



DATE FEBRUARY 2024
REPORT NUMBER: 231018002333

**URBAN
DYNAMICS**
town and regional planners

ENVIRONMENTAL AND SOCIAL ASSESSMENT

**FOR THE CONSTRUCTION OF PUBLIC ROADS, INFRASTRUCTURE AND ACTIVITIES IN
WATER COURSES WITHIN FLOOD LINES THROUGH TOWNSHIP ESTABLISHMENT ON
PORTION NO. A OF THE REMAINDER OF FARM EENHANA TOWNLANDS NO. 859 IN THE
OHANAGWENA REGION**

SCOPING ASSESSMENT



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Title	ESMP for Oukango Proper Eenhana Construction Activities Draft ESMP Report: Volume 1
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Keywords	Development Workshop, Urban Development, Management Plan
Status	Draft
Report No.	1
Company	Urban Dynamics Africa (Pty) Ltd.
MEFT App Ref	231018002333
UDA Project No.	Eenhana 1237

DOCUMENT REVISION RECORD




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ACRONYMS AND ABBREVIATIONS

ACRONYM / ABBREVIATION	DESCRIPTION
BID	BACKGROUND INFORMATION DOCUMENT
DEA	DEPARTMENT OF ENVIRONMENTAL AFFAIRS
DWN	DEVELOPMENT WORKSHOP OF NAMIBIA
EA	ENVIRONMENTAL ASSESSMENT
EC	ENVIRONMENTAL COMMISSIONER
ECC	ENVIRONMENTAL CLEARANCE CERTIFICATE
ECO	ENVIRONMENTAL CONTROL OFFICER
EHS	ENVIRONMENTAL, HEALTH AND SAFETY
EIA	ENVIRONMENTAL IMPACT ASSESSMENT
EMA	ENVIRONMENTAL MANAGEMENT ACT
EMP	ENVIRONMENTAL MANAGEMENT PLAN
ER	EMPLOYERS REPRESENTATIVE
ESF	ENVIRONMENTAL AND SOCIAL FRAMEWORK
ESIA	ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT
ESS	ENVIRONMENTAL AND SOCIAL STANDARDS
FRMP	FLOOD RISK MANAGEMENT PLAN
HA	HECTARES
HIV	HUMAN IMMUNODEFICIENCY VIRUS
I&APS	INTERESTED AND AFFECTED PARTIES
I.E.	ID EST. / IN OTHER WORDS
ILO	INTERNATIONAL LABOUR ORGANIZATION
KFW	KREDITANSTALT FÜR WIEDERAUFBAU
KM	KILOMETRE
M	METER
M²	SQUARE METERS
MEFT	MINISTRY OF ENVIRONMENT, FORESTRY, AND TOURISM
MM	MILLIMETRE
NBD	THE NAMIBIA BIODIVERSITY DATABASE
NCE	NAMIBIAN CHAMBER OF ENVIRONMENT
NHC	NAMIBIAN HEALTH CARE
NORED	NORTHERN REGIONAL ELECTRICITY DISTRIBUTOR
TRRP	TREE REMOVAL AND REPLACEMENT PLAN
UDA	URBAN DYNAMICS AFRICA
URPB	URBAN AND REGIONAL PLANNING BOARD
WMP	WASTE MANAGEMENT PLAN
WRP	WASTE REMOVAL PLAN

1 INTRODUCTION

Eenhana Town Council, in partnership with the Development Workshop of Namibia (DWN), appointed Urban Dynamics to obtain Environmental Clearance for the construction of public roads, infrastructure and activities in water courses within flood lines through Township Establishment on Portion No. A of the Remainder of Farm Eenhana Townlands No. 859.

The relevant documentation are included in support of our application to the Environmental Commissioner; please refer to the appendices attached hereto.

1.1 BACKGROUND

The project aims to address poverty-related challenges and advance development within Eenhana, capitalising on the town's strategic geographical advantage and its role as a regional centre. Through targeted initiatives and interventions, it aims to enhance the living conditions and opportunities for the local population, with the ultimate goal of making Eenhana a central contributor to the broader development objectives of the Ohangwena Region and the nation as a whole.

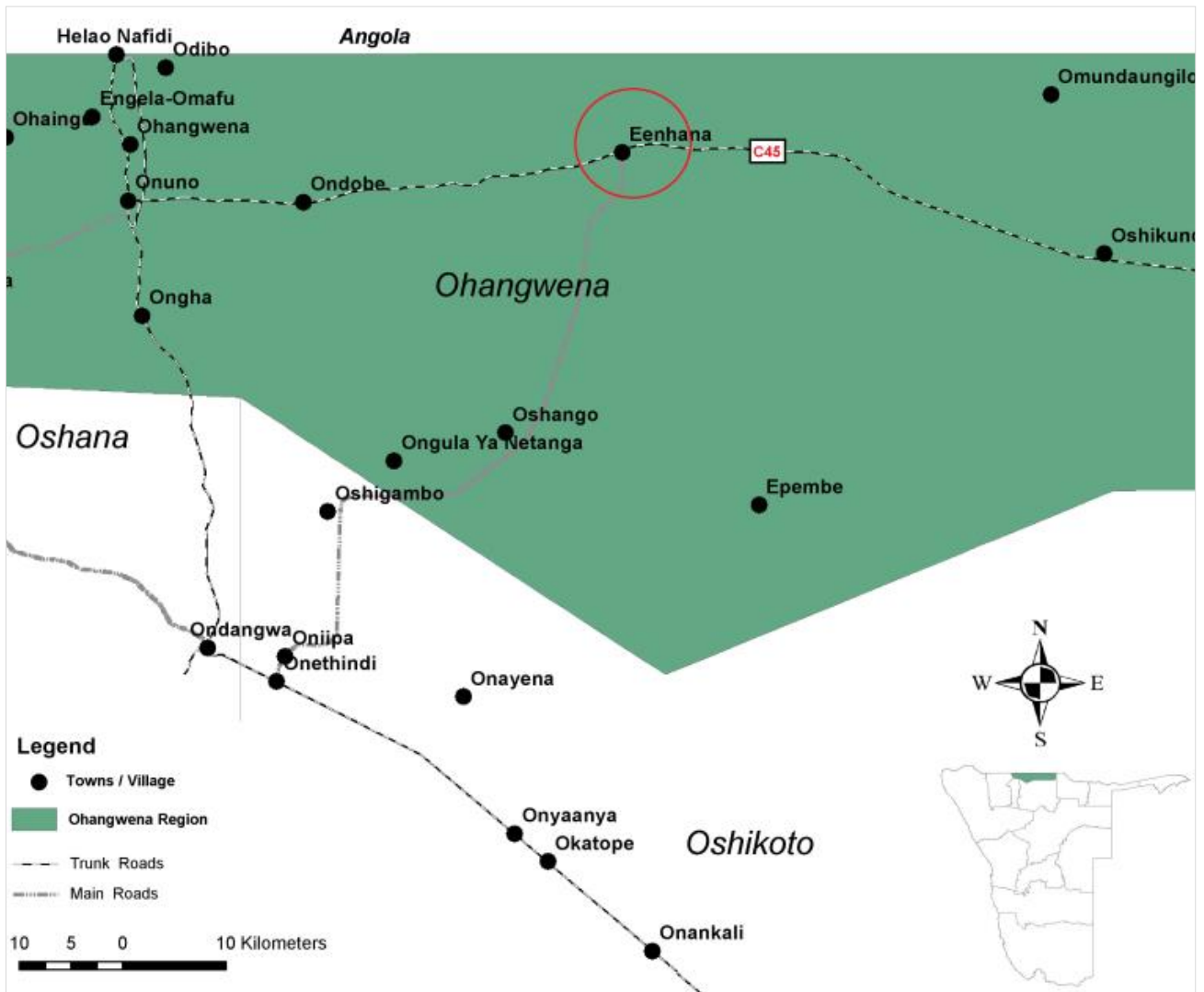
To achieve the program's objectives, the Eenhana Town Council (The Proponent) proposes the establishment of a new township to be named "Oukango Proper, Eenhana." This proposed development involves the formalisation of predominantly residential erven, the creation of streets, and the installation of bulk services within the new township.

1.2 PROJECT LOCATION

The project site is situated within the town of Eenhana, located in the Ohangwena Region of Namibia. Eenhana holds a crucial position as the regional capital and a vital growth centre within the Ohangwena Region. The specific location of the proposed township is illustrated in **Figure 1**. Its strategic location and multifaceted role make it a pivotal element in regional development.

Eenhana is positioned approximately 76km northeast of Ondangwa, another significant urban centre in the region. The town's strategic importance is further emphasised by its close proximity to key transportation routes, including the C45, which connects Onhuno and Okongo, and the M121, linking Eenhana to Oniipa. Eenhana's dual role as both a regional capital and a transportation hub underscores its significance in driving regional development and socio-economic progress.

Figure 1: The Locality of Eenhana within the Region



1.3 PURPOSE OF THE REPORT

The requirement for an Environmental Assessment (EA) arises from the provisions laid out in the 2012 Environmental Impact Assessment (EIA) Regulations of the Environmental Management Act (EMA) No. 7 of 2007. The proposed development falls under a category of listed activities that are subject to specific regulations and necessitate an Environmental Clearance Certificate (ECC) before any further actions can be taken. The activities within this scope are categorised under the following sections:

- **Activity 8.8 Water resource developments:** This category deals with construction and other activities in watercourses within flood lines. (The proposed project will include activities within floodlines.)
- **Activity 10.1 (a) Infrastructure:** This includes the construction of oil, water, gas, petrochemical, and other bulk supply pipelines. (It is noteworthy that the proposed development involves the installation of bulk services).
- **Activity 10.1 (b) Infrastructure:** This relate to the construction of public roads. (The proposed project includes the construction of roads).
- **Activity 10.2 (a) Infrastructure:** This category deals with the route determination of roads and the design of associated physical infrastructure, especially when the development concerns public roads. (The proposed project involves the route determination of roads).

To meet the requirements of the EMA and its 2012 EIA Regulations, the Eenhana Town Council has appointed Urban Dynamics Africa (Pty) Ltd. (UDA) as an independent Environmental Consultant to conduct an Environmental and Social Impact Assessment (ESIA), which includes a public consultation component. The documents generated through this process will be included in an application for an ECC, as specified by the EMA and its EIA Regulations.

The outcomes of the ESIA process have been compiled into this Environmental Report, which, alongside the draft Environmental and Social Management Plan (ESMP), will be submitted as part of the ECC application to the Environmental Commissioner at the Department of Environmental Affairs (DEA) within the Ministry of Environment, Forestry, and Tourism (MEFT).

Heidri Bindemann-Nel, a qualified Environmental Assessment Practitioner (EAP), led the execution of this ESIA process under the supervision of Ernst Simon, an experienced Town, and Regional Planner. This process was also supported by Salmi Neshila, DWN Technical Manager (Infrastructure, Environment, and Social Impact). For more details on the consultants involved, their CVs are provided in **Annexure 2**.



2 OUKANGO PROPER DESCRIPTION

The Eenhana Town Council intends to subdivide the Remainder of Eenhana Townlands No. 859 into Portion A and the Remainder, facilitating the establishment of Oukango Proper. This new township will primarily focus on creating a residential area. Yet, the layout makes provision for mixed-use activities, strategically addressing the increasing demand for housing and business plots within Eenhana and the broader Ohangwena Region.

2.1 OVERVIEW

The proposed layout will alter the current zoning of Portion A from Undetermined to Residential-, Business-, Institutional land uses, as well as Public Open Spaces. The township makes provision for 316 new erven.

The site currently accommodates a number of residential structures, and the majority of the land uses proposed within the new township layout are based on the current actual use of the land. **Table 1** summarises the detailed land-use allocation for Oukango Proper’s layout. The erven’s shapes are illustrated in **Figure 2**.

Table 1: Erf Sizes and Zonings

OUKANGO PROPER			
Zonings	# erven	m ²	%
Residential	304	143 702	56.4
Business	2	3 794	1.5
Institutional	5	10 516	4.1
Public Open Space	5	24 381	9.5
Street		72 174	28
TOTAL	316	254 567	100%

Figure 2: The Proposed Oukango Proper Layout



2.2 ASSESS TO FACILITIES

2.2.1 Residential Land Uses:

The proposed layout integrates several currently occupied residential plots from the existing informal layout, aiming to accommodate about 304 Single Residential plots to meet the high demand for residential land in Eenhana.

Presently, over 60% of beneficiaries have already built houses on their plots, emphasizing the urgent need for residential land. In total, the new layout assigns more than 50% of the total land area for residential use, directly addressing the substantial demand for housing in Eenhana, ensuring it caters to existing plots and provides additional spaces for the growing community needs.

2.2.2 Business:

The layout also includes provisions for business development with the allocation of two business erven on the eastern edge of the township. These erven are strategically positioned to serve existing townships, including Eenhana Extension 2, a fully developed township. Each business erf boasts an average size of 1,897m², providing ample space for the construction of substantial business buildings

2.2.3 Institutional:

Five institutional erven are provided in the layout, each varying in size, with the largest spanning 5,330m². These erven serve as designated areas for the local authority to establish vital institutions, including clinics, community youth centre, crèches, and churches. Notably, one of the erven already includes a church.

2.2.4 Public Open Space:

Approximately 10% of the layout is designated for public open space, including a lower-lying area in the southwest prone to water accumulation during the wet season. Additionally, two erven are designated for public open space, providing opportunities for play parks and entertainment areas with large trees. Recognised as sensitive areas, they remain unsuitable for development. These spaces are versatile for various recreational facilities, emphasizing their paramount planning priority in maintaining a crucial balance between human activities and nature.

2.3 ACCESS AND UTILITY SERVICES:

Road Access:

The site includes track spoor and obtains access from Sam Nujoma Drive, extending from the West (Onunho) to the East (Okongo).

Figure 3: Utility Services:



Water Connection:

NamWater supplies bulk water to the town of Eenhana. The town's water-reticulated network ensures water distribution to formal residents and businesses, while informal areas have access to water through communal taps. To facilitate the water supply for the project site, three water connection points have been established, enabling integration with the water-reticulated network on the site.



Electrical Supply:

The town of Eenhana receives its electricity supply through its reticulated network, which is interconnected with both the nearby Nored network and NamPower. NamPower supplies electricity to Nored, which, in turn, provides it to the town. This electrical infrastructure serves the town, by providing power for residential and commercial areas. The project site includes a substation.

Sewerage:

A sewerage reticulation network and pump station serve the formal areas of Eenhana, while informal settlement areas use septic tanks and pit latrines.

Communication:

The town accesses various services, including television, radio, newspaper, telephone, and cell phone networks.

3 ALTERNATIVES

The Town Council allocated the current site for DWN to formalise the original housing project, thereby restricting the exploration of other locations. Despite this, the initial informal layout (Build Together layout) presented planning constraints, prompting planners to make adjustments in the new layout to mitigate risks and enhance positive impacts. No alternative sites were assessed, as the council prioritised formalising the Build Together site, where structures had already been established.

This section look into the modifications made to the original proposed layout to proactively address impacts through effective planning.

3.1 ALTERNATIVE LAYOUT

The original informal layout planned for an institutional erf in an area with a cluster of protected trees and erven that overlap with the water catchment area. The alternative layout and associated planning constraints are shown in the image below.

Figure 4: Original Layout Planning Constraints



3.1.1 Erven within Flood-Prone Areas:

As indicated in **Figure 4**, the original layout included erven within low-lying areas prone to flooding. The alternative layout incorporates a large public open space on erven located in low-lying areas prone to flooding during the rainy season. A swale is created on the new erf, effectively mitigating flooding risks.

3.1.2 Institutional Erf to Public Open Space:

The alternative layout swapped the Institutional erf with the Public Open Space, aiming to accommodate trees within a park and prioritise environmental preservation.

The constructed residential buildings within the original layout are seamlessly incorporated into the alternative layout. Therefore, no additional construction is required. These alterations showcase a proactive approach to environmental considerations, effectively addressing potential issues related to flooding and the preservation of large trees within the revised layout

Figure 5: Alternative Layout



4 PROJECT STANDARDS

In this section, we provide a comprehensive review of pertinent Namibian legislation, policies, and guidelines that directly apply to the proposed development. The main objective of this review is to disseminate essential information to the Eenhana Town Council, the DWN, Interested and Affected Parties, and the decision-makers at the DEA. We focus on elucidating the precise requirements and expectations outlined within these regulatory instruments.

4.1 NAMIBIA ENVIRONMENTAL LEGISLATION

The Constitution of the Republic of Namibia (1990) establishes the foundational principles governing Namibia. Article 95 commits the state to endorse sustainable development by preserving ecosystems, essential ecological processes, and biological diversity in Namibia. It underscores the sustainable utilisation of natural resources for the collective benefit of all Namibians, both present and future.

Namibia's Environmental Impact Assessment Policy of 1995 plays a crucial role in fostering accountability and informed decision-making. It mandates the necessity of EIAs for specified programs and projects (activities). This policy is enforced through the Environmental Management Act (No. 7 of 2007) and the EIA Regulations.

The EMA, enacted in December 2007 and effective from January 2012, delineates various rights and obligations for citizens and the government. Key aspects of the EMA include:

- ❖ Defining the environment.
- ❖ Promoting the sustainable management of the environment and the responsible use of natural resources.
- ❖ Establishing a process for assessing and controlling activities that may significantly affect the environment.

Part 2 of the EMA outlines several principles of environmental management aligning with the Constitution's provisions for integrated environmental management. Decision-makers must consider these principles when determining whether to grant environmental clearance for listed activities.

The EIA Regulations, promulgated in January 2012, provide the framework for the control of listed activities (GN No. 29). These activities are prohibited until an ECC is issued by the office of the Environmental Commissioner in the MEFT. ECC applications, subject to specific conditions, are considered by the MEFT only after compliance with the EIA process detailed in the EIA Regulations 2012 (GN No. 30).

4.2 REGULATORY FRAMEWORK

THEME	LEGISLATION	PROVISION	PROJECT IMPLICATIONS
NATIONAL	The Constitution of the Republic of Namibia First Amendment Act. 34 of 1998	Article 16 (1) guarantees the right to acquire, own, and dispose of property, and Article 95 (i) mandates the state to manage ecosystems sustainably.	The project supports freehold title ownership and commits to preserving ecological integrity.
ENVIRONMENTAL	Environmental Management Act 7 of 2007	Section 27 mandates an environmental assessment for projects with significant impacts, and Section 2(b-c) requires public participation. - Details principles which are to guide all EIAs	Procedures for authorisation, including an Environmental Clearance certificate, will be followed.
	EIA Regulations GN 57/2007 (GG 3812)	Section 10(1), construction of (b) public roads and Section 10.2 route determination of roads and design of associate physical infrastructure (a) public road whereby the Minister of Environment, Forestry and Tourism or in a manner prescribed by the Minister. Section 21 outlines public consultation requirements for the environmental assessment process. Prescribes the procedures to be followed for authorisation of the project (i.e. Environmental clearance certificate).	

THEME	LEGISLATION	PROVISION	PROJECT IMPLICATIONS
FORESTRY	Forestry Act 12 of 2001	Section 22(1) states that tree species and any vegetation within 100m of a Watercourse may not be removed without a permit. Provision for the protection of various plant species.	Environmental Protection for Plant Species: Planning Phase: During the planning

THEME	LEGISLATION	PROVISION	PROJECT IMPLICATIONS
	<p>Forest Regulations GN 170/2015 (GG 5801)</p>	<p>Section 13.2 states that no protected species should be removed unless special permission is granted. The plant or species declared protected species are listed in Annexure A of the Regulations.</p>	<p>stage, it is important to safeguard plant species listed under Annexure A of the Regulations. This protection is achieved through planning in the layout.</p> <p>Construction Phase: Prior to commencing construction, a comprehensive Tree Management Plan must be developed for the site. This plan should identify and ensures the protection of these plant species.</p> <p>Exceptional Circumstances: In cases where it becomes impossible to preserve protected plant species during the planning and construction phase, permits must be sought from the Ministry of Environment, Forestry, and Tourism (Department of Forestry) to authorise their removal. This ensures compliance with regulations and responsible environmental management.</p>

THEME	LEGISLATION	PROVISION	PROJECT IMPLICATIONS
WATER	Water Management Act No. 11 of 2013 (GG 5740)	<p>Section 102(e) excavations may not expose the roots of or destroy native trees in any watercourse.</p> <p>Section 102(f) the area where activities relating to the use of a wetland or a dam takes place must be left rehabilitated so that the view of the watercourse concerned is not blemished at any time.</p>	During the project's construction phase, it is vital to have necessary measures in place to prevent the pollution of water resources, especially in the water catchment area at the site.
HEALTH AND SAFETY	Labour Act 11 of 2007	<p>Chapter 2 details the fundamental rights and protections of employees.</p> <p>Chapter 3 deals with the basic conditions of employment.</p>	The project's environmental management plan should underscore the importance of ensuring compliance with labour laws, maximizing employment opportunities, and making additional efforts to allocate jobs to local residents, with a particular emphasis on providing opportunities for women in the local community.
	Public and Environmental Health Act of 2015 (GG 5740)	This Act provides a framework for Namibia's structured, uniform public and environmental health system. It covers notification, prevention and control of diseases and sexually transmitted infections; maternal, ante-natal and neo-natal care; water and food supplies; infant nutrition; waste management; health nuisances; public and environmental health planning and reporting.	Development contractors should adhere to the legal requirements of the Act, specifically by preventing activities that could impact the health and safety of the public and employees.

THEME	LEGISLATION	PROVISION	PROJECT IMPLICATIONS
ATMOSPHERIC POLLUTION	Atmospheric Pollution Prevention Ordinance No 45 of 1965	Part II - control of noxious or offensive gases. Part III - atmospheric pollution by smoke. Part IV - dust control, and Part V - air pollution by fumes emitted by vehicles.	The development should consider the provisions outlined in the Atmospheric Pollution Prevention Ordinance No. 45 of 1965. The proponent is required to apply for an Air Emissions permit from the Ministry of Health and Social Services if deemed necessary.
ARCHAEOLOGY	National Heritage Act 27 of 2004	Section 48(1) states that " A person may apply to the (Heritage) Council for a permit to carry out works or activities concerning a protected place protected object"	When archaeological material (e.g., graves) is discovered, the National Heritage Council should be informed immediately.
	Burial Place Ordinance 27 of 1966	The Ordinance prohibits the desecration or disturbance of graves and regulates matters relating to the removal or disposal of dead bodies.	The Ordinance regulates the exhumation of graves.
SOIL	Soil Conservation Act 76 of 1969	The Act regulates combating and preventing soil erosion, the conservation, improvement, and manner of use of the soil and vegetation and the protection of the water sources.	Measures should be in place to ensure that soil erosion and pollution are avoided during the construction and operational phases.
LAND USE	The Urban and Regional Planning Act 7 of 2018	The Act regulates the establishment of townships, amendment of layout, subdivisions and consolidation, and land rezoning.	The proposed township and layout should be approved by the Ministry of Urban and Rural Development in accordance with the Act.

THEME	LEGISLATION	PROVISION	PROJECT IMPLICATIONS
	Eenhana Town Planning Scheme 20 (GG 7290)	The Eenhana Town Planning Scheme provides for various land use and activities allowed within the Eenhana Town Council's jurisdiction.	The development should adhere to the Eenhana Town Planning Scheme.
	Eenhana Town Council Strategic Plan 2021/2022-2025/2026	The Eenhana Town Council Strategic Plan makes provision for the relocation of the current landfill within the townlands.	The Landfill Development Project aims to relocate the existing landfill, which is currently adjacent to the site, to a different location within the townlands.
SERVICES AND INFRASTRUCTURE	Road Ordinance 17 of 1979	<p>Section 3(1) the width of proclaimed roads and roads receive boundaries.</p> <p>Section 27(1) the control of traffic during construction activities on the trunk and main roads.</p> <p>Section 37(1) infringement, obstructions on, and interference with proclaimed roads.</p> <p>Section 38 distances from proclaimed roads at which fences are erected.</p>	The proponent should ensure that the construction of public roads and infrastructure through township development and the operational phase do not affect major nearby roads.

4.3 INTERNATIONAL LENDER STANDARDS

The Proposed program's development is funded by official development assistance from the Government of the Federal Republic of Germany. Consequently, the program must adhere to the regulations set forth by the Federal Ministry for Economic Cooperation and Development and the Kreditanstalt für Wiederaufbau (KfW) Development Bank. KfW aligns with the principles outlined in the Environmental and Social Standards (ESS) of the World Bank Group. The following sections detail the pertinent international criteria and standards that must be followed throughout the Program.

4.3.1 KfW's Sustainability Guideline

All the Financial Cooperation measures financed by KfW must be subject to assessment and implementation in terms of KfW's Sustainability Guideline 2021, or its successor. The guideline describes the principles and procedures to assess the environmental, social and climate impacts during the preparation and implementation of FC measure financed by KfW.

The KfW Sustainability Guideline (2021) sets out that the relevant national law and legal requirements as well as the ESS of the World Bank Group are compulsory during the identification and assessment of environmental, social and climate risks and impacts. Additionally, the World Bank's General and sector-specific Environmental, Health and Safety (EHS) Guidelines and the core labour standards of the International Labour Organization (ILO) must be applied. During the assessment, the requirements of the Human Rights Guidelines of the BMZ must be taken into account.

4.3.2 World Bank Environmental and Social Framework

The World Bank's Environmental and Social Framework (ESF) is aimed at enabling the World Bank and Borrowers to manage environmental and social risks of projects and to improve development outcomes. The ESF offers broad and systematic coverage of environmental and social risks. The ESF sets out the World Bank Group's commitment to sustainable development, through a Vision for Sustainable Development, a Policy for Investment Project Financing, and a set of ESS.

KfW's Sustainability Guideline (2021) requires the application of the World Bank's ESS to their projects, but not the overall ESF.

4.3.3 World Bank Environmental and Social Standards (2018)

The World Bank's ESS consists of ten standards as summarised below. Application of the standards intends to: (a) support Borrowers in achieving good international practice relating to environmental and social sustainability; (b) assist Borrowers in fulfilling their national and international environmental and social obligations; (c) enhance non-discrimination, transparency, participation, accountability, and governance; and (d) enhance the sustainable development outcomes of projects through ongoing stakeholder engagement.

KfW's Sustainability Guideline (2021) requires the application of the relevant ESS. The likely applicability of each standard to the DWN Programme is indicated. A review must be undertaken for each intervention to confirm (based on scope, locality, and site specifics) the applicability of the ESS.

5 ESIA APPROACH AND METHODOLOGY

The following section discusses the methodology used by DWN and UDA in assessing the site in terms of its strengths, weaknesses, opportunities, and threats and to then formulate a planning approach to prepare a layout that harnesses the strengths, accommodate the weaknesses, utilise the opportunities and avoid the threats identified. These also include the natural and social environment within which the project is set.

5.1 SITE INFORMATION AND TOPOGRAPHY

During September 2023, DWN conducted a Risk Scan and E & S Screening. Following this, Urban Dynamics conducted a site visit in October 2023 to identify existing structures, infrastructure, and topography, land uses, and assess the settlement's current functionality. To ensure accuracy in topographical mapping and aerial survey images, a registered land surveyor appointed by the Eenhana Town Council surveyed the site.

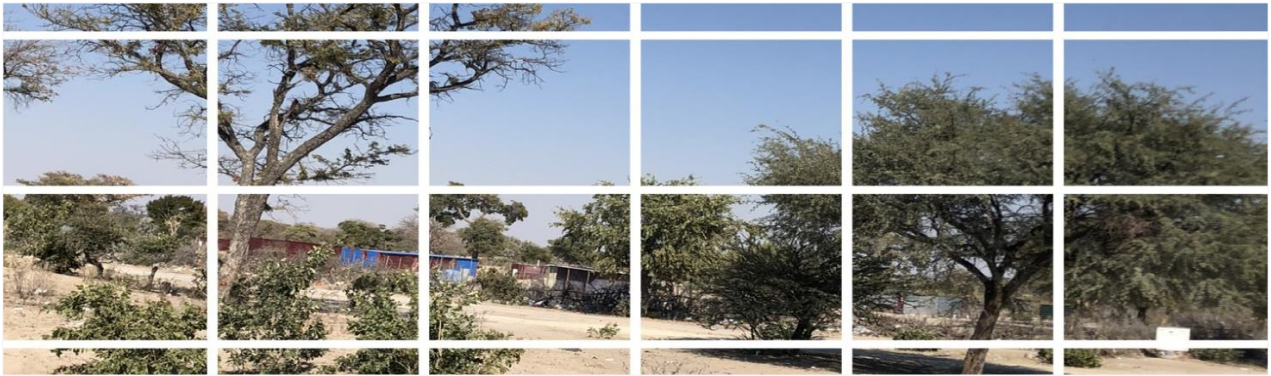
5.2 NATURAL RECEIVING ENVIRONMENT

The assessment of the natural receiving environment involved orthophoto analysis, site visits, literature surveys, and leveraging extensive regional experience.

Data sources included the Atlas of Namibia (Atlas of Namibia Team, 2022), Atlas of Namibia (Mendelsohn et al., 2002), Northern Region's Flood Risk Management Plan (Tamayo et al., 2011), and Eenhana Town Council Strategic Plan 2021/2022 – 2025/2026 (Eenhana Town Council, 2022).

5.3 PUBLIC CONSULTATION

A public consultation campaign was conducted to ensure comprehensive stakeholder engagement. Notices were published in two newspapers over successive weeks, as outlined in **Appendix C.2**. A community meeting held on 21 October 2023, at the project site in Eenhana, involved representatives from Urban Dynamics and the Eenhana Town Council.



6 BASELINE ENVIRONMENTAL AND SOCIAL CONDITIONS

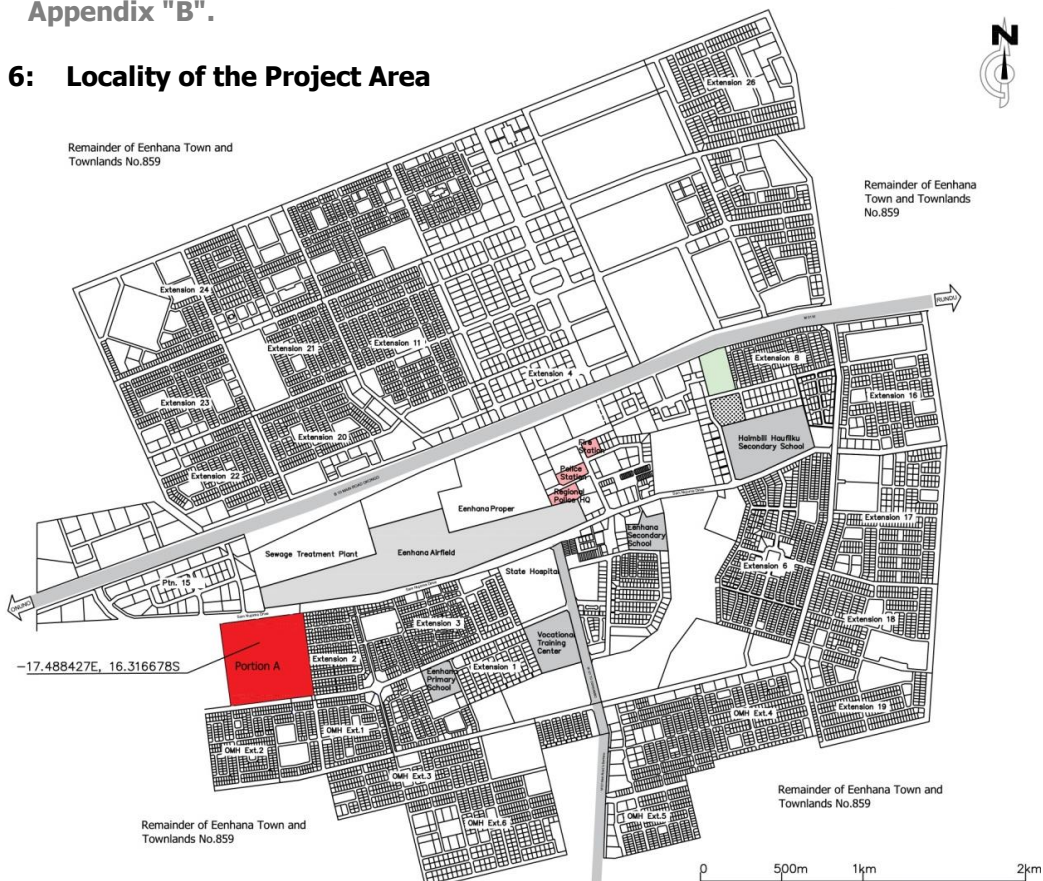
This section describes the proposed project site's biological, physical, social-cultural, and land-use environment in relation to the surrounding urban areas.

6.1 LAND USE

6.1.1 Locality:

The proposed development is located on Portion A of the Remainder of Eenhana Townlands No.859. The project falls within the Ohangwena Region under Registration Division A. The portion is south of the C45 Road, at -17.292356 S, 16.184629 E. A locality plan is attached as **Appendix "B"**.

Figure 6: Locality of the Project Area



6.1.2 Ownership, Size, Shape, and Land Use Activities:

The registered owner of the site is the Eenhana Town Council. The zoning scheme specifies the proposed development portion as "Undetermined." The total extent of the project site covers approximately 26.2 ha. **Table 2** provide information regarding the portion's size and zoning.

Table 2: Portion Size

PORTION A		
PORTION	AREA (HA)	ZONING
Portion A	26.21	Undetermined

The project site currently includes several permanent structures used for residential, existing infrastructure and track roads, as shown in the image below. These structures and infrastructure were originally constructed as part of the Build Together Program of Namibia.

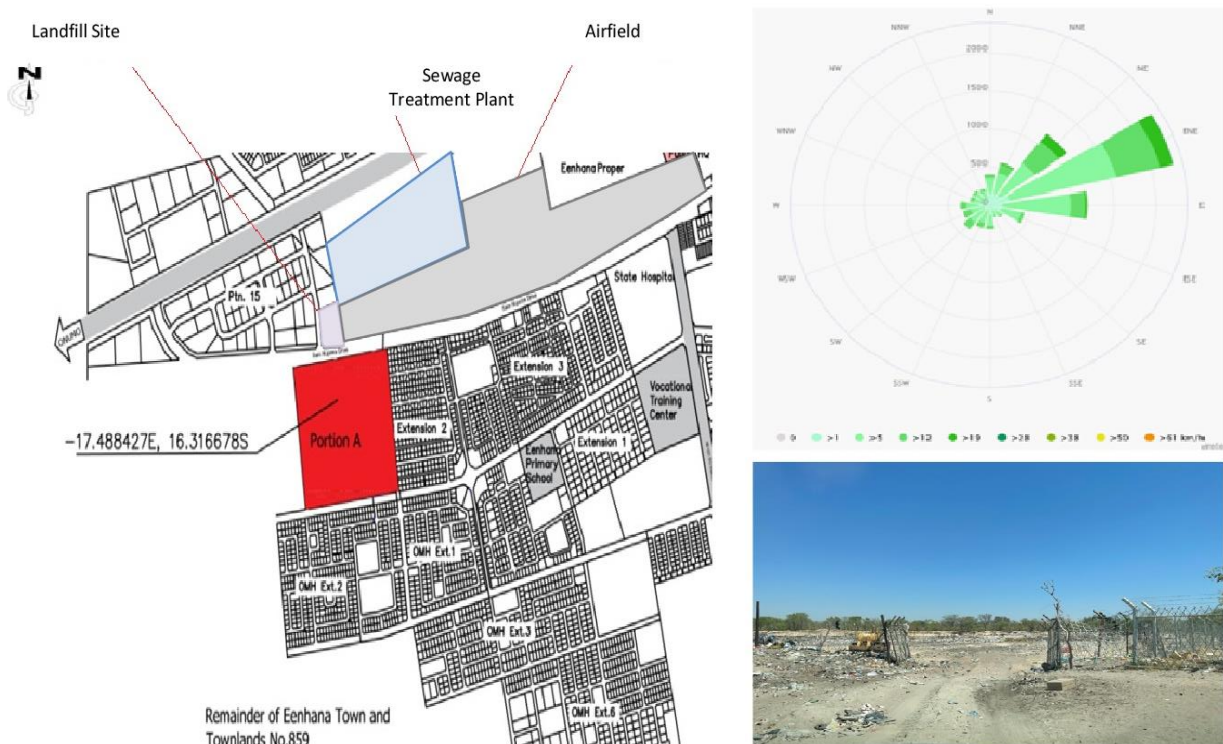
Figure 7: Informal Layout & Current Land Use Activities



6.1.3 Surrounding Activities:

As mentioned previously, the primary goal of the development project is to formalise the existing informal layout and constructed houses under the 'Build Together' programme. To ensure the well-being of residents and the long-term sustainability of the project, it is imperative to assess potential impacts from nearby activities. Three key surrounding activities have been identified as potentially influencing the community in the long term. These activities can be seen in **Figure 8**.

Figure 8: Surrounding Activities



Current Landfill:

The first activity identified is the current landfill in Eenhana, situated north of the project area, which has the potential to impact the residents. However, it is essential to highlight the proactive approach of the local council in planning to decommission and relocate the landfill. Anticipated to result in minimal future impact, this relocation addresses concerns about potential long-term environmental and health risks for residents.

Sewage Treatment Plant:

The second activity is the site's proximity to the sewage treatment plant, which falls within the recommended 500m buffer zone, which is, less than ideal. However, the airfield and Sam Nujoma Drive act as a buffer area between the site and the plant. Moreover, the prevailing

wind direction, mainly from the northeast, is expected to disperse any potential odours or emissions from the sewage plant away from the residential area. This environmental setup effectively minimises the impact on residents' quality of life.

Eenhana Landing Strip:

The third identified activity involves the landing strip's proximity to the project site. The landing strip is located less than 500m from the site. Despite not being a bustling airfield, it is still in use, and therefore, the potential impacts on the community must be considered. Operations at the airfield, such as the landing and takeoff of aeroplanes, introduce aspects of noise and safety that merit some consideration.

6.2 KEY SENSITIVITIES

Table 3: Land Use Key Sensitivities

FEATURE	DESCRIPTION	SENSITIVITY	POTENTIAL IMPACT
Airfield:	Airfield / landing strip located less than 500m from land use that is earmarked for residential land use.	Airfield / landing strip located less than 500m from land use that is earmarked for residential land use.	<ul style="list-style-type: none"> • Health and Safety • Noise
Sewage Treatment Plant:	The facility responsible for treating and managing sewage and wastewater.	Eenhana's sewage treatment plant is located less than 500m from land use earmarked for residential land use.	<ul style="list-style-type: none"> • Health and Safety
Landfill:	A landfill area designated for the disposal of waste materials, typically consisting of household and industrial refuse.	Eenhana's landfill is located less than 500m from land use earmarked for residential land use.	<ul style="list-style-type: none"> • Noise

6.3 BIOPHYSICAL ENVIRONMENT

Within the Biological Environment segment, this report provides a detailed exploration of the project area's climatic conditions, flooding and topography, soil composition, and vegetation characteristics.

6.3.1 Climatic Conditions:

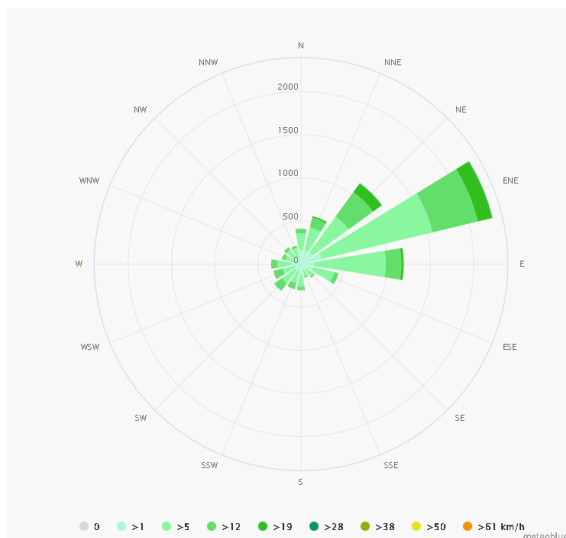
Namibia is characterised by a hot and arid climate, primarily attributed to its low atmospheric humidity levels (Mendelsohn, 2002). This climatic feature results in scanty cloud cover, infrequent rainfall, and exceptionally high evaporation rates. In Eenhana, the average monthly temperatures exhibit notable variation, ranging from 20°C in July to 36°C in October.

According to data from weatherspark.com for the year 2023, the length of daylight in Eenhana fluctuates across the seasons. The shortest day, occurring on June, offers 11 hours and 5 minutes of daylight, while the longest day falls on December, providing 13 hours and 11 minutes of daylight.

Eenhana receives its rainfall through clouds carried by north-easterly winds, but these clouds are often obstructed by the arid terrain. Monthly midday humidity levels vary from 50% in March to a mere 17% in September. Almost 99% of the annual precipitation occurs between October and April, with January recording the highest rainfall. Across the north-central regions, the average annual rainfall increases from west to east, with values ranging from less than 300 mm to no more than 550 mm (Mendelsohn 2002).

Wind patterns in Eenhana are greatly influenced by local topography and other factors. The wind speed and direction exhibit considerable variability over time. However, when examining average hourly wind speeds, there is a noticeable but mild seasonal variation throughout the year.

Figure 9: Wind Speed and Direction



The windier period extends for 5.6 months, spanning from May to October, with average wind speeds exceeding 13.3km per hour. The peak of this windy season occurs in July, with an average hourly wind speed of 15.5km per hour.

Conversely, the calmer period lasts 6.4 months, ranging from October to May. February stands out as the calmest month in Eenhana, boasting an average hourly wind speed of 11.1km per hour. The predominant

average hourly wind direction in Eenhana is from the east north east throughout the year (Meteoblue, 2023).

6.3.2 Flooding & Topography:

Eenhana, situated within the Cuvelai basin, encompasses low-lying areas that collect rainwater during the rainy season. Although lacking flowing oshanas (seasonal rivers), the Northern Regions Flood Risk Management Plan (Tamayo et al., 2011) designates the central part of the region, including Eenhana, as falling within the Moderate Flood Risk Zone. This classification is due to factors like a high groundwater level, sparse population density, and low-lying areas within Eenhana's town borders. The site is not close to a major riverbed/watercourse.

Figure 10: Topography Contours



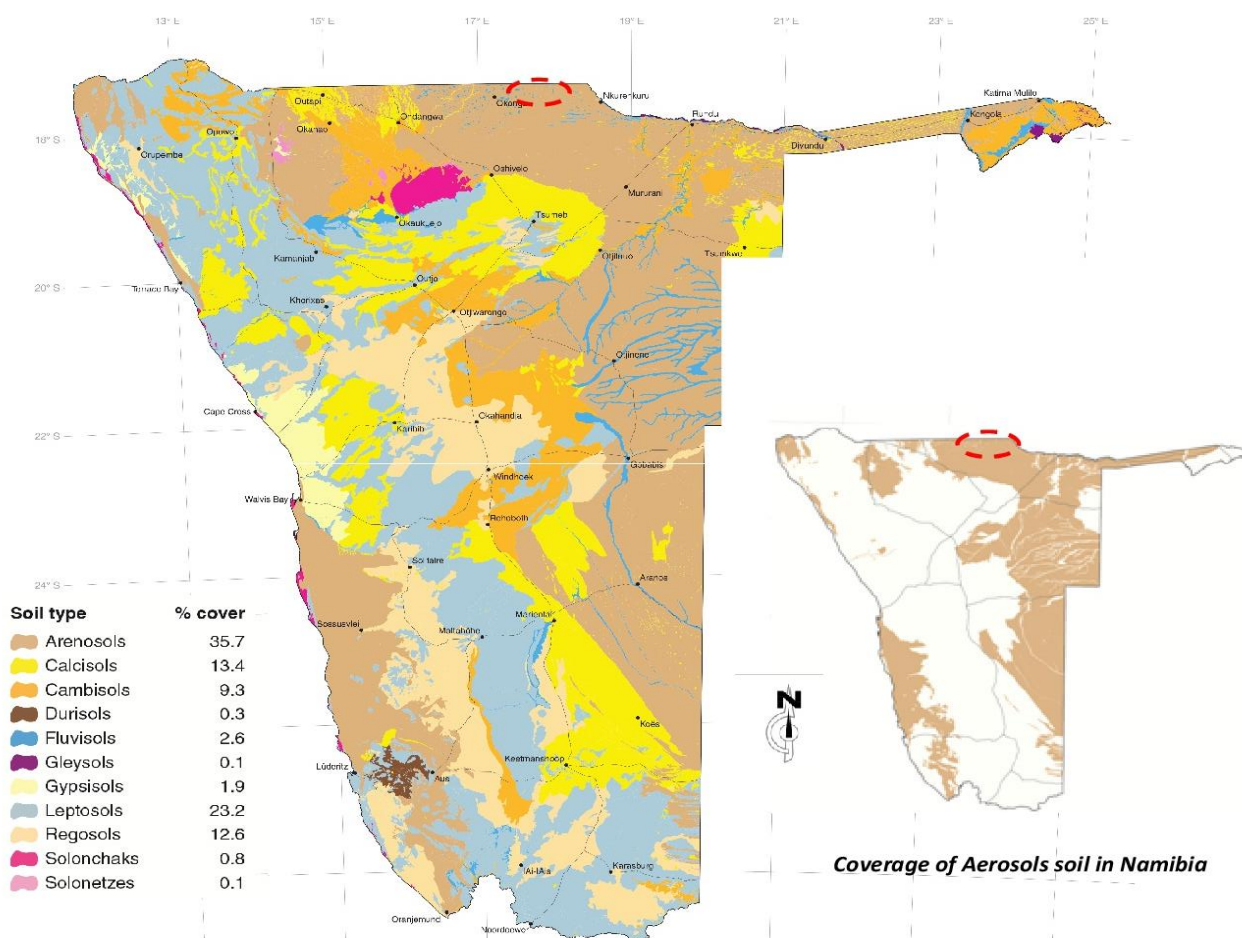
The site's topography **Figure 10** features a gentle slope ascending from the southwest to the northeast of the project area. This configuration results in a gradual descent toward a low-lying rainwater catchment in the southwestern corner.

During the planning phase, there should be a focus on incorporating flood areas into public open spaces, to mitigate the impact of flooding. Designing roads or infrastructure in flood-prone areas should integrate features such as culverts to manage water flow and prevent flooding issues.

6.3.3 Soil Conditions:

Figure 11 illustrates that Namibia boasts a diverse range of eleven distinct soil types, with Arenosols dominating approximately 35.7% of the nation's land area. The Namibian Atlas (2022) confirms that Arenosols, which are prevalent in this region, are primarily characterised by deep windblown sands with a sandy texture and a loose, porous structure. These soil types have a limited capacity to retain water and essential nutrients, which can contribute to dust-related challenges. Moreover, the low-lying areas of the site are comprised of clay soil, further hindering effective water drainage.

Figure 11: Namibia Soil Types and Coverage



Source Namibia Atlas, 2022

Figure 12 highlights the soil composition on the project site, emphasizing that the movement of vehicles and construction equipment within the area may give rise to dust-related issues. This has the potential to result in visual and health concerns due to the airborne particulate matter they generate, potentially affecting respiratory health and visibility.

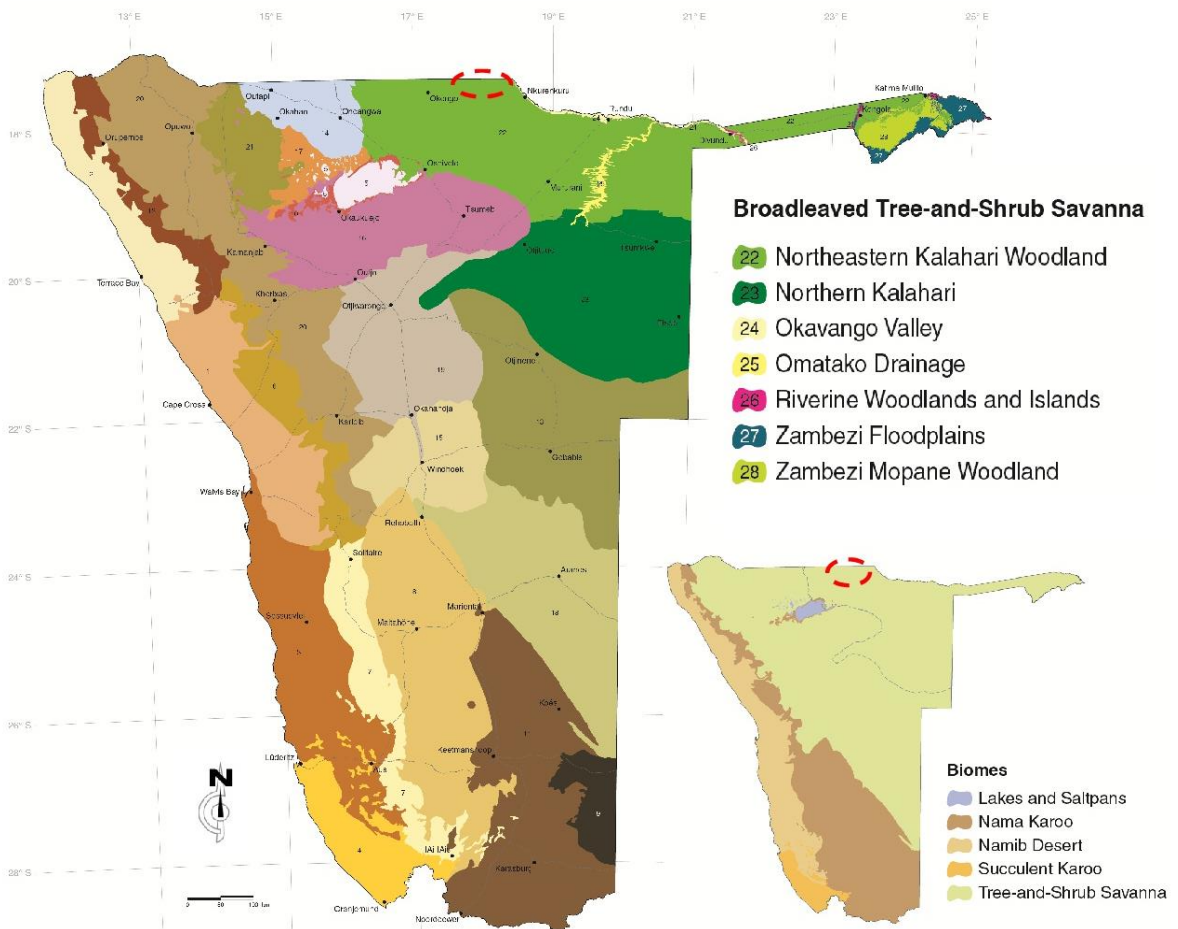
Figure 12: Soil Condition



6.3.4 Vegetation Conditions:

Namibia's diverse vegetation landscape is characterised by five distinct biomes and divided into twenty-eight vegetation-type regions. The distribution of these biomes and vegetation types is primarily influenced by the region's climate and soil conditions, as documented in the Namibia Atlas of 2022.

Figure 13: Namibia Biomes and Vegetation Types



Source Namibian Atlas, 2022

Figure 13 illustrates that the Ohangwena Region falls within the Broadleaved Trees and Shrub Savanna biome, specifically designated as vegetation type 22. This biome corresponds to the north-eastern Kalahari woodland vegetation, as documented in the 2022 Namibia Atlas.

In Figure 14, the on-site vegetation is portrayed based on an image captured during a site visit. The development site is primarily characterized by weathered large trees and shrubs, indicating environmental challenges. The prevalence of scathed vegetation is a consequence of factors such as overgrazing, land clearance for wood harvesting, and ongoing house construction, collectively contributing to a noticeable scarcity of greenery. Scattered trees and shrubs are prominent throughout the site, with a distinctive concentration of trees notable to the northwest.

Noteworthy species on the site include *Prosopis caldenia* (referred to as Persopis), *Pterocarpus angolensis* (known as Kiaat / Omuguya), *Hyphaene petersiana* (recognized as the Makalani Palm Tree), *Combretum collinum* (referred to as Omupupwahek), and *Pechuel-loeschea leubnitziae* (commonly known as bitterbos / Iizimba), among others. This comprehensive inventory underscores the diverse and unique flora present, despite the visible impact of environmental stressors on the site's vegetation.

Figure 14: Vegetation Types at the Site



To protect any listed trees, the developer should compile a Tree Management Plan to identify listed trees and establish strategies to protect or replace them. Throughout the phases of site planning and construction, it is of utmost importance to prioritize the preservation of large protected trees situated within erven, public open spaces, and road reserves. If circumstances necessitate the removal of these protected trees, obtaining the required permits for their removal is an imperative step to ensure compliance with regulations and responsible environmental practices.

6.3.5 Habitats on Site:

The project site has experienced habitat alteration, leading to ecological degradation. Consequently, the site can no longer be regarded as pristine, and its ecosystem no longer functions fully at its natural level. It is more appropriately categorised as an impacted ecosystem rather than a natural environment.

Figure 15: Habitats on Site



6.3.6 Status of Protected Area:

The site does not hold any protected status. However, it is noteworthy that the protected trees and rainwater catchment areas represent the only environmentally sensitive issues within the development site.

6.4 KEY SENSITIVITIES:

Table 4: Biophysical Environmental Key Sensitivities

FEATURE	DESCRIPTION	SENSITIVITY	POTENTIAL IMPACT
Protected Trees:	Existence of protected tree species on the site.	Protected trees located in the roads, public open space and land zoned residential.	Removal of Protected trees, Damaging to vegetation, Violation of environmental regulations.
Potential Flooding:	The development incorporates a water catchment situated at the south-western corner.	Relatively flat topography with gradual drainage slopes towards the southwest.	Contamination of surface/runoff water.
		Proposed residential erven and roads located within flooded area.	Flood-related risk for infrastructure and residential even.
Soil:	The soil type in the project area possesses a loose structure and is vulnerable to wind erosion.	Construction activities.	Increase in dust.
		Sandy porous soil structure.	Contamination of surface and ground water.
Traffic:	Construction activity increase will result in higher traffic volume.	Lack of formal traffic assessment.	Traffic congestion is expected during the construction phase, necessitating proper planning and management.
Noise:	Increased construction activity will lead to elevated noise levels.	Proximity of residences and businesses to construction sites.	Potential disruption due to increased noise.

6.5 SOCIAL CULTURAL ENVIRONMENT

This section serves as an overview of the socio-economic conditions in the area earmarked for the proposed project. It delves into population characteristics and trends, educational profiles, health issues, and income patterns at the region and the constituency levels. Additionally, where available, it explores the social environment within the town of Eenhana. The objective is to establish a context for assessing any potential impacts that may be identified.

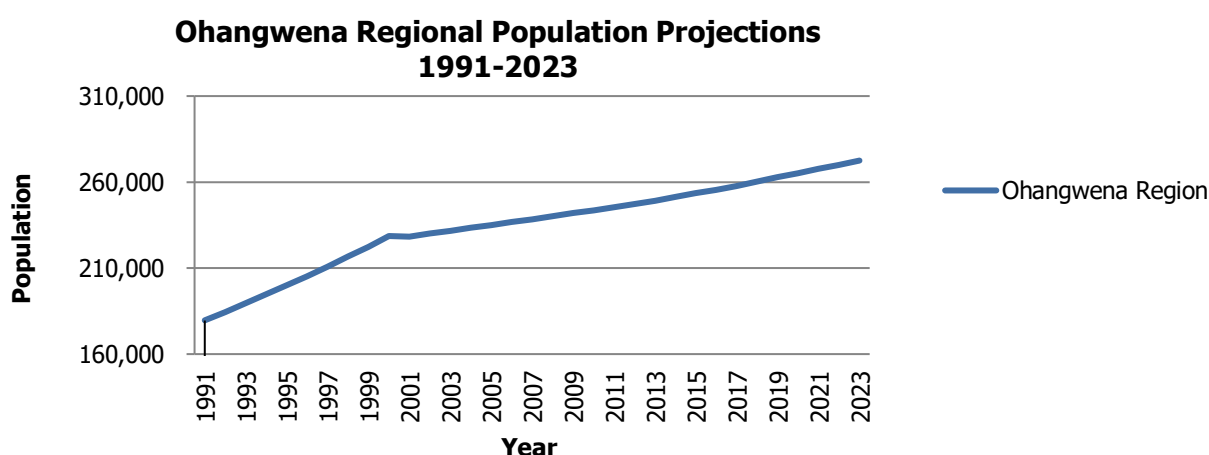
6.5.1 Cultural Resources:

The site does not include any graves or other artefacts or items of historical significance.

6.5.2 Demographic Profile:

According to Census data from 2001 and 2011, the total population of the Ohangwena Region increased from 228,384 in 2001 to 245,446 in 2011 (NSA, 2012). The 2016 Namibia Inter-Censal Demographic Survey estimated the population to be 255,809, by 2018 the Labour Force Survey found the region’s population to be about 260,190. The average annual growth rate for the region between 2001 and 2011 was 0.7%, increasing to 0.8% per annum from 2016 to 2018. Figure 16: Ohangwena Region Population Projection between 1991 to 2023. **Figure 16** shows a population projection spanning from 1991 to 2023 for the region. This demographic shift has established the Ohangwena Region as the second most populous region in Namibia, hosting 12% of the total population (NSA, 2012).

Figure 16: Ohangwena Region Population Projection between 1991 to 2023

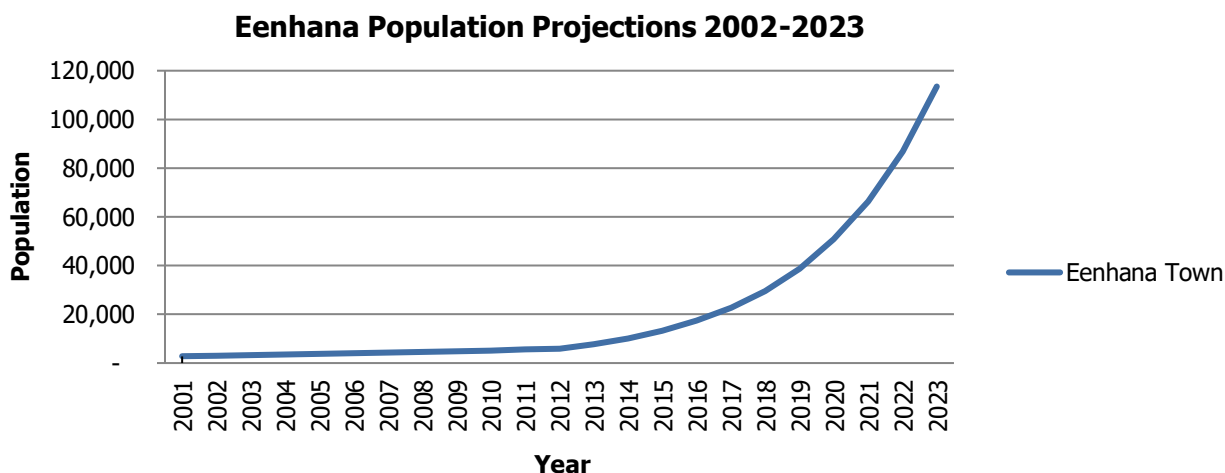


(NSA, 2012)

Urbanisation has been a noteworthy trend over the past two decades. In 2001, only 1% of the Ohangwena Region’s population resided in urban areas, by 2011, this figure had risen to 10% (RoN, 2002) and (NSA, 2012). According to the Eenhana’s Investment Profile 2021 to 2025

(2021), the town of Eenhana’s population was 2,814 in 2001, and by 2011, it had grown to 5,528. A more substantial increase occurred as Eenhana's population surged to 10,120, marking a 30% rise by 2014 (ETC, 2021). The population surge is indicated in **Figure 17**.

Figure 17: Eenhana Town’s Population Projection between 2001 and 2023



(NSA, 2012)

The age and sex distribution of the region, as depicted in **Table 5**, shows that the population share of the under-15 year age group decreased slightly from 39% in 2001 to 37% in 2011 (NSA, 2012). The Region's working age group (15 to 64 years) also showed a decrease from 64% in 2001 to 47% in 2016. The sex ratio over the same period decreased from 96 males per 100 females to 62 males per 100 females. This is much higher than the national sex ratio of 94 males per 100 females. The male to female ratio in the Eenhana Constituency is similar than the regional figure, with 83 males per 100 females (NSA, 2012).

Table 5: The National, Regional, and the Eenhana Constituency Population Age Distribution, 2011

Indicator	Namibia			Ohangwena Region			Eenhana Constituency	
	2001	2011	2016	2001	2011	2016	2001	2011
Under 5 years (%)	13	14	14	11	14	15	15	14
5 – 14 years (%)	26	23	23	18	29	29	31	28
15 – 64 years	52	57	57	64	49	47	44	50
60+ years (%)	8	6	6	6	8	9	8	8
Males / 100 females	94	94	95	112	84	86	84	83
Mean Household size	5.1	4.4	3.9	3.8	3.3	3.8	6.1	5.2
Female Headed households (%)	55	56	54	96	57	62	56	56

(NSA, 2012)

The household sizes for the Eenhana Constituency are higher than the region the national regional (NSA, 2012). The female-headed households for the National and Eenhana Constituency are higher than the region (NSA, 2012).

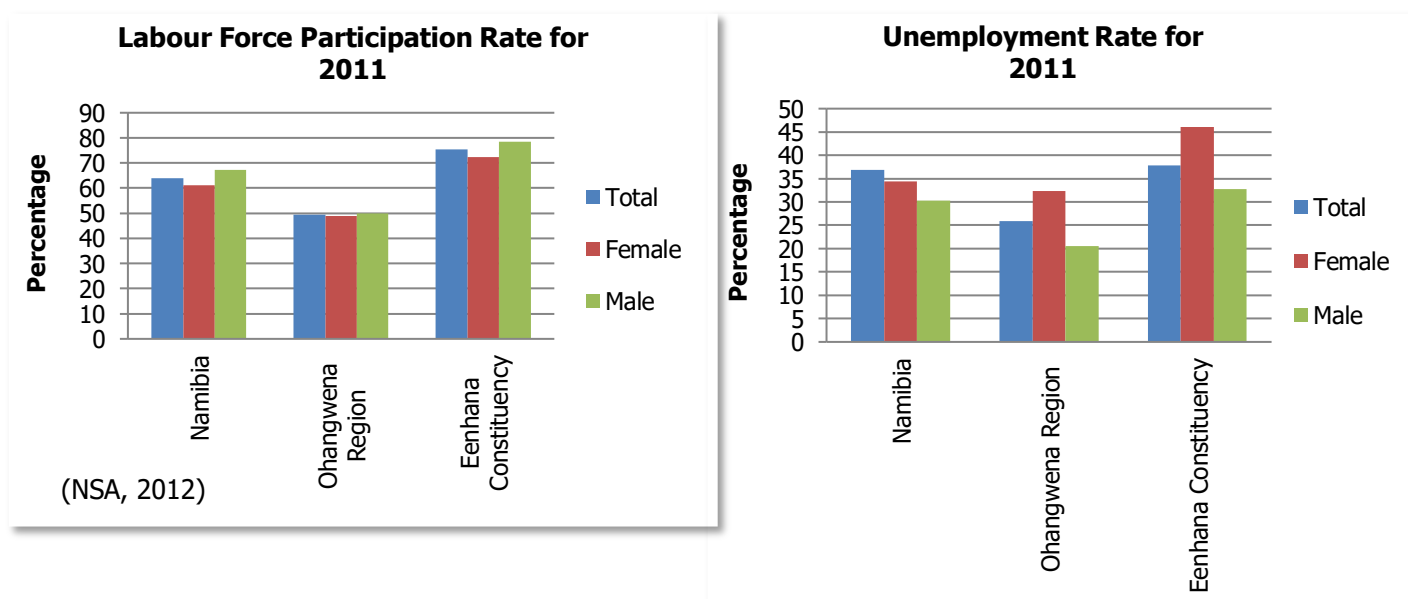
6.5.3 Livelihood Profile:

Examining the livelihood profile, the Ohangwena Region, in 2010, had the ninth-highest mean annual household consumption in the country at N\$44,854, notably lower than the national average of N\$68,878. However, by 2016, the mean annual household consumption rose to N\$94,482, still below the national average of N\$119,065 (NSA, 2016), ranking seventh.

According to the 2018 Namibian Labour Force Survey, the regional unemployment rate was 33.6% of the labour force, reflecting a slight decline of 0.4% since 2001 (NSA 2019). Eenhana faced a substantial unemployment rate of 42% at the constituency level in 2011 (NSA, 2012).

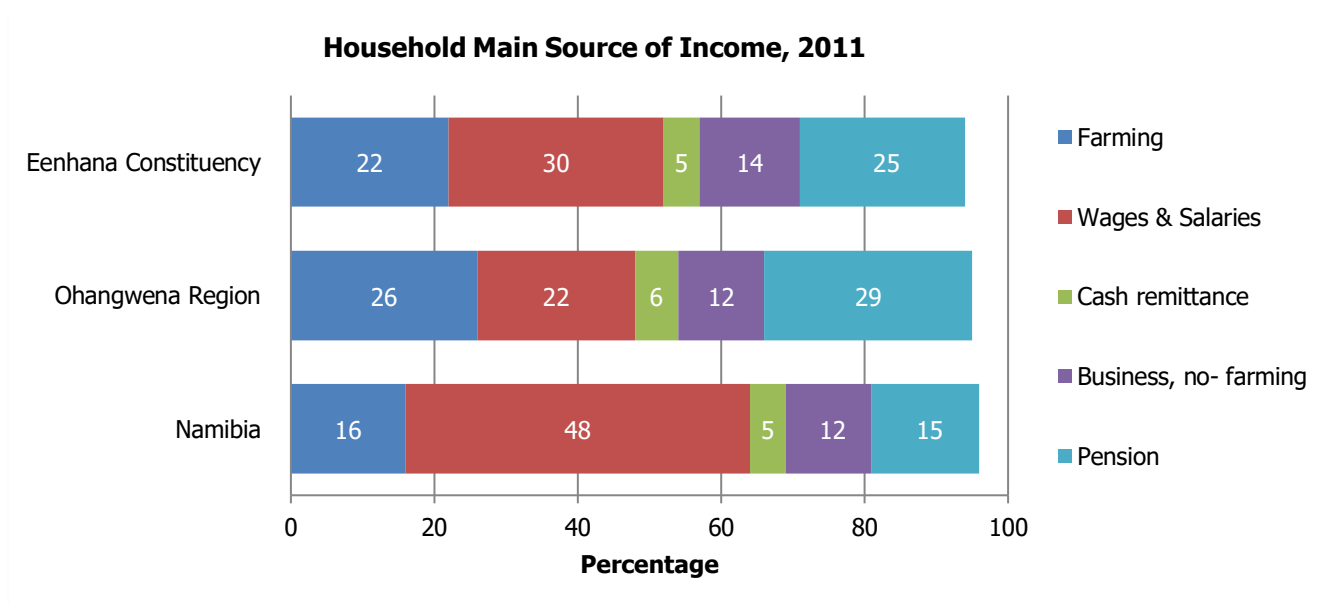
The labour force participation rate for 2011 for the Ohangwena Region was approximately 49.4%, with a slightly higher rate for males (50%) than for females (48.9%). This trend persisted in both urban and rural areas, where the labour force participation rate in urban areas (73.3%) exceeded that in rural areas (46.1%) (NSA, 2012). Notably, unemployment rates were higher among females than males at national, regional, and constituency levels. In the region, 32.3% of females and 20.6% of males were unemployed. In the Eenhana Constituency, 46% of females were unemployed, compared to 32.7%.

Figure 18: Labour Force Participation Rate and Unemployment Rate For 2011



Turning to **Figure 19**, a significant trend emerges in the Ohangwena Region, where 29% of households primarily depend on pensions, surpassing the national average of 15%. In the specific Eenhana Constituency, 30% of households derive their main income from wages and salaries. Despite the Ohangwena Region's predominant focus on small-scale, sustainable farming, only 22% of households in the area rely on agriculture as their primary income source. This underlines the importance of diverse economic activities beyond agriculture for sustaining livelihoods in the region. **Figure 19** further illustrates this, depicting the percentage of households categorized by their primary sources of income (NSA, 2012).

Figure 19: Household Main Source of Income, 2011



(NSA, 2012)

In 2011, housing conditions in the Ohangwena Region were notably below the national average, with only 7.6% of households residing in detached or semi-detached houses compared to the national rate of 37.8%. Improved housing (shacks) was lower in the region at 5.1%, in contrast to the national average of 16%. Recognizing the pressing need for improvement, especially in urban areas, it becomes evident that new housing developments are essential.

Table 6: Housing Conditions

Area	% in detached or semi detached houses	% in improvised shelters	% ownership without mortgage
National	37.8	16	56.1
Ohangwena Region	7.6	5.1	85

(NSA, 2012)

Table 6, provides a detailed overview of the housing situation in the region, indicating the necessity for increased housing options and improved conditions. Specifically, only 7.6% of households in the Ohangwena Region reside in detached or semi-detached houses, highlighting

the need for more affordable and suitable housing options. Additionally, the high ownership percentage without a mortgage 85% suggests an opportunity for targeted housing initiatives that consider financial accessibility (NSA, 2012).

The Region stands as the eighth-largest contributor to the national GDP, generating 5.54% of the total GDP (Urban Econ 2019). The region's economy, mainly reliant on natural resources, is gradually diversifying due to the expansion of the mining and energy industry and increased tourism.

Addressing the region's needs, there is a clear imperative to enhance housing options, particularly affordable ones, and foster job creation, with a specific focus on empowering women to enter the workforce. Initiatives aimed at bridging gender disparities in employment and providing accessible housing can contribute significantly to the overall development and well-being of the Ohangwena Region and, in particular, the Eenhana Constituency.

6.5.4 Educational Profile:

In 2019, the region had a total of 20 secondary schools, 144 combined schools, and 101 primary schools (EMIS, 2019).

Regarding literacy rates in the Eenhana Constituency in 2011, for individuals aged 15 and older, the literacy rate was 85%, which is lower than the regional average of 97%. Additionally, in the Eenhana Constituency, 30% of the population had never attended school, whereas the regional figure stood at 17% (NSA, 2012) (NSA, 2017).

6.5.5 Health Profile:

In 2023, the Ohangwena Region boasted a health infrastructure comprising 3 hospitals, 2 health centres, 31 primary health care clinics, and 144 outreach service points, as the Ministry of Health and Social Services reported in 2023.

Table 7 shows that a substantial percentage of the Ohangwena population, 70%, resides within 10 km of a health facility. While this is commendable, it falls slightly below the national average of 77%. The region's health system demonstrates a capacity of two (2) beds for every 1000 people, in contrast to the national average of three (3) beds per 1000 people (World Bank, 2019).

Table 7: Health Indicators

Indicator	Ohangwena Region	Namibia
% People within 10 km of health facility	70	77
Public hospital beds per 1000 people	2	3.2
Under 5 mortality per 1000	67	69
% Households with access to safe water	86	80
% Households with no toilet facility	72	46

(MoHSS, 2012) (NSA 2014) (NSA, 2016) (World Bank, 2019)

Health outcomes in the Ohangwena Region are encouraging, with the mortality rate for under 5-year-olds standing at 67 deaths per 1000 people, notably lower than the national average of 69 deaths per 1000 people (NSA, 2016). Additionally, life expectancy for males in the region saw a significant improvement from 43.2 years in 2001 to 46.1 years in 2011, according to the Namibia 2011 Census Mortality Report 2014. Similarly, for females in the region, life expectancy increased from 44.8 years in 2001 to 57.4 years in 2011.

These positive health trends align with national averages in Namibia, as illustrated in **Table 8**, indicating an increase in national life expectancy for males from 47.6 years in 2001 to 50.2 years in 2011. Furthermore, national life expectancy for females also exhibited a positive trajectory, rising from 50.2 years in 2001 to 60.5 years in 2011 (NSA, 2014).

Table 8: Live Expectancy (In Years) By Area, Sex and Census Years 2001 And 2011

Area	2001		2011	
	Male	Female	Male	Female
National	47.6	50.2	53.3	60.5
Ohangwena Region	43.2	44.8	46.1	57.4

(NSA 2014)

The observed patterns suggest an overall improvement in male life expectancy in both the Ohangwena Region and nationally. In contrast, female life expectancy demonstrated positive gains at both regional and national levels during that period. Understanding regional variations and national trends are crucial for shaping effective public health planning and interventions.

6.6 KEY SENSITIVITIES:

Table 9: Social Cultural Environmental Key Sensitivities

FEATURE	DESCRIPTION	SENSITIVITY	POTENTIAL IMPACT
Population Growth:	The Ohangwena Region, Eenhana Constituency and the Eenhana Town have witnessed significant population growth in the last years.	Lack of serviced erven within Eenhana.	The project aims to formalise land occupation, ensuring tenure security, access to capital, active participation in the economy, and wealth creation during the operational phase.
Economic Activities:	Economic activities are predominantly centered around wages and salaries.	Lack of economic activity diversification.	During development, the construction company will contribute to the formal economy, focusing on local employment, tax contributions, and economic stimulation.
Job Creation:	The region faces a high unemployment rate.	Job creation during construction and future economic activities.	The project will focusing on local employment creating job during construction and future economic activities.



7 STAKEHOLDER ENGAGEMENT

Public consultation is a vital aspect of the Environmental Assessment (EA) process, enabling Interested and Affected Parties (I&APs) to express their perspectives and concerns about the project. This practice ensures compliance with the Environmental Management Act (EMA) and its Environmental Impact Assessment (EIA) Regulations. It fosters collaboration and assists the Environmental Assessment Practitioner (EAP) in thoroughly assessing potential impacts, the necessity for further investigations, and potential mitigation measures.

According to the Environmental Management Act (Act No. 7 of 2007) of Namibia, the environmental practitioner is responsible for overseeing the evaluation of social and environmental impacts, finalizing the application process, and facilitating public engagement with Interested and Affected Parties (I&APs). To meet these obligations, the EIA process involves establishing an I&AP database, maintaining an issue and response register, and disseminating all draft and final documents to registered stakeholders.

7.1 METHODS

The methods used during the public consultation to communication with I&APs are as follows:

7.1.1 Newspaper Notices:

Newspaper notices were placed in two separate newspapers simultaneously for two successive weeks. They were published in, The Namibian and The New Era, with publication dates of 5 and 12 October 2023.

The notices provided a brief explanation of the proposed activity and its location. They also invited members of the public to attend the meeting and register as I&APs. Notices which were placed are attached as **Appendix C.1**.

7.1.2 Background Information Document (BID):

A comprehensive Background Information Document (BID) was prepared and distributed. This document contains descriptive information about the proposed township activities. It was emailed to all identified and registered I&APs on 9 August 2021 (**Appendix C.2**).

7.1.3 Site Notice:

A notice was put up at the project site to inform the local community and passersby about the proposed development. This notice makes the public aware of the project and the ongoing public consultation process. Photos of the process are seen in **Figure 20**.

7.1.4 Notification to Surrounding Property Owners:

On October 21, 2023, surrounding property owners were explicitly notified about the public meeting, ensuring their participation in the consultation regarding the development. Additionally, the Namibian Airports Company was informed and consulted about the development.

7.1.5 Town Council Notice Board:

Notices regarding the intended development and the scheduled public meeting were posted on the Town Councils Notice board. This step helps in reaching out to the local community and government authorities.

7.1.6 Public Meeting:

Representatives of Urban Dynamics, the Eenhana Town Council, and the DWN held a community meeting on 21 October 2023 at 14:00, within Eenhana. The meeting was conducted in Oshowambo. This public meeting provided a platform for I&APs and the general public to engage in direct discussions, ask questions, and share their concerns or opinions about the proposed development (**Appendix C.3**).

Figure 20: Public Consultation



7.2 SUMMARY OF KEY ISSUES RAISED

Table 10: Key Community Issues Rose

SUMMARY OF KEY ISSUES RAISED	
THEME	ISSUE
Economy:	<ul style="list-style-type: none"> Concerns were raised about the previous impact on houses resulting from construction activities causing flooding. Emphasis on the need to involve the local community in employment opportunities related to the project.
Communication:	<ul style="list-style-type: none"> Lack of awareness among community members regarding their erf boundaries.

8 IMPACT ASSESSMENT

While preparing the layout, the team continuously assessed the project's potential positive and negative impacts. Attempts have been made to enhance and strengthen positive impacts and mitigate and weaken the effects of negative impacts in all cases. The planners made several alterations to the plan until they were satisfied that the layout had been refined to the point where it limits risks, mitigates negative impacts and enhances positive impacts to as great an extent as possible. The following section explores each of these impacts in detail, describing and exploring the various ideas integrated into the layout and assessing alternatives where they seem viable.

The section also explores positive impacts that are not fully addressed by the layout. Many influences may be transitory in nature (for example, occurring only during the project's construction phase) or unavoidable given the site constraints and the need for maximising long-term benefits overall. These impacts and strategies for dealing with them are discussed here, but given that this document is an application for environmental clearance, the measures dealing with their mitigation/enhancement are dealt with in detail in the Environmental and Social Management Plan (ESMP).

8.1 SUMMARY OF POTENTIAL IMPACTS

The planning of the layout, alignment of roads, and upgrading bulk infrastructure has the potential to cause environmental and social impacts. The following is a list of potential impacts identified through the scoping process:

8.1.1 Benefits of the Project:

- Provision for serviced erven;
- Stimulation of economic development and providing new employment opportunities during construction; and
- Stimulation of the health and wellness of residents in Eenhana and the Region.

8.1.2 Potential Negative Impacts during Construction:

- Impact of removal of protected trees;
- Impact of dust;
- Impact of noise;
- Impact on traffic flow;
- Impact on the health and safety of workers; and
- Impact of waste.

8.1.3 Potential Negative Impacts during Operations:

- Potential flooding;
- Impact of noise and safety from the airfield;
- Impact of the proximity of the sewer treatment plant
- Impact of waste during operation.

8.2 POTENTIAL IMPACTS

8.2.1 Project Benefits:

Provide for serviced erven: The layout creates a formal development framework to prevent uncontrolled settlement growth in addition to addressing the current housing demand within Eenhana and the Region.

The development will provide the community access to adequately planned erven with specified erf boundaries. The provision of service erven ensures that the residents have a formal and permanent land occupation and security of tenure.

Stimulate employment creation and local economic development: The development will lead to employment creation during the construction and operation phases. By providing for additional business erf, the project will render services within the formal economy of Eenhana, employ staff, contribute to rates and taxes and spend money within the same economy.

Stimulate health and wellness within the Eenhana Townlands and Region: The layout provides much-needed service connections that are safe and in line with the layout. It will also create properly aligned roads which will ease traffic circulation within the township.

The layout proposed 15m road reserves that provides sufficient space for a 1.5m nature strip, 1.5m pedestrian path and a 3.5m lane with exactly the same uses on the other half of the road.

In accordance with the Council for Scientific and Industrial Research (CSIR) Redbook for Human settlement making, local streets ought to accommodate pedestrians as they fall part of the most important low-order social spaces. Moreover, the CSIR guide emphasises that lower income groups need to utilise hard open spaces, such as streets, as part of the urban room; incorporating socialising and playing space.

The layout ultimately provides for mix of motorised and non-motorised users. Although these streets are in part dominated by vehicular movement, they include the hard open space components of sidewalks, bicycle paths and space for the provision of engineering services. Therefore, clearly defined routes will allow for the provision of pedestrian infrastructure, creating a safe walking environment.

8.2.2 Potential Negative Impacts during Planning and Construction:

- **The removal of protected trees:** The development will remove protected trees on the site. As detailed in Section 3 of the report, the layout was carefully designed to integrate clusters of trees and protected trees within public open spaces, individual erven, and road reserves throughout the site.
- **Impact of construction traffic:** Construction vehicles would need to haul the excavated soil to a disposal site and provide building materials and other supplies (i.e. fuel etc.) to the construction site, most of which could be delivered by truck. Construction vehicles are most likely to pass near erven and disrupt traffic flow within the project site Oukango Proper, Eenhana Extension 2, and Omnito Extension 2 and 3 (although the exact access routes to the site are yet to be defined).
- **Impact of dust:** The movement of construction vehicles on bare soil is anticipated to generate excessive dust, posing significant health risks to both the surrounding community and construction workers. Dust pollution resulting from these activities can lead to respiratory issues and other health complications. Furthermore, the visibility impairment caused by dust can impact air quality, potentially affecting aviation operations. To mitigate these adverse effects, preventative measures must be implemented to control dust emissions and safeguard public health and environmental quality.

- **Impact of potential construction noise:** Construction machinery creates substantial noise, and this will impact the surrounding community. Constant noise can cause stress and health impacts on nearby residents.
- **Impact of construction waste:** Solid waste is the expected significant source of waste at the construction site. If no construction Waste Management Plan (WMP) is in place to address general and hazardous waste disposal, it can lead to water and soil pollution on the site and nearby water areas.
- **Impact on the health and safety of workers:** Construction activities always have potential risks for workers. Inadequate site management measures can expose workers to hazardous chemicals, dust, and noise. A lack of notices and signs within the area where deep excavation work is done can put workers' lives in danger.
- **Potential flooding:** The project anticipates potential flooding in the identified rainwater catchment areas. To mitigate this, flood-prone area is designated as public open spaces during planning, preventing development. Flood areas within road reserves will be filled during construction, and a well-designed stormwater drainage system with culverts will regulate water flow. These measures ensure a proactive approach to addressing potential flooding risks, safeguarding both infrastructure and the community.

These potential negative impacts during construction underscore the need for meticulous planning, proactive measures, and effective waste management. Addressing these concerns will not only ensure the safety of workers and the community but also contribute to responsible and sustainable construction practices.

8.2.3 Potential Negative Impacts during Operations:

- **Impact of the landing strip:** The Eenhana landing strip, though small, has economic and transportation benefits although can impact the community with noise and safety issues. Measures are necessary to address these concerns and protect community well-being. New structures must comply with height restrictions set by the Namibia Civil Aviation Authority, prohibiting second-floor construction to prioritise community safety. All applications for permanent structures in the area must follow the guidelines outlined in FSS-AGA-FORM-032 to ensure the landing strip's operational integrity and the safety of the surrounding community.
- **Impact of the sewerage treatment plant:** The development's proximity to the sewerage treatment plant, less than 500 meters away, raises concerns about potential impacts on residents. Despite prevailing winds blowing away from the site, local wind

patterns in Eenhana, influenced by topography, vary over time. These variations could affect residents through odours, operational noise, health and safety, and community perceptions.

- **Impact of operational waste:** Solid household waste is the expected source of waste in the two townships after the development phase. The Town Council should have a WMP or Waste Removal Plan (WRP) to address general and hazardous waste disposal at the extensions. No waste removal can lead to soil pollution on the site and/or within the water areas.
- The council should take responsibility for removing septic tank waste, which tankers should transport to the Eenhana sewerage treatment facility for disposal. Additionally, all septic tanks constructed must adhere to the regulations outlined in the Department of Water Affairs & Forestry Code of Practice: Volume 1 Septic Tank Systems General Guidelines (July 2008).

8.3 DEALING WITH RESIDUAL IMPACTS

8.3.1 Residual Social Impacts:

No Residual Social Impacts were identified.

8.3.2 Residual Environmental Impacts:

Residual environmental impacts through this project could be elaborated on as follows:

- Removal of protected trees during the planning and construction phases: Not all protected trees can be accommodated within the layout. Mitigation measures should be included in the EMP.
- The development project will create dust and noise during the construction phase. This will be limited; methods to limit it are contained in the EMP.
- The project development will have an impact on traffic during the construction phase. To minimise the increase in transportation during the construction phase, mitigation measures to manage the vehicles on the construction site when services are included in the EMP provisions.
- As mentioned before, solid waste is the expected source of waste at the construction site. Mitigation methods are contained in the ESMP regarding a WMP for the construction site.
- Dust resulting from construction cannot be completely prevented. Methods to restrict it are outlined in the Environmental and Social Management Plan (ESMP).

- During the construction phase, there will be a potential impact on the workers' health and safety due to their work environment. This will be limited, and methods to restrict it are contained in the EMP.
- Stormwater drainage should be designed, and culverts need to be used to accommodate the water flow.
- During the operational phase, there will be a potential impact on the ground water as a result of the use of septic tanks or pit latrines. This will be limited, and methods to restrict it are contained in the ESMP.

9 SUMMARY AND APPLICATION

9.1 PROJECT IMPACTS, AVOIDANCE MEASURES AND RESIDUAL IMPACTS

POTENTIAL IMPACT:	MEASURES:			RESIDUAL IMPACTS:
	AVOIDANCE:	MITIGATION:	ENHANCEMENT:	
STIMULATE LOCAL ECONOMIC DEVELOPMENT AND CREATE EMPLOYMENT OPPORTUNITIES:			<p>Development Phase:</p> <p>The construction company will render services within the formal economy, employ local staff, pay rates and taxes, and spend money all within the same economy.</p> <p>Emphasis must be placed on the requirements and employment of local people.</p>	
SERVICED RESIDENTIAL ERVEN:			<p>The project will lead to:</p> <ul style="list-style-type: none"> - Formal and permanent land occupation, - Tenure security, - Access to capital and partaking in the economy, - Ultimately, wealth creation in the operational phase. 	
STIMULATE THE HEALTH AND WELLNESS OF THE COMMUNITY:			<p>Development Features:</p> <ul style="list-style-type: none"> - All services will be located on the higher road reserve. - Provision of pedestrian infrastructure. - Situated within walking distance from the town centre, schools, and health facilities within Eenhana. - Formal and permanent occupation of land with security of tenure. 	

POTENTIAL IMPACT:	MEASURES:			RESIDUAL IMPACTS:
	AVOIDANCE:	MITIGATION:	ENHANCEMENT:	
POTENTIAL NEGATIVE IMPACTS:				
REMOVAL OF PROTECTED TREES:	Avoid the removal of protected trees.	<p>Planning Phase:</p> <p>Accommodate protected trees in:</p> <ul style="list-style-type: none"> Public Open Space, Individual erven, In road reserves. <p>Construction Phase:</p> <ul style="list-style-type: none"> Identify protected trees. Obtain permits for removal of protected trees. 		<p>Not all protected trees can be accommodating within the layout.</p> <p>Mitigation mergers should be included in the ESMP.</p>
DUST AND NOISE:	Avoid dust and noise.	<p>Construction Phase:</p> <ul style="list-style-type: none"> Implement scheduling of construction activities to minimise dust and noise during sensitive hours. Implement dust suppression techniques such as water spraying, dust barriers, or dust control chemicals. Implement traffic management plans to minimise vehicle-related noise and dust generation. Train to workers on noise and dust control measures. 		<p>Dust and noise prevention may not be achievable.</p> <p>Mitigation measures to reduce the impact of dust and noise should be included in the ESMP.</p>

POTENTIAL IMPACT:	MEASURES:			RESIDUAL IMPACTS:
	AVOIDANCE:	MITIGATION:	ENHANCEMENT:	
POTENTIAL NEGATIVE IMPACTS:				
INCREASE IN TRAFFIC DURING CONSTRUCTION:	Avoid uncontrolled increase in traffic.	Traffic should be restricted between 07h00 and 18h00 during construction.		An increase in traffic can be managed. However, the increase in traffic will still have a potential impact on residents.
HEALTH AND SAFETY OF WORKERS:	Avoid health and safety impacts on workers during the construction phase.	Proper construction practices and safety procedures need to be applied during construction.		Not all the health and safety aspects of the workers can be prevented.
	Avoid health and safety impacts on residents during the operational phase.	<ul style="list-style-type: none"> New development should follow the guidelines outlined in FSS-AGA-FORM-032. Structures must comply with height restrictions set by the Namibia Civil Aviation Authority, prohibiting second-floor construction. 		Not all the health and safety aspects of the residents can be prevented.
IMPACT OF WASTE:	Avoid impacts of solid waste during the construction phase.	A Waste Management Plan should be in place to limited impacts of waste on the watercourses and surrounding area.		Not all impacts because of waste can be prevented.
	Avoid impacts of solid waste during the operational phase.	<ul style="list-style-type: none"> The township's solid waste should be disposed of in accordance with the Town Council's waste management plan. Septic tank waste should be transported by tankers to the Eenhana sewerage treatment facility for disposal. 		Not all the impacts as a result of waste can be prevented.

10 APPLICATION FOR ENVIRONMENTAL CLEARANCE

Given these baseline investigation findings, there are no current future environmental impacts and future identified due to creating the street portions or the construction activities within the proposed Oukango Proper Eenhana.

It is recommended that the development proceed without the need for further assessment, as provided for under articles 33 and 34 of the Environmental Management Act. The application form for an Environmental Clearance Certificate as per Section 32 is attached as **Annexure "1"** to this Scoping Report.