaned regularly and kept free of bird streamers.

<p>Storm water runoff, erosion, and pollution of surface water and groundwater resources.</p>	<p>Prevent storm water from eroding the land and becoming contaminated.</p> <ul style="list-style-type: none"> • The areas likely to contribute to contaminated runoff, such as the workshop must be designed to have hardened surfaces equipped with oil and grease traps to capture any contaminated runoff. These must be maintained during operation. • Should storm water infrastructure be required, a management plan must be in place to ensure as a minimum that the structures are visually monitored after large rainfall events to ensure that eroded areas do not develop. • Storm water runoff from the constructed areas must be monitored to ensure that eroded areas do not develop, particularly near the outlets. • Any refuse generated must be disposed of in suitable bins and removed from site at regular intervals. • Maintain the groundwater table above critical groundwater levels during water abstraction periods. • Ensure proper groundwater abstraction Management strategies
<p>Visual impact</p>	<p>To protect the sense of place.</p> <ul style="list-style-type: none"> • Keep access roads clear • Keep all lighting minimal, within the requirements of safety and efficiency. • Where such lighting is deemed necessary, use shielded low-level lighting to reduce light spillage and pollution. • Avoid naked light sources that are directly visible from a distance. Only reflected light must be visible from outside the site. • Rehabilitation of all impacted areas must continue until the state of the vegetation meets the requirements of the ecological assessment and is satisfactory to the Environmental Control Officer.
<p>Noise impact</p>	<p>To ensure that noise from the operational activities does not exceed unacceptable levels.</p> <ul style="list-style-type: none"> • All plant, equipment and vehicles must be kept in good repair. • When ordering plant and machinery, manufacturers must be requested to provide details of the sound power level. Where possible, those with the lowest sound power level (most quiet) must be selected.

Post-construction usage of borrow pits	Borrow pits to be utilised post-construction should adhere to the same topsoil and rehabilitation measures outlined within construction mitigation measures of this EMP
Post-construction environmental training and awareness	All contractors appointed for maintenance work on the respective services infrastructure must ensure that all personnel are aware of necessary health, safety and environmental considerations applicable to their respective work.
Monitoring	<p>The ECO should monitor the implementation of the Property Development EMP:</p> <ul style="list-style-type: none"> • The ECO should inspect the site before construction starts; and • The ECO should inspect the site at the end of the construction period.

6.11. Monitoring Programmes

Table 12: Environmental Monitoring Programme.

Section	Aspect	Phase	What to monitor	Standards to be Achieved
1	Access roads	Construction and operation	<ul style="list-style-type: none"> • Generation of mud on access roads after heavy rainfall event 	Roads in a well-maintained condition and causing no damage to vehicles
2	Dust	construction	<ul style="list-style-type: none"> • Dust and ensuring its suppression during construction of infrastructure 	Meet the standard for the South African Atmospheric Pollution Prevention Act 2
3	Erosion	Construction and operation	<ul style="list-style-type: none"> • Area (m²) affected by erosion Effectiveness of erosion control measures (improvement over time) 	<p>No incidences of erosion occurring</p> <p>Should erosion occur, successful remediation of erosion, so that areas are rehabilitated</p>
4	Pollution	Construction and operation	<ul style="list-style-type: none"> • No incidences of pollution Zero pollution incidences 	As incidents occur Fortnightly and after every event logged
5	Pollution safety	Construction and operation	<ul style="list-style-type: none"> • Integrity of impervious floor layer of fuel storage and dispensing areas • Integrity of bund walls 	Zero pollution incidences

			<ul style="list-style-type: none"> • The storage and dispensing areas are secure when not in use, e.g. overnight. • Clean up kits for accidental spills are available and 100% complete in terms of their contents • Any pollution or safety incidence 	
6	Erosion and water pollution	Construction and operation	<ul style="list-style-type: none"> • Storm water system integrity 	Weekly or after each heavy rainfall event
7	Waste	Construction and operation	<ul style="list-style-type: none"> • Certificates of disposal at authorised waste facilities • Incidences of waste management contraventions • Distribution and integrity of waste disposal containers • Awareness training for staff related to waste matters (proof of workers trained) 	Zero waste management infringements Application of responsible waste measures
8	Vegetation and fauna	Construction and operation	<ul style="list-style-type: none"> • Incidents of unauthorised entry into no-go areas • Erosion (area in m²) 	Zero incidents No incidences of erosion occurring

			<ul style="list-style-type: none"> • Rehabilitation of disturbed areas • Occurrence of alien species (type, location and area invested (m²)) • Establishment of bird nests on pylons and transformers as well as beneath solar panels. 	<p>Should erosion occur, successful remediation of erosion, so that areas are rehabilitated</p> <p>Measurable targets for this must be determined by the ECO at the commencement of the rehabilitation activities</p> <p>Zero alien species occurring in the footprint area and a 20m buffer area around footprint.</p> <p>No incidences of nesting birds (owls, genets and sociable weavers)</p>
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6.12. Decommissioning

In terms of EMA it is necessary to consider the environmental impacts of decommissioning of any development, however, the solar facility is expected to be operational for a period of 20 years or more. Thereafter, the PV facility could either be decommissioned or upgraded, depending on the feasibility.

According to Namibian Legislation, decommissioning is considered as a separate activity which should be dealt with on its own. The decommissioning of the PV facility would therefore be addressed in a new EIA process to be conducted prior to the site being decommissioned. This section makes recommendations that should be considered in the new EIA process prior to decommissioning.

The Project Proponent should develop a closure plan to be updated on an annual basis commencing at least 10 years prior to the envisaged decommissioning. The closure plan should identify the targets and objectives for closure, and will be important in allowing operations to work toward closure objectives. The Project Proponent should commission specialist inputs from time to time to provide direction on the closure plan to ensure the end result is as closely aligned with prevailing best practice as is possible, thereby minimising the risk and potential costs associated with decommissioning phase. The various stakeholders should also be engaged as early on in the closure planning process to ensure their interests are known and catered for from the point of origin. The construction phase EMP could be used as a guideline to facilitate the detailed decommissioning phase EMP.

Specific mitigation measures have been recommended for the decommissioning phase of the project and are listed below. It should however be noted that these conditions are subject to change.

6.13. Recommended Mitigation Measures for the Decommissioning Phase

6.13.1. Ecology

The following mitigation measures are recommended from an ecological point of view as part of the closure phase:

- Rehabilitate all areas impacted on by the infrastructure

- Remove all construction waste; rip temporary tracks, if feasible, and replace the topsoil.
- Re-introduce indigenous vegetation (especially protected species – i.e. Mopane) should form part of the rehabilitation process

6.13.2. Visual

The following mitigation measures are recommended from a visual point of view as part of the closure phase:

- All PV structures, associated structures and fencing must be removed and recycled as far as possible. Where it is not possible to recycle material, the waste shall be disposed of at a registered landfill site.
- Rehabilitate internal roads that cannot be used by the landowner.
- Rehabilitate and restore all impacted footprint areas as per the requirements of the ecological assessment.
- Rehabilitation of all impacted areas must continue until the state of the vegetation meets the requirements of the ecological assessment and is satisfactory to the ECO.

6.13.3. Socio economic

The following mitigation measures are recommended from a socio-economic point of view as part of the closure phase:

- Maximise the use of local labour on decommissioning activities;
- Provide adequate notification to staff and other stakeholders of the pending decommissioning;
- Provide staff with references so that they can pursue work with other companies;
- If feasible, assist staff in finding employment at other operations.

6.13.4. Surface water

The following mitigation measures are recommended for surface water management as part of the closure phase:

- A decommission plan should address the removal of the PV facilities and infrastructure. Such a plan must address aspects such as monitoring and management of surface water flows and erosion.

7. CONCLUSION AND RECOMMENDATIONS

7.1. Conclusion

The construction of a 1000 MW solar plant at Tsumeb has negative environmental impacts. The EIA study findings showed negative environmental impacts to the environment to varying degrees depending on the nature of the activity and impacts arising thereof. Management and corrective measures were formulated and implementation timelines proposed depending on the gravity of threat to human life and the environment.

The identified impacts, mitigation and monitoring activities, indicators, responsible parties and monitoring frequency are indicated in the EMP. The EMP should form the obligatory conditions upon which the EIA clearance certificates will be issued and non-compliance attracts prosecution. The EMP should be implemented throughout the project lifecycle and an Environmental Management System formulated and implemented based on the EIA study findings. Environmental monitoring and performance evaluations should be conducted and targets for environmental improvement set and monitored throughout the project lifespan. It is also our determination that the findings should be incorporated earlier and sound SHE policies and supportive programmes implemented.

7.2. Recommendations

Recommendations were developed to guide the Proponent on the key activities that should be done to effectively manage safety, health and environment:

- Develop SHE policies based on the study findings and use impacts evaluation to formulate the objectives.
- Develop and implement Environmental Management Systems.
- Develop an occupational health and safety plan
- Adhere to the environmental management obligations upon which the EIA clearance certificate will be issued by the METF: DEA.
- The EIA clearance will not exempt the Proponent from obtaining other relevant permits and should do as such:

- Permit to remove protected trees on a portion of the project site.
 - Water abstraction;
 - Connection to the National Grid;
 - Access roads etc.
- Provide relevant training to capacitate the workers with knowledge and skills to manage safety, health and the environment.

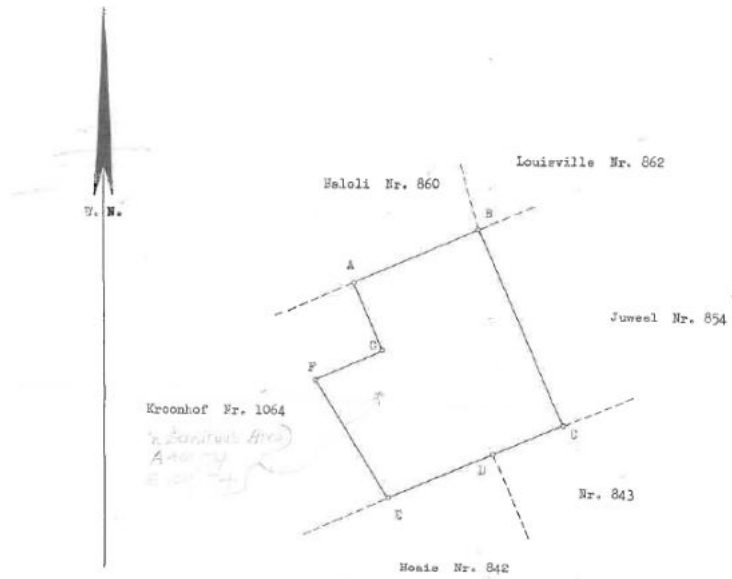
ANNEXES

Annex 1: Farm coordinates

GOEDGEKEUR **Nr. 352/63**

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E. " " "	E	- 27064.43	- 313050.69	148	47	30	EF	4024.00
F. " " "	F	- 24979.40	- 316492.37	245	40	43	FG	2110.41
G. " " "	G	- 26902.51	- 317361.55	156	24	28	GA	2110.72



Annex 2: Registered IAPs

INSTITUTION	CONTACT DETAILS
Ministry of Mines and Energy	officeoftheminister@mme.gov.na 061 284-8318/8308
Ministry of Public Enterprises	061 202 3623
Office of the Vice President: Marginalized Communities	psec.mc@mova.gov.na 061 296 3110
NAMPOWER	Mr. Smat Matengu Smur.matengu@nampower.com.na
Oshikoto Regional Council: Planning & Development	liilonga@oshikotorc.gov.na

Annex 3: EIA Notices

ENVIRONMENTAL IMPACT ASSESSMENT

NOTICE FOR THE CONSTRUCTION OF A 1000 MW SOLAR PLANT AT TSUMEB IN OSHIKOTO REGION.

OUTRUN CONSULTANTS CC HEREBY GIVES NOTICE OF THE ENVIRONMENTAL IMPACT ASSESSMENT FOR THE CONSTRUCTION OF A 1000 MW SOLAR PLANT AT TSUMEB. The exact location of the project site is highlighted in the Background and Invitation to participate Document (BID). An EIA is being commissioned as required under the Environmental Management Act, 7 of 2007 and Regulations of 2012. Interested and Affected Parties are invited to register and attend meetings as detailed below.

PROPONENT(S): EENGHONO POWER (PTY) LTD

PROJECT ACTIVITIES: CONSTRUCTION AND MANAGEMENT OF A SOLAR PLANT

PROJECT LOCATION: TSUMEB –OSHIKOTO REGION – MAP IS PROVIDED IN THE BID.

PUBLIC PARTICIPATION: A FORMAL MEETING WILL BE HELD WHEN WE RECEIVE SIZEABLE NUMBER OF RESPONSES.

VENUE: TO BE ADVISED

Josiah – 0812 683 578,

E-Mail: outruninvest@hotmail.com



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Public Notice

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

Notice is hereby given that an application for Environmental Clearance Certificate (ECC) will be submitted to the Ministry of Environment, Forestry & Tourism in terms of the Environmental Management Act (Act 7 of 2002) and applicable Regulations with respect to the following development:

Development	New Fuel Service Station & Related Activities
Location	6172469, East 2, Owerlipo Townships, CMT2150
Proponent	SPV Motor Spares & Garage CO
Public Meeting	No meeting will be held but MP's are invited to submit their comments, remarks, issues or concerns in writing to the contact details below.
Closing Date	Friday, 7 August 2020 @ 17:00
Ekwa Consulting	4300 Lombard Street, Owerlipo
Cell	081 137 3027
Fax	086 945 028
Email	ekwa@ekwa.co.za

Interested and Affected Parties are hereby invited to register and to submit their comments, remarks, issues or concerns in writing to the contact details below. A Background Information Document (BID) is available.

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ENVIRONMENTAL IMPACT ASSESSMENT

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PROPOSITOR: EENGHONO POWER (PTY) LTD

PROJECT ACTIVITIES: CONSTRUCTION AND MANAGEMENT OF A SOLAR PLANT

PROJECT LOCATION: TSUMEB – OSHIKOTO REGION – MAP IS PROVIDED IN THE BID

PUBLIC PARTICIPATION: A FORMAL MEETING WILL BE HELD WHEN WE RECEIVE SIZEABLE NUMBER OF RESPONSES.

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081 220 8176

Notices
Legal Notice

***CHIEF OF POLICE - THE CURRENT AND FORMER OFFICERS OF POLICE**
I/1) **PETER KALANDA**, residing at OSHIKOTO ROAD, AREA 4 and working as business / employed at 120 ASSISTANT DIRECTOR, OF THE MINISTRY OF ENVIRONMENT AND TOURISM, THROUGH THE OFFICE OF NAMBIA also a department of the Ministry of Environment and Tourism under section 9 of the Status Act, 2012. To receive the salary and allowances as mentioned.

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WINDHOEK 06-97 08

***CHIEF OF POLICE - THE CURRENT AND FORMER OFFICERS OF POLICE**
I/1) **WILLIAM B. SIBOMI** residing at OSHIKOTO ROAD, AREA 4 and working as business / employed at 120 ASSISTANT DIRECTOR, OF THE MINISTRY OF ENVIRONMENT AND TOURISM, THROUGH THE OFFICE OF NAMBIA also a department of the Ministry of Environment and Tourism under section 9 of the Status Act, 2012. To receive the salary and allowances as mentioned.

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***CHIEF OF POLICE - THE CURRENT AND FORMER OFFICERS OF POLICE**
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NOTICE OF LOST LAND TITLE NO.:
Notice is hereby given that I, **Gert Van Wyk** intend to apply for a certified copy of **CERTIFICATE OF TITLE** Rehoboth **MARSHLAND** (former **DELAAT**) Block 2, 3 and 4, Division of Rehoboth "B" DATED: 21 February 1957 **THE PROPERTY OF:** Gert Van Wyk.

All persons who object to the issue of such copy are hereby requested to lodge their objections in writing with the Registrar within three weeks from the date of publication of this notice. Dated at Rehoboth this 6th day of July 2020.
G. Van Wyk
Signature of Applicant
P.O. Box 489, Rehoboth
Tel No.: 082-52347



ENVIRONMENTAL IMPACT ASSESSMENT NOTICE FOR THE CONSTRUCTION OF A 1000 MW SOLAR PLANT AT TSUMEB IN OSHIKOTO REGION.

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PROCURING AGENT	The Central Procurement Board of Namibia on behalf of Road Fund Administration
COUNTRY	Namibia
DESCRIPTION OF THE BID	Land Acquisition for Road Fund Administration (RFA) for Nats One Stop Shop
PROCUREMENT REFERENCE NUMBER	G/ONB/CPBN-02/2020
BID DOCUMENT PRICE	A Non-refundable amount of N\$1000.00 is payable into Central Procurement Board of Namibia bank account once a reference number has been issued. Method of payment: EFT & Direct deposits only.
ADDRESS FOR THE COLLECTION & SUBMISSION OF BIDDING DOCUMENTS:	A set of complete documents with detailed specifications can be obtained from and submitted at: The Central Procurement Board of Namibia 1 Tainert Street Mandume Park, 1st Floor Windhoek Namibia
DATE OF ISSUE	17 July 2020
CLOSING DATE AND TIME	20 August 2020 at 11:00 AM (No late submissions/offers will be accepted)
OPENING OF BIDS (FOR SAFETY MEASURES, ONLY 50 BIDDERS WILL BE ALLOWED TO ATTEND THIS SESSION)	Bids will be opened in the presence of the Bidder's representatives in attendance at: The Central Procurement Board of Namibia, 1 Tainert Street, Windhoek, Namibia, on 20 August 2020 at 11:55 AM.
GENERAL ENQUIRIES	The Procurement Management Unit: Central Procurement Board of Namibia 1 Tainert Street, Mandume Park, 1st Floor, Windhoek, Namibia Email: procurement@cpb.org.na Tel: +264 61 447700
BID CLARIFICATIONS	All Requests for Clarifications should be addressed in writing to: clarification@cpb.org.na and reach the Procuring Agent not later than 06 August 2020 (14 days) prior to the closing date for submission of bids. Late requests will NOT be responded to.

082 523 4700 | info@cpbn.org.na | www.cpb.org.na | P.O. Box 2010 | Mandume Park, 1 Tainert Street, Windhoek, Namibia

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PROPOSER(S):
EENHONGO POWER (PTY) LTD
PROJECT ACTIVITIES:
CONSTRUCTION AND MANAGEMENT OF A SOLAR PLANT
PROJECT LOCATION:
TSUMEB - OSHIKOTO REGION - MAP IS PROVIDED IN THE BID.
PUBLIC PARTICIPATION:
A FORMAL MEETING WILL BE HELD WHEN WE RECEIVE SIZEABLE NUMBER OF RESPONSES.
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REZONING NOTICE

This notice that Ngwenyane Planning Consultants (Pty) Ltd (NPGC) has been appointed as the rezoning agent for the rezoning of the site situated at the intersection of the main road and the main road in the area of the site.

The rezoning is being formally processed.

It is the intention of the rezoning to allow the site to be used for the purpose of a 'General Residential' with a density of 1:500. The rezoning is being processed in accordance with the provisions of the rezoning scheme.

Further take notice that the rezoning of the site will be subject to the rezoning scheme (RSC) which is being processed by the rezoning agent. The rezoning agent is NPGC and the rezoning agent's office is located at the main road, Durbanville, Cape Town.

Further take notice that any person objecting to the rezoning of the site must do so in writing to the rezoning agent within the period of 14 days of the first publication of this notice.

PUBLIC NOTICE

ENVIRONMENTAL IMPACT ASSESSMENT FOR A 1000 MW SOLAR PLANT IN TSUMEB – OSHIKOTO REGION

OUTRUN CONSULTANTS CC HEREBY GIVES NOTICE OF AN EIA FOR THE CONSTRUCTION OF A 1000MW SOLAR PLANT AT TSUMEB. The exact location of the solar plant is indicated on the map (provided in BID). An EIA is being commissioned as required under the Environmental Management Act, 7 of 2007 and Regulations of 2012.

PROPOSANT(S): ENGHONO POWER (PTY) LTD
 PROJECT ACTIVITIES: CONSTRUCTION AND MANAGEMENT OF A SOLAR PLANT
 PROJECT LOCATION: TSUMEB - OSHIKOTO REGION - MAP IS PROVIDED IN THE BID.

PUBLIC PARTICIPATION: IAPs are invited to register with the consultant and communicate issues / concerns via email. No physical public meeting will be done but a zoom meeting only hence it is important to register.

Contact: Mandy
 • T: 061 24 6136
 • C: 081 896 8296
 • E: mandy@confidentesamba.com

FOR ADVERTISING
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 • T: 061 24 6136
 • C: 081 896 8296
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Ludwigsdorf - \$4.8mil - Urip 081 122 3797
 3 bed, 2 bath, sunny living areas, swimming pool and 3 car garage

Ludwigsdorf - \$8.2mil for sale /35 000 to rent from 40 000 - Urip 081 122 3797
 4 bed 5 bath, newly renovated luxury villa with swimming pool and self contained flat

SOLE MANDATE Ludwigsdorf - \$55 000 to rent - Urip 081 122 3797
 5 bed 4 bath, 4 car garage, cottage - rent includes pool and garden service

Windhoek Central - \$850 000 - Urip 081 122 3797
 2 bed 1 bath modern open plan apartment with outdoor space

Elisenheim - \$2.45mil - Joan 081 445 9386
 3 bed 2 bath, open plan living areas, single garage and beautiful garden

Eros - \$2.9mil - Joan 081 445 9386
 3 bed 2 bath, great entertainment areas, pool and double garage

Khomasdal - \$1.3mil Moses 081 344 6719/081 222 3127
 3 bed 2 bath with beautiful kitchen and living areas

Grysblok - \$1.45mil Moses 081 344 6719/081 222 3127
 3 bed 2 bath with lapa and single garage and boundary wall

Dorado Park - \$700 000 Moses 081 344 6719/081 222 3127
 2 bed 1 bath flat selling under valuation

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1. Okavango Garden - 2bedroom / 1 bathroom \$65,000
2. Beaufort - 3bedroom / 2 bathroom / 2 car garage \$85,000
3. Okavango - 3bedroom / 2 bathroom / 2 car garage \$95,000
4. Okavango - 3bedroom / 2 bathroom / 2 car garage \$95,000
5. Okavango - 3bedroom / 2 bathroom / 2 car garage \$95,000
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19. Okavango - 3bedroom / 2 bathroom / 2 car garage \$95,000
20. Okavango - 3bedroom / 2 bathroom / 2 car garage \$95,000

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