ENVIRONMENTAL SCOPING ASSESSMENT

FOR THE PROPOSED CONSTRUCTION AND OPERATION OF AN ACCESS GRAVEL ROAD FROM MR124 (C43) OKATUMBA TO OTUANI VILLAGE (8KM), KUNENE REGION, NAMIBIA.

Environmental Impact Assessment scoping report

MEFT APP-5496

RELEASED: APRIL 2025

Republic of Namibia
Ministry of Works and Transport

Proponent: Ministry of Works and Transport

6719, Bell Street, Snyman Circle, Ausspanplatz

Private Bag 13341

Windhoek, Namibia

THE PROPOSED CONSTRUCTION AND OPERATION OF AN ACCESS GRAVEL ROAD FROM MR124 (C43 road) OKATUMBA TO OTUANI VILLAGE (8KM), KUNENE REGION, NAMIBIA.

Document type: **Environmental Impact Assessment scoping report**

Document version: **Final for submission**

Application number: **5496**

Client	**Ministry of Works and Transport- Namibia** **Postal address:** Private Bag 13341, Windhoek, Namibia **Enquiries:** Rosalia Ashipala **Tel:** +264 61 208 8700 **E-Mail:** Rosalia.Ashipala@mwt.gov.na Signed……
Lead Consultant	**EnviroPlan Consulting Cc** **Postal address:** P O Box 81042, Olympia **Enquiries:** Talent Nyungu **Cell:** +264814087482 **E-Mail:** info@enviroplanconsult.com Signed ……
Date of release	31 March 2025
Author	Talent Nyungu
Reviewer	Tendai E Kasinganeti

Contents

List of Figures

List of Tables

Definitions

Table 1: Acronyms

TERMS	DEFINITION
BID	Background Information Document
CA	Competent Authorities
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EIASR	Environmental Impact Assessment Scoping report
ECO	Environmental Control Officer
EMP	Environmental Management Plan
EMP	Environmental Management Plan
GHG	Greenhouse Gasses
ISO	International Organization for Standardization
I&APs	Interested and Affected Parties
MEFT: DEA	Ministry of Environment, Forestry and Tourism's Directorate of Environmental Affairs
NHC	National Heritage Council
NEMA	Namibia Environmental Management Act
RE	Resident Engineer
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change

DEFINITION OF TERMS

The 'Consultant' – this refers to the team that is conducting the Environmental and Social Impact Assessment and the preparation of the EMP for the development. The Consultant for the Project / ESIA Study is EnviroPlan Consulting.

The 'Proponent – this refers to the institutions/departments that are directly involved in the implementation of the project, i.e., Ministry of Works and transport.

The 'Stakeholders' – this refers to the people, organisations, NGOs that are directly or indirectly affected and interested by the proposed project.

The 'Environment' – this refers to the ecology, economy, society and politics.

Project – means any activity which has or is likely to have an impact on the environment.

Sustainable utilization – means the use or exploitation of the environment which guards against extinction, depletion or degradation of any natural resource and permits the replenishment of natural resources by natural means or otherwise.

Waste – includes domestic, commercial or industrial material, whether in liquid, gaseous or solid form, which is discharged, emitted or deposited into the environment in such volume, composition or manner as to cause pollution.

i. Purpose of This Environmental Impact Assessment Report

This Environmental Scoping Report (ESR) follows on the scope of work outlined by Ministry of Works and Transport to construct an access gravel road from Okatumba to Otuani (8km) off the C43 road in Opuwo rural constituency, Kunene region, Namibia. Existing information and input from commenting authorities, Interested and Affected Parties (I&APs) was used to identify and evaluate potential environmental impacts (both social and biophysical) associated with the proposed project.

Environmental defects associated with the proposed activities were identified through this ESR. A conscious decision was made based on the recommendations and guidelines by the Directorate of Environmental Affairs EIA guidelines in order to assess both significant and less significant environmental impacts proposed by the development. The developed Environmental Management Plan (EMP) for this proposed activity will have to be effectively implemented by the client, to ensure that adverse environmental impacts are not considered.

The detailed assessment of the anticipated impacts was undertaken with the purpose of highlighting any areas of concern regarding to the proposed project during its construction, and operation. In addition, an independent sensitivity mapping analysis was undertaken. This analysis characterised the development site on the significant environmental aspects in order to reflect the sites suitable and unsuitable (no-go) development footprint areas. This action guided the final footprint of the access gravel road.

This report will also be used to motivate and define the previously identified, project alternatives (i.e., site, technology and layout) based on the findings of the environmental baseline study and the suitability of the site to the type of development. This Environmental Assessment scoping report (EASR) has been compiled in accordance with the regulatory requirements stipulated in the EIA Regulations (2012), promulgated in terms of the Namibian environmental legislation (Environmental Management Act (No. 7 of 2007)

The Environmental Assessment (EA) was commissioned because the proposed establishment triggered the application for an environmental clearance certificate as the following listed activity, please refer to table 2 below:

Table 2: Listed activities

3: Mining and Quarrying Activities	10: Infrastructure
3.3 Resource extraction, manipulation, conservation and related activities	10.1 The construction of- (b) public roads

ii. Resource extraction, manipulation, conservation and related activities.

1. The construction phase will encompass -

(a) The extraction of gravel and related materials;

Anticipated Environmental Impacts

- Low potential environmental impacts because the proposed site has already active borrow pits/ gravel extraction points
- Adding on a management plan has been developed to mitigate any anticipated possible impacts of the project to the environment.
- Relative or moderate social impact (positive)

Social Impact

The project is generally expected to improve the socio-economic environment of Okangundumba district (Opuwo rural constituency) through a major boost in business through integrations, employment and improved transport system on the long term. Interested and Affected Parties were notified of the project through site notices and newspaper adverts and all relevant information on consultation is covered in this document and Appendix (ii) of this document.

Recommendation

It is concluded that most of the impacts identified during this Environmental Assessment can be addressed through the recommended mitigation and management actions for both the construction and operation phases of the access gravel road. Should the recommendations

included in this report and the EMP be implemented the significance of the impacts can be reduced to reasonably acceptable standards and durations. All developments could proceed provided that general mitigation measures as set out are implemented.

It is therefore recommended that the proposed access road get an approval receive Environmental Clearance, provided that the proponent's compliance to the Environmental Management Plan.

NB: The EAP does not accept any responsibility in the event that additional information comes to light at a later stage of the process. All data from unpublished research utilised for the purposed of this project is valid and accurate. The scope of this investigation assessed the bio-physical and social status of the proposed project site environs.

1.1. CHAPTER ONE: BACKGROUND

Overview

Ministry of Works and Transport (MWT) has appointed **Shashi Consulting Engineers** to design and supervise on the proposed construction and operation of a gravel access road project (8km). Shashi subsequently appointed **EnviroPlan Consulting CC**. EnviroPlan hereafter, on behalf of MWT, as the independent environmental consultant conducting the Environmental Assessment (EA) for the proposed activity.

In terms of the Namibian environmental legislation (Environmental Management Act (No. 7 of 2007)) and the Environmental Assessment Regulations of 2012; an EIA is required to obtain an Environmental Clearance Certificate from the Ministry of Environment and Tourism (MET) before the proposed project can proceed. PART VII of the Environmental Management Act section 27 subsections (2) has listed activities that cannot be undertaken without a clearance certificate.

Furthermore, as per the requirements of the Environmental Management Act No. 7 of 2007, Shashi Consulting engineers has appointed Enviroplan Consulting cc to conduct an Environmental Assessment (EA) and develop an Environmental Management Plan (EMP) for the development. This has been followed by an application for Environmental Clearance Certificate (ECC) to the Ministry of Environment and Tourism (MET): Directorate of Environmental Affairs (DEA).

In this respect, this document forms part of the application to be made to the DEA's office for an Environmental Clearance certificate for the proposed construction of an 8km access gravel road, in accordance with the guidelines and statutes of the Environmental Management Act No.7 of 2007 and the environmental impacts regulations (GN 30 in GG 4878 of 6 February 2012).

1.2. The Environmental Consultant

Enviroplan Consulting cc was appointed as the independent environmental consultant conducting the Environmental Impact Assessment (EIA) and apply for an Environmental clearance certificate from the Ministry of Environment Forestry and Tourism. This ESIA Study and EMP developed was a result of hard work and determined effort towards a sustainable project implementation by a dynamic team from EnviroPlan Consulting in collaboration with Shashi Consulting Engineers.

1.3. Project Location

The proposed access gravel road will occur from the MR124 (C43) road (Okatumba) to Otuani a small village in Kunene region. It will cover approximately 8km from the junction with C43 improving accessibility to the only existing Otuani clinic, the constituency offices, a primary school and a shopping centre. It is under Okangundumba district as well the Opuwo Rural constituency\s area of jurisdiction. Road material will be sourced from existing burrow pits to be identified and re habilitated thereafter. They are within the rural constituency's area of influence. The constituency sits on 25, 758 square kilometres of land and has a population of 14 850. Economic activity in this area is centred on communal livestock farming, mining, horticulture and sustainable wildlife conservation. Otuani is located approximately seventy (70) km from Opuwo along the C43 road to Seisfontein. Almost the entire Kunene Region is characterized by Conservancies and Otuani village is within the Ombujokanguindi Conservancy.

Table 3: Project site coordinates

Point number	Latitude	Longitude
Starting point- Point 1	-18, 57291	13,72089
Point 2 - Proposed route	-18, 57304	13, 71242
Point 3 - Alternative route	-18, 57091	13, 71168
Point 4 - Alternative and proposed meet with existing track road	-18, 57332	13, 70496
Point 5 – Access to shopping Centre	-18, 56688	13, 67833
Point 6 – Opuwo rural constituency offices	-18, 56359	13, 67582
Point 7 – Primary school	-18, 56309	13 67851
Point 8 – Clinic	-18, 56179	13, 67921

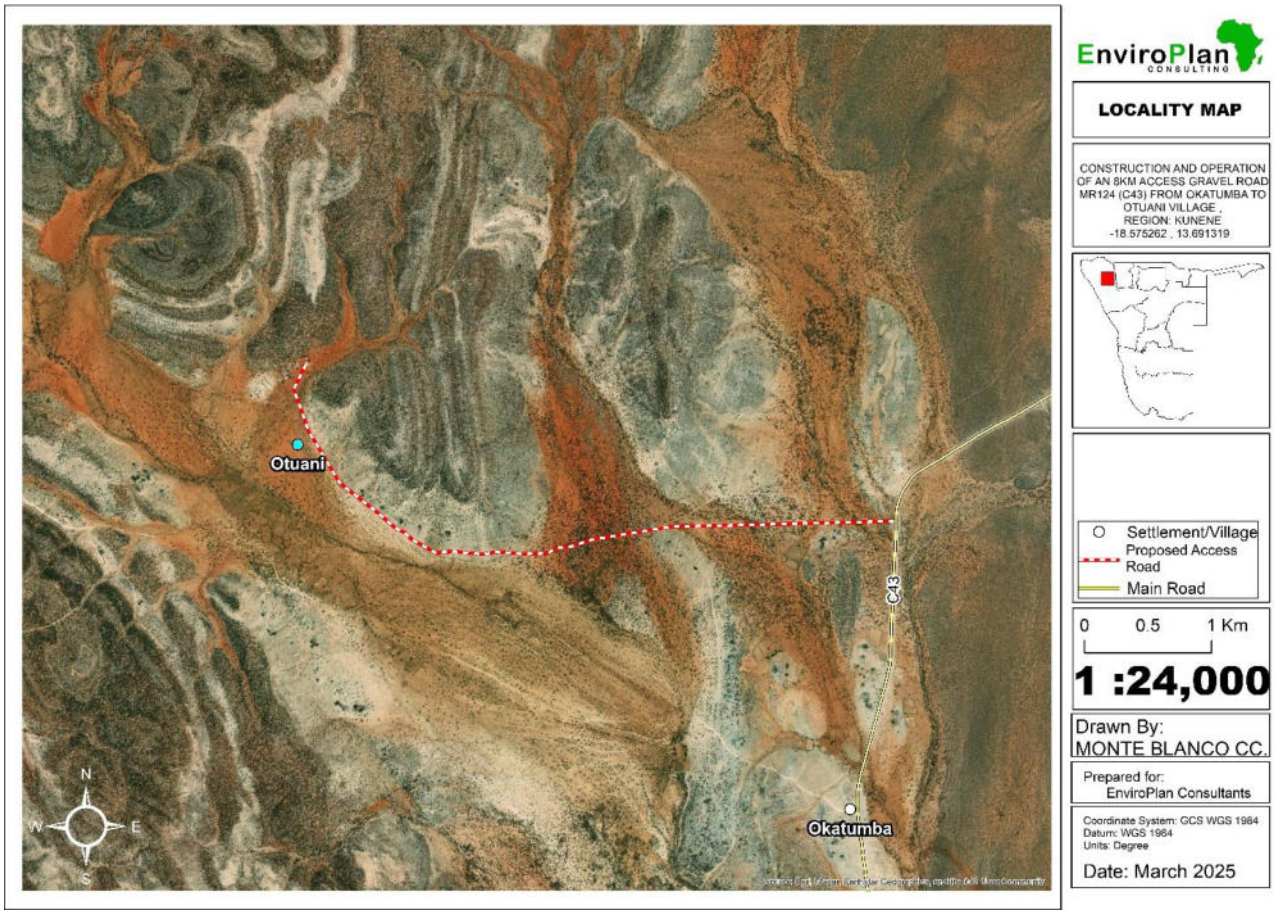

Figure 1: Proposed project site Locality map

1.4. Project Overview

The existing earth track, approximately six (6) kilometres long, extends from the C43 to the Otuani Settlement, providing a vital link between the settlement, nearby villages, and the regional road network. The track is predominantly composed of rock outcrops and loose rocks, with some sections consisting of soft sand, posing challenges to its stability and durability especially during rainy seasons.

The project proponent (Ministry of Works and Transport) has identified the needy to establish an access road which links the essential services in the Okangundumba district to the C43 road which connects the village to other parts of the region.

1.4.1. Infrastructure and Services

Water: The village has a total of three (3) functional boreholes. In case of increased demand, the proponent will seek for extra borehole(s)/ water from elsewhere. User pays principle will be applicable to the water use by the contractor.

Ablution: A portable sewer ablution system will be established on the camp site to cater for construction phase.

Communication: The site is connected with MTC, TN Mobile and satellite phones.

Accessibility: An existing C43 road network is directly linked to the proposed project area with easy access and connectivity at the project's convenience.

Electricity: The study area will make use of solar power as well as gasoline generators during the construction phase.

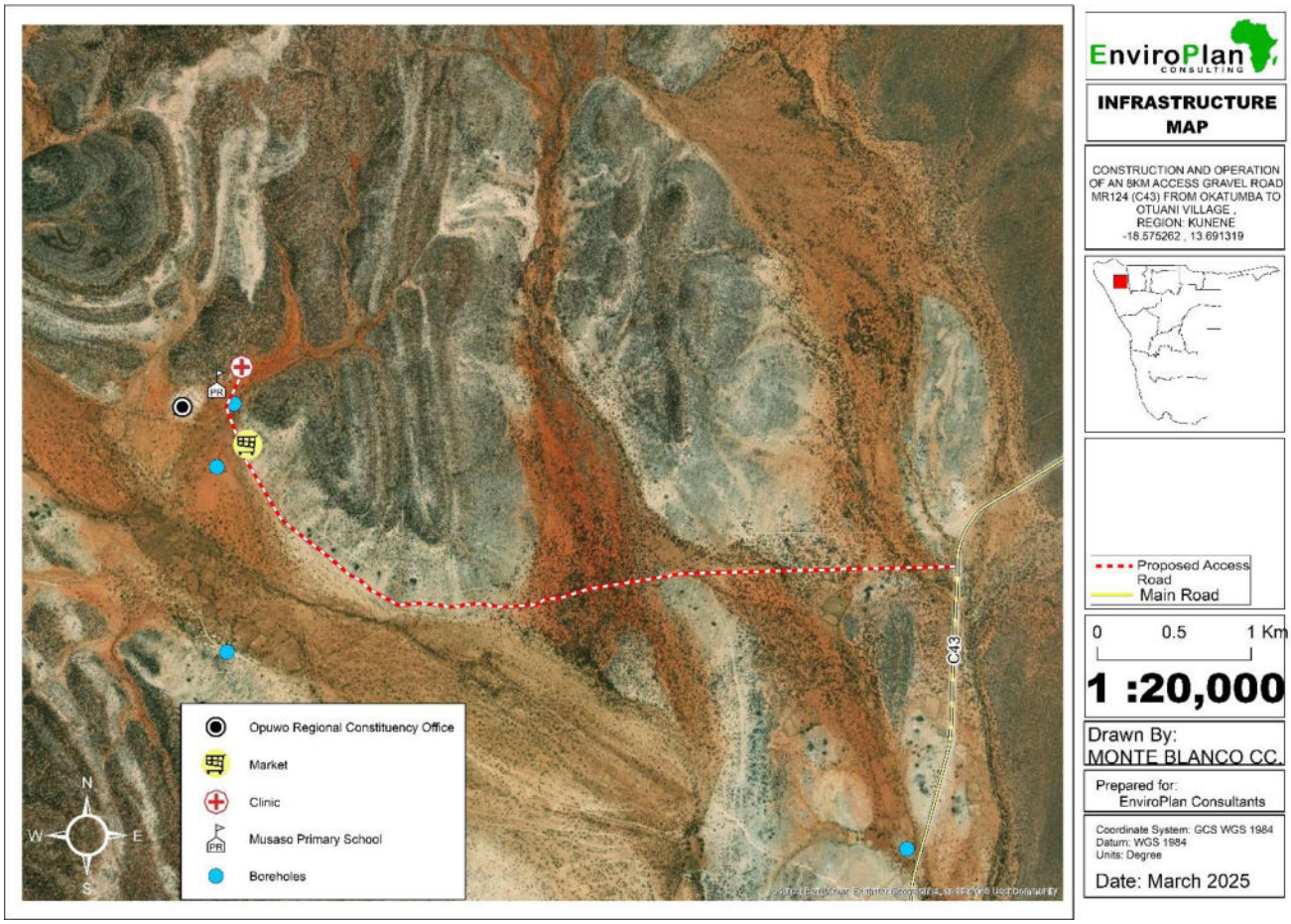

Figure 2: The Map showing existing infrastructure/ services around project site

1.4.2. Geometric design standards

To evaluate the proposed design standards, projected traffic volumes will be analyzed alongside the recommended standards for main roads in flat terrain. The following guidelines and references will be applied:

- RA Geometrics Design Standards
- Recommendations of the Highway Capacity Manual (HCM)
- Technical Recommendations for Highways 17: Geometric Design for Rural Roads
- SANRAL Geometric Design Guidelines
- SATCC Code of Practice for the Geometric Design of Trunk Roads

The typical cross-section is indicated on Figure 3 below:

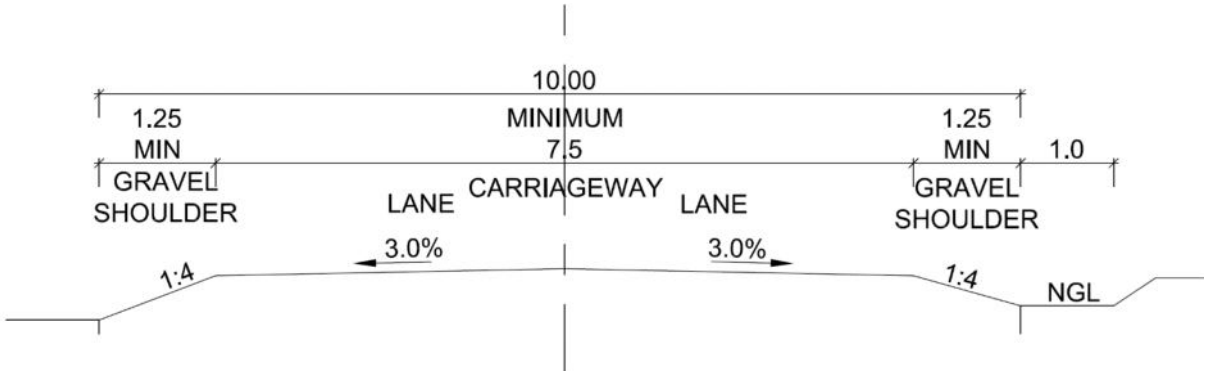

Figure 3: Proposed Typical Cross-section, (Shashi consulting Engineers)

1.5. Need and Desirability

Access roads are crucial for transportation, infrastructure development, and economic activity, providing essential connectivity to areas like construction sites, businesses, and remote locations, facilitating the movement of people, goods, and equipment, AI overview. Namibia requires improved access roads, especially in rural areas, to facilitate economic development, improve quality of life, and ensure access to basic services and government institutions. Access roads in Namibia plays a very important role as follows:

(a) Connectivity and Accessibility:

- **Connecting to remote areas:**

Access roads are vital for connecting remote areas, such as construction sites, forests, mining sites, or rural locations, to the main road network, enabling access for people and resources.

- **Facilitating transportation:**

They provide essential pathways for the movement of vehicles, equipment, and materials, ensuring smooth and efficient transportation.

- **Supporting economic activity:**

Access roads are crucial for supporting economic activities, such as construction projects, resource extraction, and trade, by facilitating the movement of goods and services.

- **Improving safety:**

Properly designed access roads can enhance safety by reducing traffic congestion and providing safe routes for construction workers and equipment.

- **Supporting local communities:**

Access roads can improve the quality of life for local communities by providing better access to essential services, such as healthcare, education, and markets.

Applicability to the proposed activity: Okangundumba district is characterized by Mining claims, Exploration areas and remote areas. The proposed access road will increase the accessibility to mining claims around the area, ensure transportation of goods to the newly established Otuani clinic, constituency offices and the school and it will greatly support the community by providing essential services.

(b) Construction and Infrastructure Development:

- **Supporting construction projects:**

Access roads are essential for construction projects, allowing for the timely delivery of materials, equipment, and personnel to the construction site.

- **Facilitating equipment movement:**

They enable the movement of heavy machinery, such as bulldozers, cranes, and excavators, to and from construction sites.

- **Reducing downtime:**

Efficient access roads minimize delays caused by inadequate or obstructed access, leading to increased efficiency and productivity.

- **Streamlining operations:**

They facilitate better coordination between various construction activities and teams.

- **Protecting the environment:**

Temporary access roads can help protect the environment by preventing heavy machinery from becoming stuck in muddy or challenging terrain, reducing environmental damage.

Applicability: the proposed access road will reduce land degradation around Otuani because mining equipment including bulldozers is currently being ferried using random access paths leading to more than four (4) sand tracks being used to link the C43 road and it will increase efficiency to the future proposed construction of a ternary factory, copper processing plant among other construction activities. The access road is most likely to reduce surface runoff and land degradation locally.

(c) Other Important Functions:

- **Providing access to businesses:**

Access roads are essential for providing access to businesses, schools, shops, and other commercial premises.

- **Supporting emergency services:**

They are crucial for enabling emergency services, such as fire trucks and ambulances, to reach remote areas quickly.

- **Facilitating maintenance operations:**

Access roads are necessary for facilitating maintenance operations on infrastructure, such as pipelines and power lines.

- **Supporting rural development:**

Investments in rural roads have significant potential for promoting local economic and social development, creating jobs, and supporting local commerce.

Applicability to the proposed access road: The access road will link the entire district with shopping area, improve accessibility of medical needs thus promoting rural development.

1.6. Project Alternatives

1.6.1. Site Location Alternatives

An integrated site selection study was done in order to identify a suitable route for the proposed access road. Two alternative routes will be considered in the project area is considered highly desirable due to the following considerations:

- Distance: Approximate distance to be covered by the access road is 6- 8km and this will play a very important role to the intended services i.e., the clinic, the school and the constituency offices.

- Land suitability:

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

-Avoidance of environmentally sensitive areas and fatal flaws.

The project alternative route is highlighted as alternative route in blue as shown on figure 4 below:

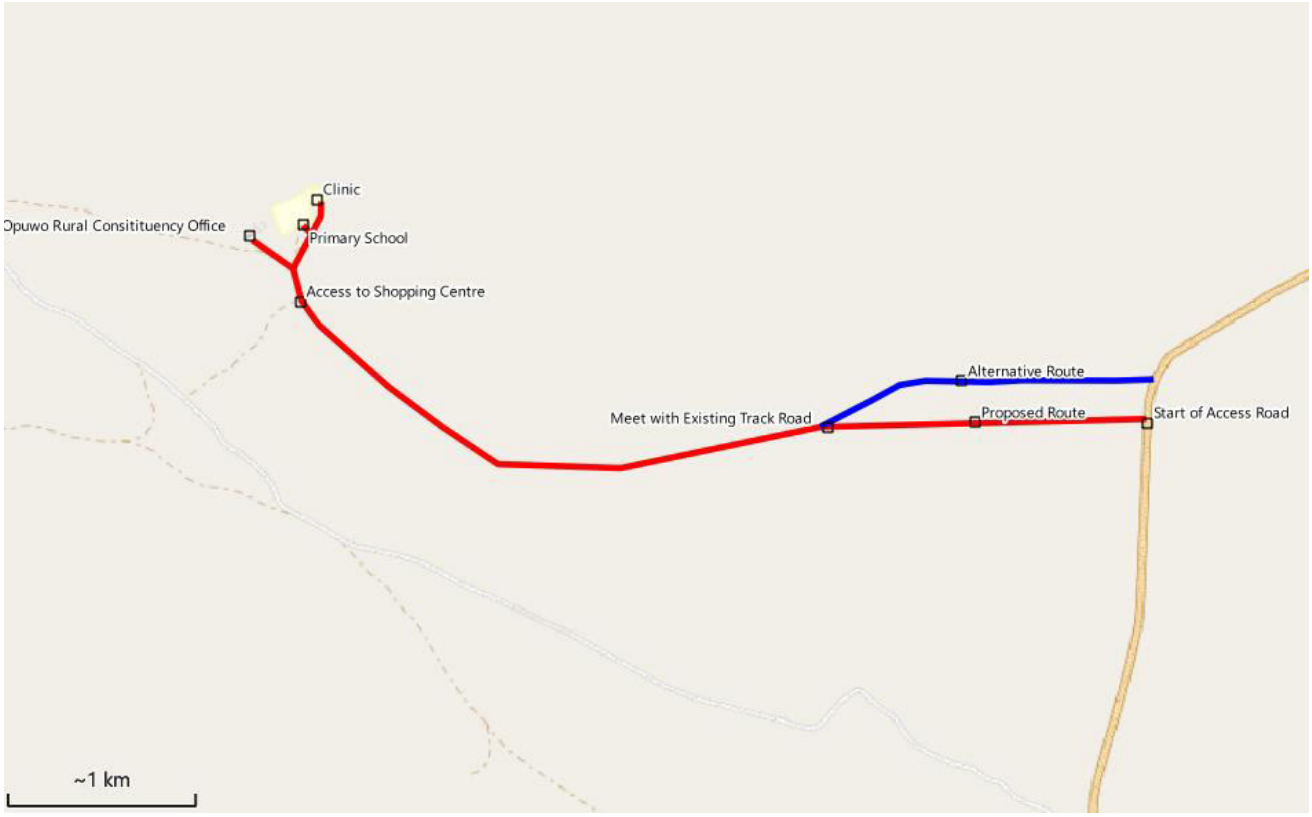

Figure 4: Proposed and Alternative routes

Consideration of the above criteria resulted in the selection of the preferred site as (proposed and alternative route). No further site location alternatives are considered in the EIA process.

1.6.2. Site Layout Alternatives

The 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 site location perspective, the position of the proposed road infrastructure was determined by the consideration of the following aspects:

-Local topographical conditions.

-Accessibility

-Pre-existing supporting infrastructure

1.6.3. NO-GO Alternative

The current low environmental impact associated with current land use will be maintained and no change in land use or zoning would be required. The status quo needs to be measured against the proposed facility to determine whether the environmental and socio-economic benefits warrant the approval thereof or whether the status quo should be maintained.

This development alternative entails that the proposed road developments not be constructed on the project site, thus result in the site being left as is. While Namibia boasts some of the best roads in the world, there is a glaring reality; that of deteriorated rural road networks, which makes it nearly impossible for residents to access basic services, New Era 2023. Prioritise rural roads, Govt told https://neweralive.na/prioritise-rural-roads-govt-told. This will furthermore impede economic development and socio-economic progress.

Due to the numerous socio-economic benefits of the proposed project and the fact that the identified environmental impacts can be suitably mitigated it has been determined that the No Go option can be eliminated. Should the Competent Authorities (CA) refuse the authorisation of the proposed access road, the 'No Go' option will be "implemented" and the status quo of the site will remain intact - leaving the site in its present state with the risk to increase land degradation and increasing surface runoff.

1.7. Environmental Impact Assessment Methodology

The set of potential tools include risk assessment, life-cycle assessment, benefit-cost analysis, ecosystem-services valuation, integrated assessment models, sustainable impact assessment, environmental justice, and present and future scenario tools;

The project proponent used Cost-Benefit Analysis and Cost Effectiveness methodologies for decision making in the pre-planning phase of the project. The Environmental assessment team used Leopold Matrix to do the impact assessment. This matrix is used to identify potential impacts associated with a project or alternatives. It assists performing a comprehensive review of the variety of interactions between project elements and environmental parameters, to identify important environmental factors, data needs, and less damaging alternatives.

The assessment team also made use of the World Bank Environmental Impact checklist. These checklists are designed to be used in identifying significant environmental impacts, project alternatives, and special issues associated with development projects. They are qualitative and predictive in nature

1.8. Expected Environmental Impacts

From previous experience with developments of this nature and comments received from Affected Parties, establishing an access road might have the following key impacts on the receiving environment:

Socio-economic impacts:

- Additional employment will be created during construction and operation
- Noise and dust pollution from construction operations.
- Community health issues - transmission of diseases from construction team and support staff to local community
- Increase in criminal activities
- Cultural/heritage impacts
- Increase of traffic on nearby roads

Biophysical impacts:

- Surface drainage and stormwater impacts including sedimentation and erosion (flow of surface draining systems might be disturbed)
- Impact on surface water resources
- Possibility of air pollution (dust during construction)
- Possibility of noise pollution
- Visually the site might be unpleasing
- Effect on natural and general ambiance of the area and surroundings
- Effect on vegetation (grass, shrubs and trees directly in areas to be cleared for construction of infrastructure)
- Impact on agricultural resources
- Effect on movement of animals

- Concerns if the area/ burrow pits can be restored / rehabilitated to an acceptable status once the construction phase is over.
- Impact of construction waste on the environment
- Storage of hazardous substances on site

1.9. Conclusion

The project will go ahead and will consider sustainable technologies. The consulting engineers will ensure a proper designing and implementation to ensure minimal environmental impacts as a result of the project development.

2. CHAPTER TWO: POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

2.1. Introduction

An important part of the EIA is identifying and reviewing the administrative, policy and legislative frameworks concerning the proposed activity so as to inform the proponent about the requirements to be fulfilled in undertaking the proposed project. This section looks at the legislative framework within which the proposed development will conform to; 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 the table 4 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).

The project's activities are undertaken in a biophysical and social environment. These activities or some of them may even at minimum impact some of these environmental components. It is therefore necessary to consider the legislations and legal requirements governing the project and its associated activities.

The main legal framework presented herein is that of Namibia for the relevant project component under the scope of this document – detailed legislation that are applicable to the project are given in the EIA Report and then a summary of these that require permitting and licensing for certain project activities. **Local and National Legislation (Acts, Polices, Regulations, etc.) and the Environmental Management Act No. 7 of 2007.**

The Environmental Management Act No.7 of 2007 and its 2012 EIA Regulations aims to ensure that the potential impacts of the development on the environment are considered carefully and in good time; that all interested and affected parties have a chance to participate in the environmental assessments and that the findings of the environmental assessments are fully considered before any decisions are made about activities which might affect the environment.

The Act aims at promoting sustainable management of the environment and use of natural resources. The Environmental Management Act (EMA) is broad; it regulates land use development through

environmental clearance certification and/or Environmental Impact Assessments. The Act provides for the clearance certification for ‘’***construction of public roads***".

2.1.1. Namibia’s Green Plan, 1992

In 1992, Namibia’s Green Plan was drafted by the Ministry of Environment, Forestry and Tourism. The document analysed the main environmental challenges facing Namibia and specified actions required to address them. This included a strategic plan for integrated and sustainable environmental management, which outlines key focus areas for sustainable development.

2.1.2. Climatic Change Polices

National Climate Change Strategy & Action Plan 2013 – 2020

The climate change action plan which identifies Climatic Change as a critical threat to sustainable development. Therefore, it must be addressed in a holistic and multisector manner.

Relevance to the project

There are several activities to be done as a result of project development. In respect to the Climate Change strategy, appropriate measures to combat climate change have been implemented from the initial stages of project designing and the consulting engineers will deploy the most appropriate construction methods to execute the project.

(a). *Deforestation*

The project activities will include clearance of trees and bushes on the proposed site. Basing on the conclusion drawn during the site visit, the EIA team observed certain tree species both protected and un protected. The project will not remove more than 30 matured trees. Most of vegetation to be cleared are shrubs and it is very important to note that the area/ project path is already disturbed by electric transmission lines, numerous sand tracks, grazing and many other factors.

(b). *Making use of renewable sources of energy*

The proposed project will make use of solar energy in the campsite. Many industrialized nations have installed significant solar power capacity into their grids to supplement or provide an alternative to conventional energy sources while an increasing number of less developed nations have turned to solar to reduce dependence on expensive imported fuels.

(c). *Emissions of Green House Gases (GHGs)*

There are four main types of forcing greenhouse gases: carbon dioxide, methane, nitrous oxide and fluorinated gases. The main feedback greenhouse gas is water vapor. The general physical layout of the proposed project minimizes all possible activities contributing to global GHGs emissions in either way. All relevant legislation that was consulted and applicable to the proposed development are presented in Table 4 overleaf.

For this Report, Table 4 presents the information on the legal obligations (legislations, policies, and guidelines) in terms of legislation, where permitting and/or licensing that may be required from different applicable regulatory authorities as a requirement to the ECC.

2.1.3. The United Nations Convention to Combat Desertification (UNCCD) 1992

The Convention addresses land degradation in arid regions with the purpose to contribute to the conservation and sustainable use of biodiversity and the mitigation of climate change.

The convention's objective is to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas to support poverty reduction and environmental sustainability.

Project requirement/applicability: The project activities should not be carried out in such a way that they contribute to desertification.

2.1.4. The Convention on Biological Diversity 1992

Convention on Biological Diversity 1992 Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use. It promotes the protection of ecosystems, natural habitats, and the maintenance of viable populations of species in natural surroundings.

Project requirement/applicability: Removal of vegetation cover and destruction of natural habitats should be avoided and where not possible minimised.

2.1.5. Stockholm Declaration on the Human Environment, Stockholm (1972)

It recognizes the need for: "a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment.

Project requirement/applicability: Protection of natural resources and prevention of any form of pollution.

Table 4: Policies, Legal and Administrative regulations

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Environmental Management Act EMA (No 7 of 2007)	Requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27). The details principles which are to guide all EAs.	The EMA and its regulations should inform and guide this EA process. The proposed activities should not be carried out without a valid ECC. The EMP prepared for this access road construction and operation should guide the proponent and ensure that the project is sustainably implemented. The contact details at the Department of Environmental Affairs and Forestry (DEAF) are as follows: Tel.: 061 284 2701 OR Environmental Assessment Unit Mr. Damian Nchindo, Tel: 061 284 2717, Email: damian.nchindo@met.gov.na or eie@met.gov.na
Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878) **Regulated under the Ministry of Environment, Forestry and Tourism**		

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
	Details requirements for public consultation within a given environmental assessment process (GN No 30 S21). The details the requirements for what should be included in an Environmental Scoping Report (GN No 30 S8) and an EIA report (GN No 30 S15).	The first phase of the project (pre planning phase). However, if necessary and required, constant consultations and engagements with the interested and affected parties (stakeholders) should be continued. In case of grievances raised to the Proponent, this should be addressed and resolved amicably prior to commencement of the construction phase
Soil Conservation Act (No 76 of 1969) **Regulated under the Ministry of Agriculture, Water and Land Reform**	The Act makes provision for the prevention and control of soil erosion and the protection, improvement and conservation of soil, vegetation and water supply sources and resources, through directives declared by the Minister.	Duty of care must be applied to soil conservation and management measures must be included in the EMP. This is mainly aimed at soil disturbance through unnecessary creation of new tracks and pollution from project related activities.

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001) **Regulated under the Ministry of Mine and Energy**	Regulation 3(2)(b) states that "No person shall possess or store any fuel except under authority of a licence or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area"	There are no fuel tanks to be kept on site. However, care must be exercised when handling hydrocarbon products on site, regardless of volume.
Forestry Act 12 of 2001 **Regulated under the Ministry of Environment, Forestry and Tourism**	Prohibits the removal of any vegetation within 100 m from a watercourse (Forestry Act Section 22(1)). The Act prohibits the removal of and transport of various protected plant species.	There is seldom appearance of small desert vegetation at very few areas of the site. Although not considered protected species, they should not be disturbed nor destroyed.
The National Heritage Act (No. 27 of 2004) The National Monuments Act (No. 28 of 1969) **Regulated under the Ministry of Education, Arts and Culture**	The Act extends the protection of archaeological and historical sites to private and communal land and defines permit procedures regarding activities at such sites. The Act enables the proclamation of national monuments and protects archaeological sites.	Should heritage resources (e.g., human remains, etc.) are discovered at some point on and or around the site, these should be reported to the National Heritage Council of Namibia for relocation. **Contact: Ms. Agnes Shiningayamwe (Regional Heritage Officer)** Tel: 061 301 903, Email: rho1@nhc-nam.org

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Pollution Control and Waste Management Bill **Regulated under the Ministry of Environment, Forestry and Tourism**	The bill aims to "prevent and regulate the discharge of pollutants to the air, water and land" Of particular reference to the Project is: Section 21 "(1) Subject to sub-section (4) and section 22, no person shall cause or permit the discharge of pollutants or waste into any water or watercourse." Section 55 "(1) No person may produce, collect, transport, sort, recover, treat, store, dispose of or otherwise manage waste in a manner that results in or creates a significant risk of harm to human health or the environment."	The Proponent and their workers should continue with the good waste management (directly or indirectly) to ensure that the waste does not cause environmental threat and risk. **No permit or license required.**
Public Health Act (No. 36 of 1919)	Section 119 states that "no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health."	The Proponent and all its employees should ensure compliance with the provisions of these legal instruments. **No permit or license required.**
Health and Safety Regulations GN 156/1997 (GG 1617)	Details various requirements regarding health and safety of labourers.	
Public and Environmental Health Act No. 1 of 2015	To provide a framework for a structured uniform public and environmental health system in Namibia; and to provide for incidental matters.	

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Regulated under the Ministry of Health and Social Services		
Road Traffic and Transport Act, No. 22 of 1999 **Regulated under the Ministry of Works and Transport**	The Act provides for the establishment of the Transportation Commission of Namibia; for the control of traffic on public roads, the licensing of drivers, the registration and licensing of vehicles, the control and regulation of road transport across Namibia's borders; and for matters incidental thereto.	Mitigation measures should be provided for if the roads and traffic impact cannot be avoided. The relevant access road permits must therefore be applied for.
Labour Act (No. 6 of 1992) **Regulated under the Ministry of Labour, Industrial Relations and Employment Creation**	Ministry of Labour (MOL) is aimed at ensuring harmonious labour relations through promoting social justice, occupational health and safety and enhanced labour market services for the benefit of all Namibians. This ministry ensures effective implementation of the Labour Act No. 6 of 1992, specifically its Regulations, No. 156 Labour Act, 1992: Regulations relating to the health and safety of employees at work	The Proponent should ensure that the construction and maintenance personnel are regulated under the Act and do not compromise the safety and welfare of workers. **No permit or license required.**

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Water Act 54 of 1956	Certification in terms of Sections 21(1) and 21(2) of the Water Act is required for the disposal of industrial or domestic wastewater and effluent. Prohibits the pollution of underground and surface water bodies (S23) (1) and Accountability for costs to be met in remedying the environment as soon as project abandonment (S23 (2).	The protection of ground and surface water resources should guide the project construction phase. No Hazardous substances should be disposed in any case for example spillages Use of monitoring boreholes should be kept on record. In the event of borehole water use, it is subject to user pays principle in the area where project will be implemented.
Namibia's Draft Wetland Policy	Namibia's Wetland Policy Vision is to manage national and shared wetlands wisely by protecting their vital ecological functions, life support systems for the current and future benefit of people's welfare, livelihoods and socio-economic development. The objectives of the policy are to: ❖ protect and conserve wetland diversity and ecosystem functioning to support basic human needs; ❖ provide a framework for endurable use of wetland resources;	The project site is might be an indirect water source to the downstream rivers. The project site is not recognized under wetlands in Namibia but will ensure all its activities will be environmentally receptive.

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
	❖ promote the integration of wetland management into other sectorial policies; and to ❖ Recognize and fulfill Namibia's international and regional commitments concerning shared wetlands and wetlands of international importance.	
The National Land Policy 1998	Namibia's national Land Policy 0f 1998 gives traditional authorities a role undertakes land administration with varying degrees of efficiency and legitimacy Namibia's National Land Policy is based upon the principles enunciated in the Constitution and on the national commitment to redress the social and economic injustices inherited from the colonial past. Article 10 of the Constitution of the Republic of Namibia states that all persons shall be equal before the law and that no one shall be discriminated against on the grounds of sex, color, ethnic origin, religion, creed or social or economic status.	The proposed access road is a sustainable and economically viable. The proposed project will in accordance with Article 95 (1) of the Constitution, Namibia's Land Policy at all times promote environmentally sustainable land use. Failure to demonstrate that proposed land uses are environmentally sustainable, will be grounds for Land Boards to terminate or deny the award of title.

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
	In accordance with Article 95 (L) of the Constitution, this National Land Policy requires environmentally sustainable land and natural 'resource use.	The proposed project is in a communal area and the traditional leaders will guide the project proponent where necessary.

2.2. Conclusion

These pieces of regulations should be observed throughout the project's life cycle. Any deviations from these policies, regulations and administrative frameworks may have catastrophic results to the environment (including man power) and the work environment. These laws bring about rational work ethics that support the protection of the environment. Strict monitoring by relevant authorities will bring about sound environmental practices. Ministry of works appointed Shashi Engineering consultants to supervise and enforce these regulations hence constant monitoring will be done in form of inspections and audits during the construction phase**.**

3. CHAPTER THREE: RECEIVING ENVIRONMENT

3.1. Introduction

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 structure 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.

3.2. Socio-Economic status

One of the most remote constituencies in the region established after Opuwo Constituency was divided into two constituencies (Opuwo Urban and Opuwo Rural), this constituency sits on 25, 758 square kilometres of land and has a population of 14 850. Economic activity in this area is centred on communal livestock farming and conservancies. It has the potential of becoming the mining hub of the Kunene region through the setting up or establishing a copper processing plant at Otuani. Other potential areas are tourist facilities, butchery and tannery factory, etc.

In the entire region there are OvaHerero, OvaHimba and OvaZemba speaking tribes. The semi-nomadic lifestyle of the OvaHimba and OvaZemba has impeded the educational progress of these communities in numerous ways. These communities are cattle herders in constant search of quality grazing for their cattle, goats and sheep. And to ensure that their livestock is secure from environmental dangers, every member of the community must avail themselves to perform these critical tasks of herding and protecting cattle. Informant Two (August 2015) emphasized this point by the asserting that "*Children of school going age are not excluded from the responsibility of looking after and caring for the livestock*". This results in many of the OvaHimba and OvaZemba children not completing a full year of attendance at school and subsequently failing academically on numerous occasions. In Opuwo ancient traditions and modern times meet, as Opuwo is the Center of the Himba culture. The Himba are independent people and are the last nomads of Namibia. The Himba are the forefathers of the modern Herero and entered northern Namibia during the 15th / 16th century from Angola.

The Kunene Region is also associated with the so-called Kaokoveld (or Kaokoland). The Kaokoveld is a huge, dry region (50,000 km²) in the north-east of Namibia. No agricultural activities take place here and an abundance of wildlife can be found. The town of Opuwo is the only bigger town to be found in the Kunene region and is an ideal stop over when travelling north to the Epupa Falls of the Kunene River.

Employment opportunities in the Kunene region are very scarce. Not only are the OvaHimba and OvaZemba living in small communities, they are also isolated from other communities. The industrial, tourism and agricultural sectors are still underdeveloped in the Kunene region which

results in limited employment opportunities. Even paid domestic work is almost non-existent since each family takes responsibility for its own domestic work. Due to the scarcity of employment, job seekers in Opuwo town often settle for any job offered because there is almost no prospect of getting another or better job offers. The general under-development of the region contributed to unfavourable conditions that result in a number of challenges. Poor transport networks presented challenges in communication and the coordination of education activities. Due to poor infrastructural development the region experienced a high staff turnover and this affected the quality service delivery.

3.2.1. Land Use

The proposed project will be developed in Otuani village. The site(s) identified are within the central part of Otuani village identified as a communal land. The current land use is characterized by livestock production (such as goats, donkeys and ostriches), integrated wildlife conservation (spotted in the village were antelopes, duiker, mountain zebras and other small mammals), small scale mining, and horticultural activities. Outani village is in Opuwo Rural constituency, Okangundumba district within Ombujokanguindi conservancy and people are living in harmony with wildlife.

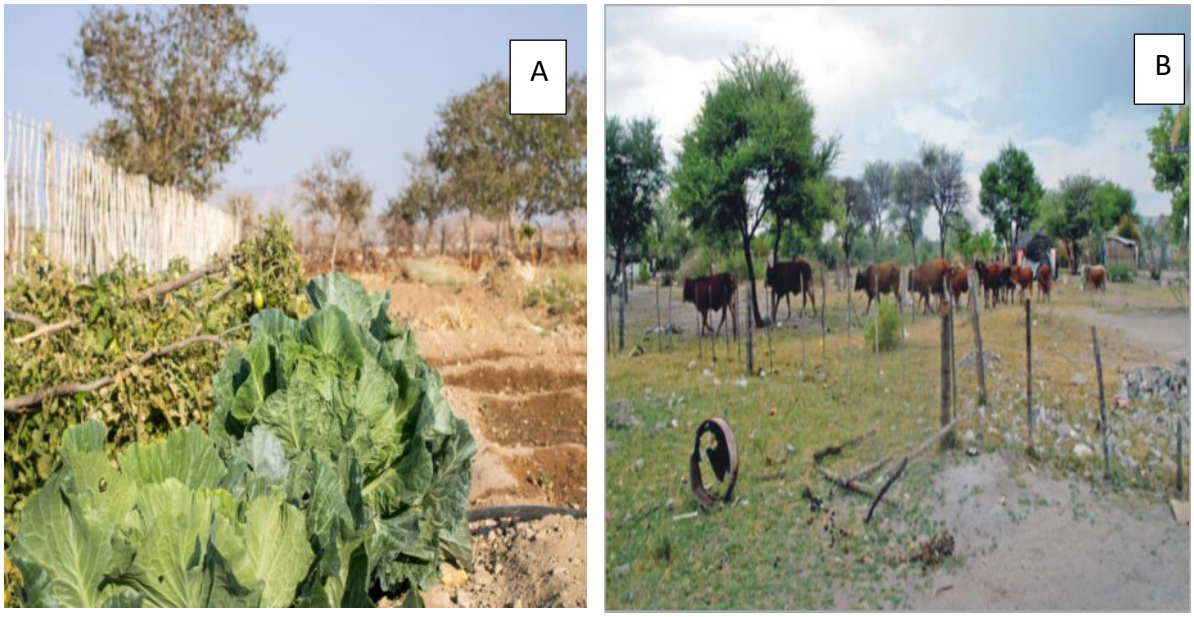

Figure 5: Plate A and B: Otuani village's horticultural and livestock rearing activities respectively

3.3. Climate

3.3.1. Precipitation

Over the past decade, pastoralists in Kunene Region, Namibia, have endured recurrent drought and flood events that have culminated in the loss of their primary form of livelihood–pastoralism. Most pastoralists are finding it difficult to sustain their livelihoods, and their communities have fallen into

extreme poverty. Opuwo has a Mid-latitude desert climate (Classification: BWk). The district's yearly temperature is 28.01ºC (82.42ºF) and it is 3.55% higher than Namibia's averages. Opuwo typically receives about 57.05 millimetres (2.25 inches) of precipitation and has 90.26 rainy days (24.73% of the time) annually.

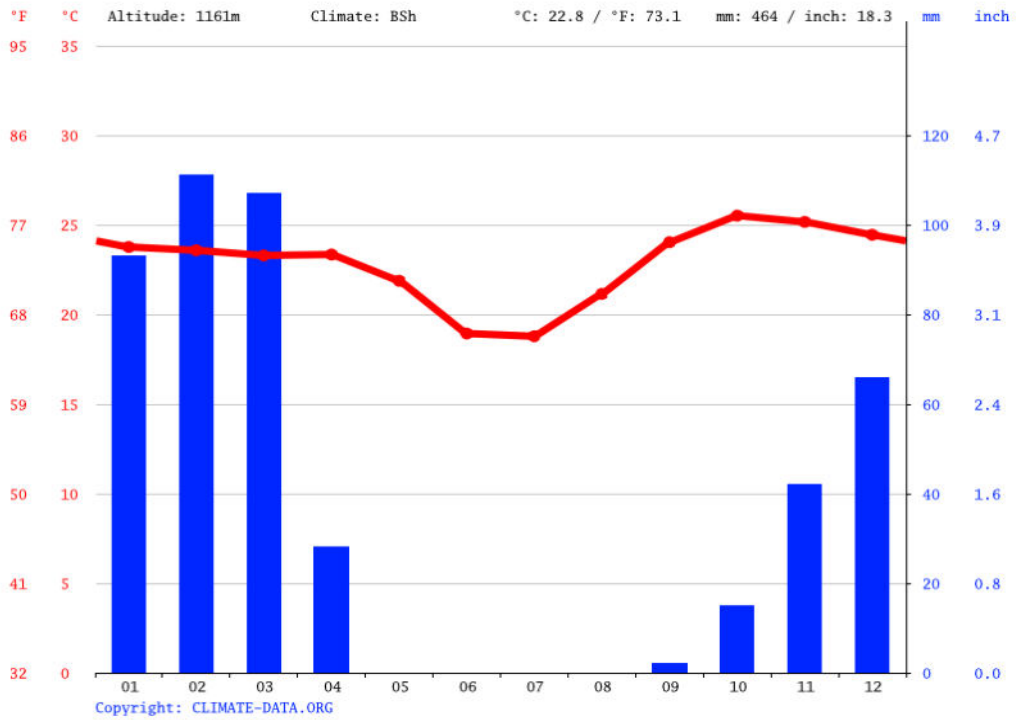

Figure 6: Opuwo climate graph// weather by month

3.3.2. Temperature

3.3.2. Temperature

The month of highest temperature is October during which the average temperature reaches up to 25.5 °C | 77.9 °F. At 18.8 °C | 65.8 °F on average, July is the coldest month of the year.

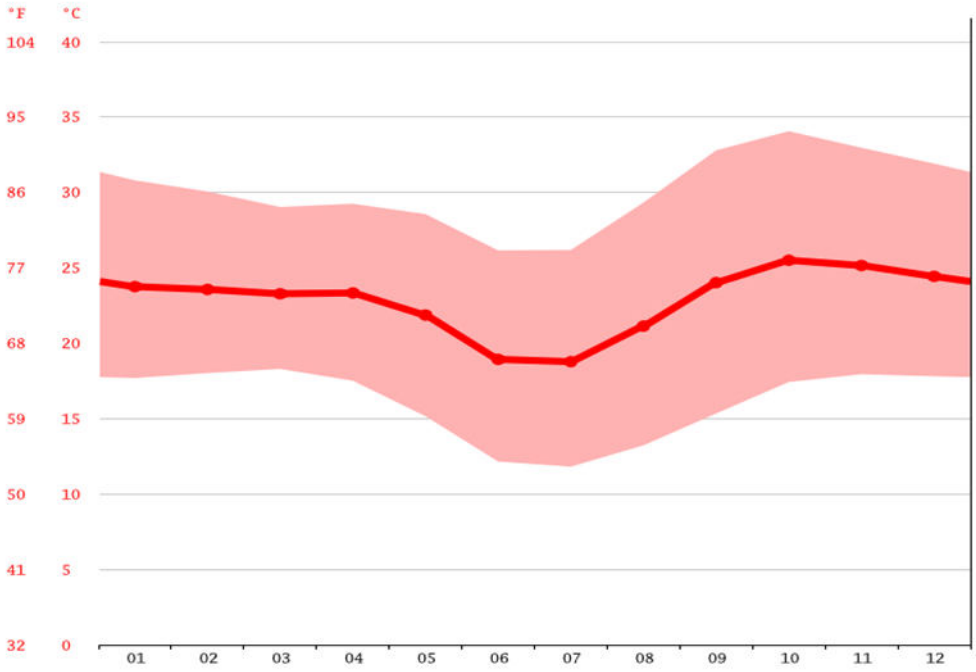

Figure 7: Average temperature by month- Opuwo

3.4. Flora and Fauna

3.4.1. Flora

Opuwo and the entire Kunene region are situated in a semi-arid area and have little vegetation. The proposed site supports eight (24) acacia type of trees, thin shrubs and no grasses. The vegetation in and around the project area is highly adapted to the harsh, arid environment, where water is scarce and temperatures can be extreme. This region spans a range of ecosystems, from the hyper-arid coastal deserts of the Skeleton Coast to the semi-arid savannahs and rugged mountains inland.

The most prominent vegetation consists of drought-resistant species, including hardy grasses, thorny shrubs, and small trees such as acacias, Mopani, and Commiphora, which have deep roots to tap into underground water sources. In the rocky mountainous areas, specialized plants like euphorbias and succulents, including aloe species, thrive in the challenging terrain.

The Kaokoveld sub-region is particularly noted for its unique and endemic species, including the Welwitschia mirabilis, an ancient desert plant capable of surviving with minimal water for hundreds of years.

Overall, the grass and plant species around project area showcase nature's ability to thrive in challenging environments and contribute to the unique and diverse ecosystem of the Kunene Region. The proposed project falls under a woodland vegetation structure as shown on figure 7 below.

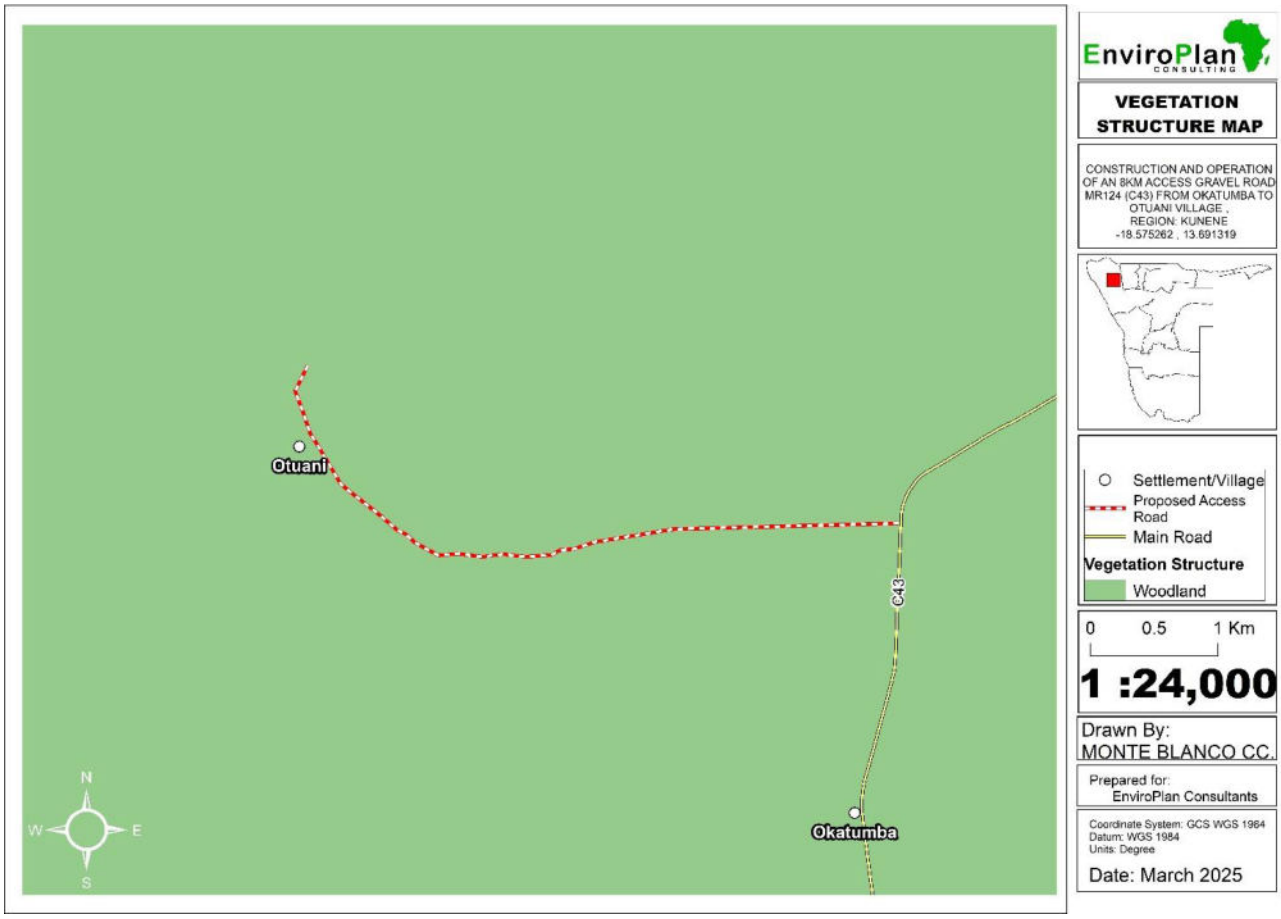

Figure 8:vegetation structure Map

3.4.2. Fauna

The Kunene Region, particularly the area known as Kaokoland in northern Namibia, is home to a diverse array of mammals and reptiles. This remote, arid landscape features rugged terrain, mountains, savannahs, and desert environments, providing habitats for a variety of species adapted to the harsh, dry conditions. Abundant are Springbok, ostrich and herds of long-horned cattle graze in harmony on vast plains, which descend northward to the oasis of the Kunene River. Since the establishment of conservancies, wildlife numbers in communal areas have rebounded from historic lows prior to independence. Springbok, gemsbok and ostrich are common in Marienfluss. Other mammals include giraffe, mountain zebra, kudu, klipspringer, duiker, steenbok and the diminutive dik-dik. Cheetah, leopard, spotted and brown hyena, and jackal all prowl the vastness. The Kunene supports a large crocodile population, as well as the Cape clawless otter

Figure 9: An antelope spotted around Otuani village

3.4.3. Habitat categorization

The proposed project site consists of open plains with deeper soil and scattered bushes and shrubs. The plains are interrupted with rocky outcrops of varying sizes. It relatively consists of the least vegetation or least species richness. It as well has watercourses that are normally dry but that carry water for very short periods during the rainy season. The watercourses are marked by having more bushes and scattered trees along their length, and the substrate is usually sandy and un-compacted.

Each of these habitats has its own distinctive food, shelter and refuge characteristics, but each harbor almost the same faunal component. In comparison, watercourse habitats and open plains are more widespread and more homogeneous. Therefore, avoidable disturbance in any of the area should be minimized, since they all support different types of flora and fauna species.

Figure 10: General overview of the Okatumba village's grazing area

3.4.4. Amphibians Diversity

While the Kunene Region in Namibia is known for its arid climate, pockets of higher amphibian diversity exist in the highlands, particularly in areas with access to water sources like ephemeral water bodies and springs. Amphibian diversity in the Kunene Region can be categorized as follows:

- Arid Environment,
- Diverse Habitats,

Namibia is an arid country, but it has a diverse array of wetland habitats, including ephemeral water bodies, rain-pools, artesian springs, and the large perennial rivers of the north-east.

Amphibian diversity is generally higher in areas with access to water, such as the highlands in the Kunene Region. Kunene River Mouth is an area around the mouth of the Kunene River which is considered unique and important for reptiles, with some species being endemic. Endemic Species believed to be approximately fifty (50) Namibian amphibian species; a significant portion are considered endemic.

Amphibians are highly dependent on surface water for breeding, so areas with more water sources tend to have higher amphibian diversity.

The Kunene River Basin, which includes the Kunene River that forms the northern border of the basin, is used for water supply and power generation. The unique herpetofauna of the Kunene River mouth area underscores the importance of protecting these sensitive areas from development, Atlas of Namibia. The proposed project site does not accommodate any known species of amphibians.

3.4.5. Mammals Diversity

The Kunene Region, particularly the area known as Kaokoland in northern Namibia, is home to a diverse array of mammals and reptiles. This remote, arid landscape features rugged terrain, mountains, savannahs, and desert environments, providing habitats for a variety of species adapted to the harsh, dry conditions. Mammals of Kunene Region and Kaokoland are desert-adapted Elephants (Loxodonta africana), Desert Lions (Panthera leo), Hartmann's Mountain Zebra (Equus zebra hartmannae), Black Rhinoceros (Diceros bicornis), Oryx (Oryx gazella), Giraffe (Giraffa camelopardalis), Springbok (Antidorcas marsupialis) and Kudu (Tragelaphus strepsiceros). None of these were seen during the site visit although the community witnessed their existence.

3.4.6. Reptile Biogeography

Documented reptiles of Kunene Region and Kaokoland are Angolan Garter Snake (Elapsoidea semiannulata), Namaqua Chameleon (Chamaeleo namaquensis), Puff Adder (Bitis arietans), Leopard Tortoise (Stigmochelys pardalis), African Rock Python (Python sebae), Kaokoveld Sand Lizard (Pedioplanis gaerdesi) and Horned Adder (Bitis caudalis). The Kunene Region and Kaokoland are rich in biodiversity, with a wide range of mammals and reptiles adapted to the arid, challenging environment. Species like the desert elephants, desert lions, and Hartmann's Mountain zebra have developed unique survival strategies, making this region ecologically important and a critical area for conservation efforts. Meanwhile, reptiles such as the puff adder and Namaqua chameleon showcase the remarkable adaptability of wildlife in Namibia's deserts.

3.5. Avifauna

The project area is home to a remarkable diversity of bird species, many of which are specially adapted to thrive in the arid, rugged environment. This remote area in northern Namibia includes deserts, mountains, savannahs, and ephemeral river systems, providing unique habitats that support both endemic and migratory birds.

In Otuani village they have existence of ostriches which were spotted during our site visits. The world's largest bird is of paramount importance both on tourism and domestic.

Figure 11: Ostriches spotted in Otuani village

3.6. The General Geology, Surface and Ground Water

3.6.1. Local Geology

According to the report published by Department of Water Affairs, Division Geohydrology Groundwater in Namibia, Granitic and gneissic rock types cover vast areas in the Kaokoveld. Granites, gneiss and old volcanic rocks are roughly located in a triangle between Marienfluss, Swartbooisdrif and Sesfontein. Metamorphic rocks including marble and quarzitic bands occur in the western part of the Kaokoveld. They form a strip between the Hartmann's Mountains and the coast that goes all the way down to the Uniab River. Mountain ranges of carbonate rock types (dolomites and limestones of the Otavi Group) that can be related to the Otavi Mountain Land form the eastern edge of the area, grading towards the north into outcrops of quartzitic sandstone representing the Nosib Group. The Baynes Mountains in the far north are also dolomitic and quartzitic rocks of the Otavi and Nosib groups. Volcanic rocks of the Etendeka Formation crop out between Sesfontein and the Huab River. Some smaller units are present in the area south of Orupembe. These volcanic rocks build the typical Table Mountain landscape of Damaraland. Underlying shale and mudstone of the Dwyka Formation are present in the area west and east of Orupembe, in the Opuwo area, west of Sesfontein and at Ruacana.The most recent rocks are calcretes (in the area of Khorixas, Fransfontein and Sesfontein) as well as alluvial deposits occurring locally in the ephemeral river beds.

As far as tectonic structures are concerned, the most well-known ones are the Sesfontein Thrust and the Purros Lineament. The Sesfontein Thrust represents the contact between the Otavi

Dolomites and metamorphosed rocks, represented by phyllites of the Mulden Group. This contact zone gave rise to the springs found at Sesfontein. The Purros Lineament has been investigated hydro geologically but is not productive, despite some good yielding boreholes drilled on the lineament.

Within and around the project area there is partially weathered dolomite and limestone type of rocks. The geology of the area is characterized by rocks of the Otavi Group (Mendelson et al, 2002). The site is characterized by dolomite, limestone, shale and quartzite rocks with average sized trees around which can be an evidence of underground water aquifers. According to the geology map the project starts where there is existence of Quartzite, Conglomerate, schist and marble going to a different geologically formed rock types of the dolomite, limestone, shale and quartzite. This can be differentiated as uphill and downstream characteristics.

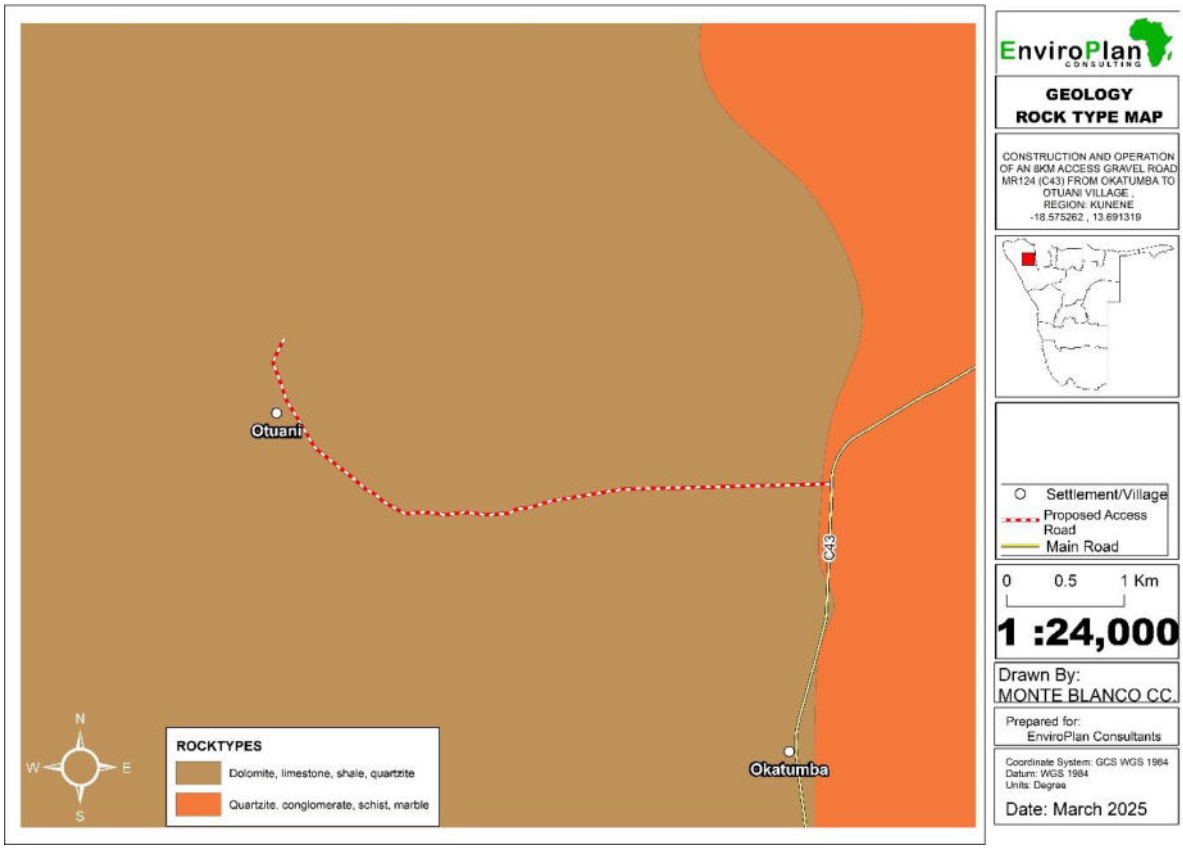

Figure 12: Geology map around project area.

3.6.2. Water Sources

Department of Water Affairs, Division Geohydrology Groundwater in Namibia revealed that the region generally has a low groundwater potential. The area with aquifer potential, more or less reflects the rainfall distribution, decreasing westwards. Knowledge of the aquifers in this area is sparse, due to the low number of boreholes and few government investigations on groundwater. The area is well known for its numerous springs that provide water for wildlife and villagers. Small-scale irrigation schemes are in operation at some of the higher yielding springs, like Warmquelle,

Kaoko-Otavi and Sesfontein. There are also a number of thermal springs in the area, e.g. Warmquelle, Ongongo, Monte Carlo and springs at Okangwati. Other well-known springs are Fransfontein, Gainatseb, Palmwag, Sarusas and Orupembe. The Sarusas spring, located in the lower reaches of the Khumib River, provides drinking water to wildlife in the Skeleton Coast Park.

Strategic Water Resources Assessment report by the Ministry of Agriculture water and rural development postulates that in the northwest of Opuwo reasonable yields were obtained from boreholes in a calcrete-floored valley filled with over 150m of Karoo sediments. Groundwater quality in northern Kunene is generally good but with slightly elevated SO, concentrations, particularly in Karoo sandstones, shales and dolomites, compared with Damara Sequence sediments (DWA, 1986).

3.6.3. Water Vulnerability

The proposed project is likely to have no major negative impacts on the water resources. The local area does not seem to have economic water resources. Therefore, the development of the proposed project is likely to have no negative impacts on water resources. The combined effects of unsaturated and saturated flow probabilities were used as indicator for groundwater vulnerability. However, groundwater or surface water will only be vulnerable to contamination if the following three (3) component are all present at the same time and at a site-specific area within project area:

(i) Contaminant sources resulting from proposed construction program;
(ii) Potential pathways for contaminant migration such as major high order discontinuities (ephemeral river channels, valleys and gullies;
(iii) Targets (economic water resources) present within the project area. Overall, the limited local groundwater resources found in the area form part of the poorly developed metamorphic rocks based confined and unconfined aquifer system that is moderately vulnerable to any sources of pollution

Small sandy riverbeds were identified the project area; however, these are ephemeral which means that they are normally dry on surface but occasionally flow immediately after heavy rainfall events. During designing and construction flood protection measures will be implemented.

3.7. Topography

The entire Kunene region has an average elevation of 772m, minimum elevation of -2m and a maximum of 2398m above sea level. The project area is at an average elevation of 1500 m above sea level and this can be evidenced as presented on the topographic map overleaf.

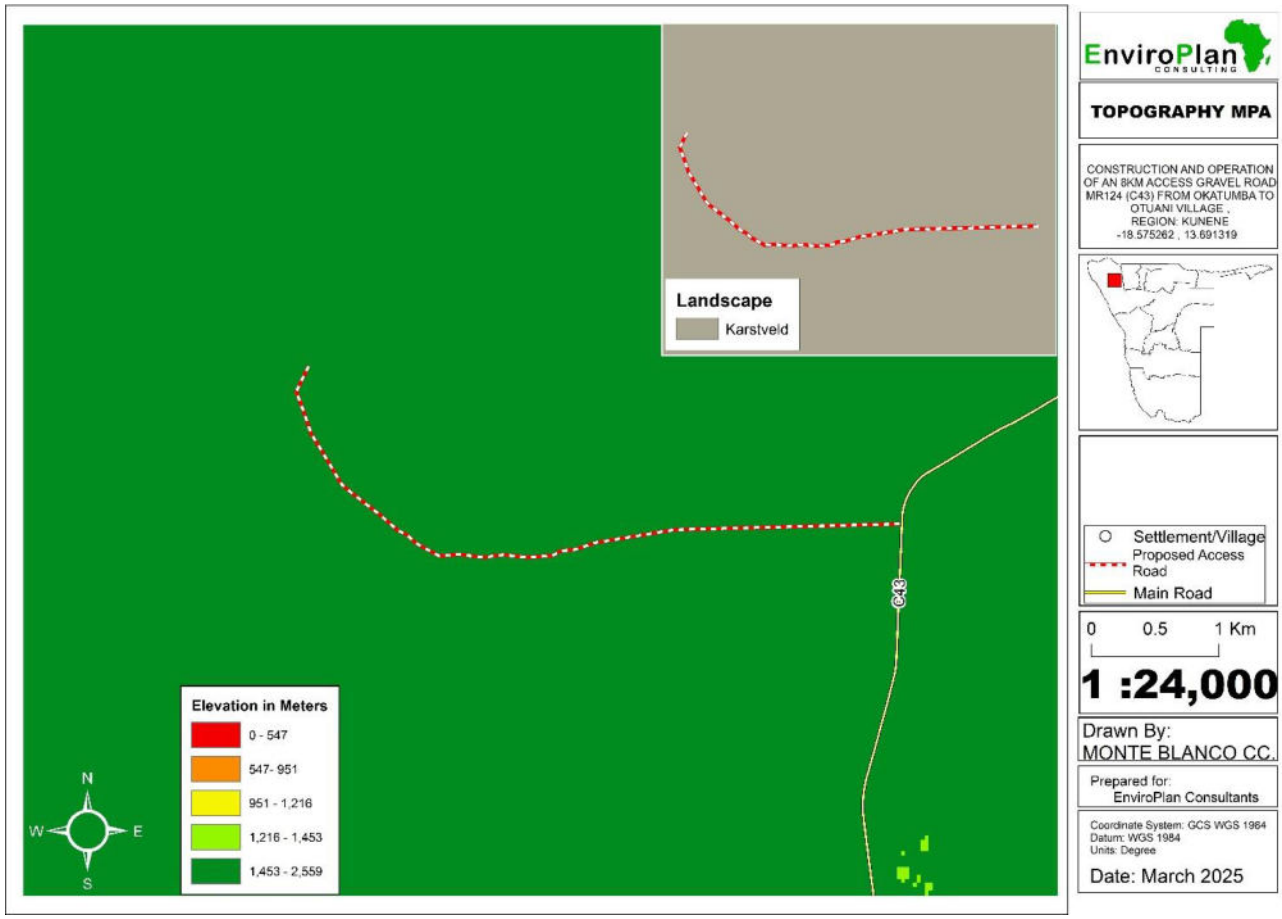

Figure 13: Site topographic map

4. CHAPTER FOUR: PUBLIC CONSULTATION

Public and Stakeholder involvement, is a key component of the EA process. The public consultation process, as set out in Section 21 of Regulation No 30 of EMA, has been followed during this assessment and the details thereof documented below. This assessment process incorporated various means of publicity like newspaper public notices, site notices, public meeting and electronic mails were used;

4.1. Printed Media

4.1.1. Background Information Document

A Background Information Document (BID) was drafted at the onset of the EA process to act as a useful information handout about the proposed project development. In addition, the BID provided details on the public consultation process with contact details for further information. Please refer to Appendix (ii) of this report.

4.1.2. Newspaper Advertisements & Articles

Newspaper notices about the proposed project and related Environmental Assessment processes was circulated in two newspapers for two weeks. These notices appeared in the "The Villager" and "Confidente" newspapers as evidenced in the appendix ii of this report. Further call for public consultations was advertised through the local radio two (2) days prior to the meeting by the Honourable Western Muharukua, the Councillor for Opuwo rural constituency.

4.1.3. Site Notices

A site notice was placed at the project site. These provided information about the project and related EA while providing contact details of the project team.

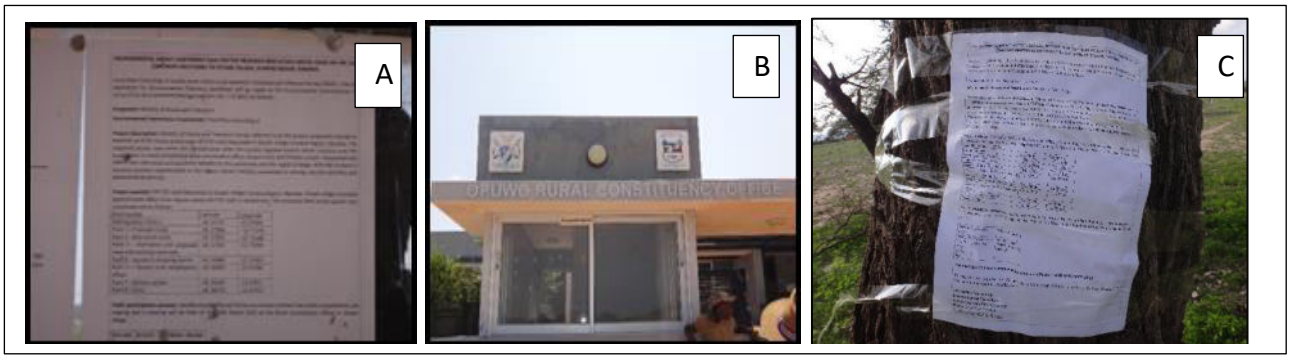

Figure 14:Plate A-C showing public notices on different points of the proposed access road

4.1.4. Building a Stakeholder Database

A stakeholder database for the project collected through a variety of means. During the advertisement of the project (though public notices in local newspapers and site-notices) the list was augmented as Interested & Affected Parties (I&AP) registered and contact information of stakeholders updated, please refer to Appendix (ii).

4.1.5. Stakeholder Meetings & Key Conversations

A public meeting was held on 29th of March 2025 and it was well attended by the residents of Otuani and Okatumba who were notified through the radio station and through word of mouth. Questionnaires were administered during the public meeting and an attendance register was made available for recording purposes.

Figure 16: Plate A and B showing community engagement through public meeting in pictures

Table 5 overleaf is the public meeting minutes as conducted at Opuwo rural constituency offices. The consultant administered questionnaires

Table 5: Minutes for the public meeting/ consultations held on the 29th March 2025 at Opuwo Rural Constituency offices

Time	Activity/ remarks
Time: 14.30	Welcoming remarks by honourable counsellor of Opuwo Rural constituency, Honourable Western Muharukua. All traditional authorities' representatives were welcomed and he thanked the board and wishes everything goes as planned.
Time: 14: 33	Mr Tjiviuro Hirere- Opening with prayer
Time: 14:34	Mr Western get the flow back and thanked for the prayer and requested Mr Talent (Environmental consultant) to introduce his team.
Time 14:35	The consultant introduced Mr Scientist Chinoza, a civil engineer who will as well work with the project team, Mr Nigel who was the photographer for the day, The consultant further introduced the project to the people and further stated that they would like to apply for an Environmental Clearance certificate for the said proposed road construction. He made it clear that the certificate will be granted to the said activities and it was the purpose of the meeting for the community members to safeguard their sense of ownership to the affected areas. The consultant postulated that in the process of road construction, a lot is involved like land clearance, grading of roads, material transportation etc. The consultant went on to highlight some of the benefits of the proposed road construction. • Bringing employment to the locals • Easy access to the clinic, school, shops and the constituency offices The consultant gave a flow to the villagers to air out their views about the development. The villagers requested to know where the road will start and end? At which the consultant mentioned that it will start at Okatumba to Otuani which is approximately 8km. The villagers asked for the road to be extended to other parts of the village e.g., the chief's offices etc.- The consultant made it clear that the budget was adhered to the 8km access road and if future extension comes, it will be communicated thereafter. The villagers requested that at least two culverts be made to make the shops and clinic accessible during rainy season. This is because there are two tributaries flowing to the direction of the proposed road. They highlighted the importance of culverts comparing to existing C43 road which lacks culverts. -The consultant promised to incorporate the importance of culverts to address surface runoff and to advise the civil engineers to design the culverts accordingly.
15:00	The consultant proceeded to discuss about the negative effects likely to be brought by the proposed activity. - The construction phase is likely to deploy heavy equipment which will cause noise, and current road closures and diversion. - Misunderstanding between the construction workers and the locals. (EMP will address the negative impacts)

Time	Activity/ remarks
15:05	The consultant gave the flow to the villagers to air out their opinions The villagers emphasises that preference to be given to the locals when it comes to employment opportunities. Non skilled tasks to be given to locals. In case the contractor decided to employ outsiders, the consultant advised that complaints can be reported via Ministry of Environment, Forestry and Tourism's online platform. The villagers highlighted that the proposed activities are going to affect the whole district called Okangundumba, which have an existing cultural heritage, norms and standards of behaviour which are likely to be diluted by the new comers. - The villagers agreed that collecting firewood at night is prohibited- this was directed to the construction personnel at the camping site that firewood must be collected during the day 6 am to 5 pm. - After bathing when the sun has already set, you are not allowed to throw away remaining water anyhow but one is advised to get an amber charcoal and extinguish the charcoal with remaining water. - When travelling to the district, one cannot comment about the distance or roads, for instance it is a taboo to mention that the place is far and the roads are bad/ have potholes. (Negative words are not acceptable). In case one decided to act against these cultural beliefs, it is believed that misfortunes will follow that particular person. - When the proponent is about to commence the project, they should inform the traditional leaders so that they can initiate a holy fire that a certain activity is about to commence and this will allow all activities to be undertaken smoothy. - Villagers were concerned about water usage; all villagers are entitled to user pays principle so they raised concerns that the contractor/ project proponent be prepared to pay for borehole water use. - The villagers stated that all graveyards are considered one and no additional consultations will be required after the traditional leaders are informed and conducted the holy fire. The consultant gave the flow to the councillor and thanked the villagers and no other questions were raised.
15:30	The councillor closed the meeting and the villagers applauded the consultant. - The councillor advised the villagers to then wait patiently to the proposed project commencement and development. - The villagers then asked to when the project will start and the number of people to be employed locally. The consultant promised that the project was set to kick start in June and will at least employ 30 or more locals. The contractor will be liable to address employment opportunities and must get a list of community members who are employable.
15:45	The honourable counsellor then requested for a closing prayer from one who gave the opening prayer.

Further consultations were done by providing for an online platform for commenting through email to all members who registered as well the MEFT provided the general public to comment on the proposed activities. The consultant was satisfied with the coverage held to capture public; stakeholders view on the proposed activity.

4.1.6. Comments and review period

From the onset of the public consultation process and the initial information sharing through the BID, newspaper and site notices, various stakeholders have registered and provided comments. The Scoping Report and Environmental Management Plan was made available to the public and stakeholders for comment and review. All comments were incorporated in the EMP (Appendix i) for the proposed activity. Questionnaires and proof of stakeholder's engagement are attached in appendix (ii) of this EAR.

5. CHAPTER FIVE: ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS

5.1. Overview

The Ministry of Works and Transport has 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 sustainable project implementation. 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 impact criteria are set out in table 6 below.

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-Namibia, 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-Namibia, 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 Operations	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 and operations	Short	Small	Local	Direct	Low <25%	Minor	PV Plant & Transmission line
	Soil	Erosion	Construction and 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	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
		from vehicles and machinery.								
	Surface water quality	Turbidity and high sediment load	Construction	Moderate	Small	Local	Direct	Low <25%	Moderate	PV Plant
	Soil, Vegetation, Infrastructure	Flooding	Construction& Operation	Permanent	Moderate	Local	Direct	Medium 25 - 75%	Moderate	PV Plant
AIR QUALITY	Air Quality	Construction phase dust	Construction and Operation	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

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure
	Avifauna	Birds can encounter physical crashes	Construction and Operations	Moderate	Small	Local	Direct	Low <25%	Minor	Transmission line
	Aquatic life	Antifouling paints	Construction	Moderate	Small	local	Direct	Low <25%	Minor	PV Plant
	Terrestrial ecology and biodiversity	Destruction of vertebrate fauna (e.g. road kills	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	Long	Moderate	Local	Direct	High >75%	Moderate	PV Plant & Transmission line
	Terrestrial ecology and biodiversity	Illegal collection of firewood	Construction	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	None	Small	Local	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

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure
SOCIAL	Noise Pollution	Increased noise levels	Construction and operations	Moderate	Small	Local	Direct	Low <25%	Minor	PV Plant & Transmission line
	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	Construction	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	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	Construction	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate	PV Plant & Transmission line

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure
		detrimental to human health.								
	Property and human life	Electrocution, fires resulting in fatalities, damage to properties, veldt fires and power surges.	Construction	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	PV Plant & Transmission line

References

FAO, 1998.World reference base for soil resources. World Soil Resources Report, vol. 84. FAO, Rome. Government of Namibia. 2008, Government Gazzette of the Republic of Namibia. Government notice No.1: Regulations for Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA)-Windhoek.

Government of Namibia.2008, Government Gazette of the Republic of Namibia. Government notice No.1: Regulations for Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA)-Windhoek.

IFC.2007. Stakeholder Engagement: A good practice handbook for companies doing business in emerging markets. IFC, Washington D.C.

Mendelsohn,J., el Obeid, S.2003.A digest of information on key aspects of Namibia's geography and sustainable development prospects. Research and Information Services of Namibia.

MET (Ministry of Environment and Tourism). 2012. *Environmental Management Act no. 7 of 2007*. Windhoek: Directorate of Environmental Affairs, Ministry of Environment and Tourism.

https://weatherspark.com/y/78284/Average-Weather-in-Opuwo-Namibia-Year-Round

https://sahris.sahra.org.za/sites/default/files/heritagereports/Appendix%20H2_Rehabilitation%2C%20Closure

6. APPENDIX (i): Environmental Management Plan

7. APPENDIX (ii): Public and Stakeholders consultations

8. APPENDIX (iii): Curriculum Vitae of the EnvironmentaL Assesment Practitioner

9. APPENDIX (iv): Pictures, site layout plans and Map