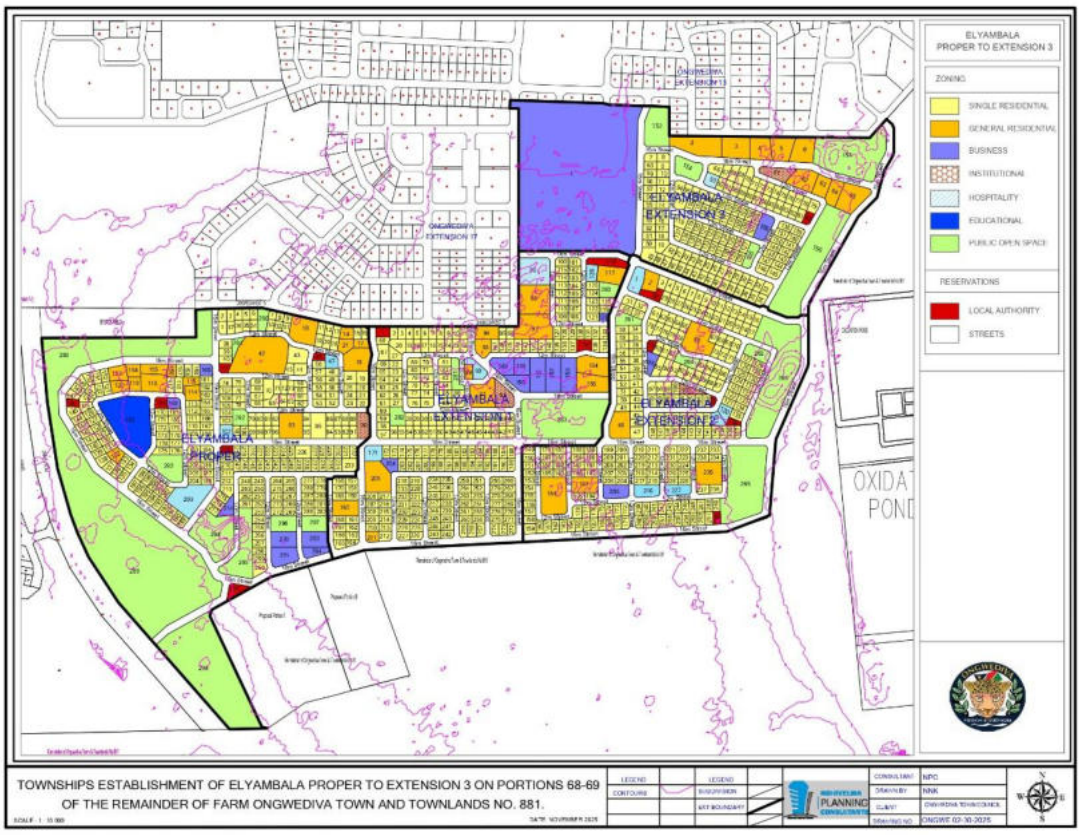
ENVIRONMENTAL IMPACT ASSESSMENT SCOPING REPORT

FOR THE PROPOSED TOWNSHIP ESTABLISHMENT OF ELYAMBALA PROPER, EXTENSION 1, EXTENSION 2 AND EXTENSION 3 ON THE PROPOSED PORTIONS 66-69 OF THE REMAINDER OF FARM ONGWEDIVA TOWN AND TOWNLANDS NO. 881.



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LIST OF ABBREVIATIONS

TERMS	DEFINITION
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
DEA	Department of Environmental Affairs
PPPPs	Projects, Plans, Programmes and Policies
NDC	Namibia Development Consultants
SANS	South African National Standards
I&APs	Interested and Affected Parties
PM	Particulate Matter
NPC	Nghivelwa Planning Consultants
OTC	Ongwediva Town Council
GRN	Government of the Republic of Namibia

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1. INTRODUCTION

1.1 Project Overview

The 8th administration of the government of the Republic of Namibia has resolved to prioritize housing provision to change the socio-economic standing of the population. This centrally driven shift in policy aims to provide a significant number of housing units to Namibians and fulfil one of the fundamental constitutional provisions of right to shelter. The Ongwediva Town Council is doing its part by providing additional 1002 erven of which 879 are for residential purposes.

Ongwediva Town Council resolved to establish Elyambala Proper, Extension 1, Extension 2 and Extension 3 on the Portions 66-69 of the Remainder of the Farm Ongwediva Town and Townlands no. 881. The area known as Portions 66-69 is located within the Ongwediva Townlands in the area locally known as Elyambala. The establishment of townships is a listed activity and cannot be undertaken without and Environmental Clearence.

Therefore, the Ongwediva Town Council appointed Nghivelwa Planning Consultants, a Town and Regional Planning and Environmental Management Consultancy firm to conduct an Environmental Impact Assessment and Environmental Management Plan (EMP) for the proposed Township Establishment of Elyambala Proper, Extension 1, Extension 2 and Extension 3 on the Portions 66-69 of the Remainder of the Farm Ongwediva Town and Townlands no. 881. The Environmental Impact Assessment has been conducted to meet the requirements of the Namibia's Environmental Management Act (No. 7 of 2007).

An EIA may be defined as: a formal process to predict the environmental consequences of human development activities and to plan appropriate measures to eliminate or reduce adverse effects and to augment positive effects.

Thus, an EIA has three main functions:

- To predict environmental problems,
- To find ways to avoid environmental problems, and
- To enhance positive effects.

1.2 Terms of Reference

The Ongwediva Town Council appointed Nghivelwa Planning Consultants, town planners and environmental management consultants to undertake an Environmental Impact Assessment and prepare and Environmental Management Plan for the proposed Township Establishment of Elyambala Proper, Extension 1, Extension 2 and Extension 3 on Portions 66-69 of the Remainder

of the Farm Ongwediva Town and Townlands No. 881. The Environmental Impact Assessment was carried out in line with the Environmental Management Act, 2007 (Act no. 7 of 2007).

The Terms of Reference (ToR) for the consultants were, but not limited to the following:

- The collection of all possible data on the environmental, social and natural resource components and necessary parameters.
- A description of the location of the proposed project including the physical area that may be affected by the project activities.
- Description of the design of the proposed project.
- Description of the activities that will be undertaken during the project construction, operation and decommissioning phases.
- Listing of the materials to be used, products and by products, including waste to be generated by the project and the methods of disposal.
- Identification of the potential environmental impacts of the proposed project and
- The mitigation measures to be taken during and after implementation of the project.
- Accidents during the project cycle.
- Establishment of a plan to ensure the health and safety of the workers and neighboring communities.
- Identification of the economic and socio-cultural impacts of the proposed project.
- Economic and social analysis of the project including project risk and measures to mitigate them.
- Establishment of an action plan for the prevention and management of possible impacts (EMP).
- The consultant will prepare recommendation on the project for its future use.

1.3 Acknowledgement

Nghivelwa Planning Consultant has prepared this Environmental Impact Assessment (EIA) Report on behalf of Ongwediva Town Council. Ongwediva Town Council is the proponent to this project and has provided the necessary information, documentation and guidance during the project undertaking and during the preparation of this report. The Consultant (Nghivelwa Planning Consultant) acknowledges the contribution provided by the proponent and support and interest shown by all the identified stakeholders.

1.4 DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

This EIA Report was prepared by the following Environmental Practitioners:

Name of representative of the EAP	Education qualifications	Professional affiliations
Nghivelwashisho Natangwe Ndakunda	MBA-Entrepreneurship, B-Tech Town and Regional Planning	Namibia Council of Town and Regional Planners, Namibia Institute of Town and Regional Planners

Table 1: EAP's

2. EIA METHODOLOGY

The objective of the assessment of impacts is to identify and assess all the significant impacts that may arise from the undertaking of an activity and the findings used to inform the competent authority's decision whether the activity should be approved, approved subject to conditions that will reduce the impacts to within acceptable levels or should be rejected. In this sense impacts are defined as the changes in an environmental or social parameter that result from undertaking the proposed activity. The following general methodology was used in this EIA for the proposed township establishment of Elyambala Proper, Extension 1, Extension 2 and Extension 3, to investigate the potential impacts on the social and natural environment due to the construction of municipal services and operation by the local authority:

The key activities undertaken during the assessment included the following:

2.1 Establishment of the environmental baseline

This involved the study and description of the receiving environment on which the proposed project is to be implemented. Thus, it involved a site visit, physical inspection of the study area's soil, biology, topography, animal species, water resources, climate and the local socio-economic environment.

2.2 Impact analysis

This involves the identification of impacts that are usually associated with the construction, operation or maintenance and decommissioning of the proposed activity and are generally obvious and quantifiable. These impacts were analyzed and evaluated.

2.3 Impacts mitigation

This involves the identification of the impacts and once impacts have been identified and predicted for a particular activity, then appropriate mitigation measures need to be established. Mitigation

measures are the modification of certain activity in such a way as to reduce the impacts on the physical- and socio-economic environment. The objectives of mitigation are to:

- Find more environmentally sound ways of doing things.
- Enhance the environmental benefits of a proposed activity.
- Avoid, minimize or remedy negative impacts; and ensure that residual negative impacts are within acceptable levels.

Furthermore, impacts associated with all the stages of the proposed project were identified and mitigated. An Environmental Management Plan has been prepared as framework for mitigation of impacts and environmental monitoring of the project.

2.4 Review of alternatives

This entailed a review of the alternatives to the proposed project. This was aimed at determining better ways of avoiding or minimizing environmental impacts while still realizing the project goals. The review of alternatives provided opportunities for environmental enhancement. The alternatives reviewed were alternative sites and no project alternative.

2.5 Public Participation Process (PPP)

This process for the public participation was done by informing the relevant stakeholders and Interested and Affected Parties (I&APs). Advertisements for the public to participate and raise their concerns on the proposed project were placed in two (2) local newspapers of the New Era and Confidante of the 21st and 28th November 2025. The public and interested and affected parties were invited to provide comments to the EIA and no interested or affected party registered any comments. A public meeting about the proposed development and its potential impacts to the environment was carried out on the 20th March 2026 at the open space located in Elyambala.

3. POLICY AND OTHER RELEVANT LEGISLATION

SUBJECT	INSTRUMENTS AND CONTENT	APPLICATION TO THE PROJECT
The Constitution of the Republic of Namibia	General human rights – eliminates discrimination of any kind The right to a safe and healthy environment Affords protection to biodiversity	Ensure these principles are enshrined in the documentation of the project
Environmental Management Act EMA (No 7 of 2007)	Requires that projects with significant environmental impact are subject to an environmental assessment process	Ensure that the township establishment is carried out within the parameters of the Act.

	(Section 27). Details principles which are to guide all EAs.	
Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 487	Details requirements for public consultation within a given environmental assessment process (GN 30 S21). Details the requirements for what should be included in a Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).	Ensure that the township establishment aligns with the EIA regulations.
Forestry Act No 27 of 2004	Provision for the protection of various plant species	Some species that occur in the area are protected under the Forestry Act and a permit is therefore required to remove the species
Hazardous Substances Ordinance 14 of 1974:	Control of substances which may cause injury or ill-health or death of human beings because their toxic, corrosive, irritant, strongly sensitizing or flammable nature	The waste generated on site and at the campsite should be suitably categorised/classified and disposed of properly and in accordance with the Measures outlined in the Ordinance.
The Nature Conservation Ordinance (No. 4 of 1975)	Prohibits disturbance or destruction of protected birds without a permit. Requires a permit for picking (the definition of "picking" includes damage or destroy) protected plants without a permit	Protected plants will have to be identified during the planning phase of the project. In case there is an intention to remove protected species, then permits will be required.
Forestry Act 12 of 2001 Nature Conservation Ordinance 4 of 1975	Prohibits the removal of any vegetation within 100 m from a watercourse (Forestry Act S22(1)). Prohibits the removal of and transport of various protected plant species.	Even though the Directorate of Forestry has no jurisdiction within townlands, these provisions will be used as a guideline for conservation of vegetation.
Convention on Biological Diversity, 1992	Protection of biodiversity of Namibia	Conservation-worthy species not to be removed if not necessary.
Water Resources Management Act 11 of 2013	The Act provides for the management, protection, development, use and conservation of water	Obligation not to pollute surface water bodies

	Resources; to provide for the regulation and monitoring of water services.	
National Heritage Act 27 of 2004	Section 48(1) states that "A person may apply to the [National Heritage] Council [NHC] for a permit to carry out works or activities in relation to a protected place or protected object	Any heritage resources (e.g. human remains etc.) discovered during construction requires a permit from the National Heritage Council for relocation
Labour Act 11 of 2007	Details requirements regarding minimum wage and working conditions (S39-47).	Employment and work relations
Health and Safety Regulations GN 156/1997 (GG 1617	Details various requirements regarding health and safety of labourers.	Protection of human health, avoid township establishment at areas that can impact on human health.
Public Health Act 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."	Ensure that all contractors involved during the construction, operation and maintenance of the proposed project comply with the provisions of these legal instrument
Water Resources Management Act 11 of 2013	Prohibits the pollution of underground and surface water bodies (S23(1)). Liability of clean-up costs after closure/ abandonment of an activity (S23(2)).	The protection of ground and surface water resources should be a priority. The main threats will most likely be concrete and hydrocarbon spills during construction and hydrocarbon spills during operation and maintenance.
Urban and Regional Planning Act no 5 of 2018	Details the functions of the Urban and Regional Planning Board including their consideration when assessing an application for the permanent closure of public open spaces and subsequent rezoning (S3)	The proposed township establishment should be informed by environmental factors such as water supply, soil etc. as laid out in Section 3 of the act.
Local Authorities Act no 23 of 1992	Details the procedures to be followed for the provision of municipal services in Local Authority Areas.	The provision of municipal services should be in line with the use of land.

Table 2: Relevant legislation

4. NEED AND DESIRABILITY OF THE PROPOSED PROJECT

The 8th administration of the government of the Republic of Namibia has resolved to prioritize housing provision to change the socio-economic standing of the population. This centrally driven shift in policy aims to provide a significant number of housing units to Namibians and fulfil one of the fundamental constitutional provisions of right to shelter. The Ongwediva Town Council is doing its part by providing additional 1002 erven of which 879 are for residential purposes.

Ongwediva Town Council resolved to establish Elyambala Proper, Extension 1, Extension 2 and Extension 3 on the Portions 66-69 of the Remainder of the Farm Ongwediva Town and Townlands no. 881. The area known as Portions 66-69 is located within the Ongwediva Townlands in the area locally known as Elyambala. The main aim of this exercise is to provide additional residential erven in Ongwediva.

The Namibian Constitution guarantees the right to shelter as a fundamental human right and it recognizes the need for government to provide affordable housing to the population of the country. Since independence in 1990, The Government of Republic of Namibia has made housing provision as a priority to redress the social and economic inequalities that existed during the apartheid era. The establishment of 4 townships to be known as Elyambala Proper, Extension 1, Extension 2 and Extension 3 will contribute to the provision of housing to the middle-income groups of the population that are residing in and around Ongwediva.

The development will consist of 1002 single residential, general residential, businesses, institutional, educational, local authority, accommodation and public open space erven.

5. SCOPE OF THE EIA

The objectives of the scope of the EIA were to ascertain key issues of the environmental impacts that are likely to be important during all the phases of the Project. Relevant environmental data has been compiled by making use of primary data which was collected during the site assessment done on the 15th of November 2025 and by using secondary data already available. Potential environmental impacts and associated social impacts were identified and addressed in this report.

The construction and operational phases for the proposed Township Establishments will involve;

- The preparation of the site, including excavations.
- Transportation of construction materials.
- Off-loading of materials
- The constructions of the buildings and other substructures

- The constructions of the streets (Roads).
- The constructions of bulk services infrastructure of portable water, electricity and sewerage.
- The supply of bulk services of water, electricity, waste disposal plan and waste management
- The Maintenance of the completed townships by the local authority.
- Maintenance of all service infrastructure constructed will be done by the proponent.

The Environmental Impact Assessment study report includes an impact assessment and mitigation measures for the three phases of the proposed project following:

- The field investigations (site assessment),
- Identifying and involving all stakeholders in the Environmental Impact Assessment process by expressing their views and concerns on the proposed project.
- Identify all potential significant adverse environmental and social impacts of the project and recommend mitigation measures to be well described in the Environmental Monitoring Plan (EMP).
- Coordination with the proponent, regarding the requirements of Namibia's Environmental Management Act (No. 7 of 2007) and other relevant policies and administrative framework.
- To define the Terms of Reference for the Environmental Impact Assessment study.
- A review of the policy, and relevant legislation.
- To provide overall assessment information of the social and biophysical environments of the affected areas by the proposed development.

6. DESCRIPTION OF THE PROPOSED ACTIVITY

The proposed activity is for the establishment of 4 townships consisting of ±1 002 erven of different land use to be used for the construction of houses, business buildings, public open spaces, schools, etc. The activity involves the construction of bulk services such as sewer water reticulation, electricity, roads, water, communication networks, etc.

It also includes the maintenance of the site during the operational phase, such as waste disposal, noise pollution as well as maintenance of the afore-mentioned municipal services. The proposed development will be connected to the existing bulk sewer, water and electricity services provided in Ongwediva Extension 13 and 17. The proposed development will obtain access through several existing streets.

All new erven to be created will be connected to the bulk services and the water-borne sewage will be connected to the sewerage reticulation system of Ongwediva that is already constructed, the harmful residue that is created will be transported to the approved waste disposal site as provided by the Ongwediva Town Council. The land is currently not developed and is designated as an undetermined area by the Ongwediva Town Council. However, there are traditional homesteads

that are located on the proposed site. The layout plan has made provision to accommodate all the traditional homesteads, and the Government of Namibia will only pay compensation to for the livelihood lost due to the proposed development of these townships.

6.1 Proposed location and land ownership

Portions 66-69 of the Remainder of the Farm Ongwediva Town and Townlands No. 881, onto which Elyambala Proper, Extension 1, Extension 2 and Extension 3 are to be established are owned by Ongwediva Town Council. The portions are currently occupied by different traditional households and currently measure a combined ±131, 7852 Hectares in extent. The land is situated on the property legally known as the Remainder of the Farm Ongwediva Town and Townlands No. 881, Ongwediva Town, Ongwediva Constituency, Oshana Region as shown in Figure 1 below. There are currently traditional homesteads located on the property. The proposed site is in the southern direction of Ongwediva Townlands. The GPS coordinates of the location of the site are: -17.792064° Latitude and 15.752523° Longitude.

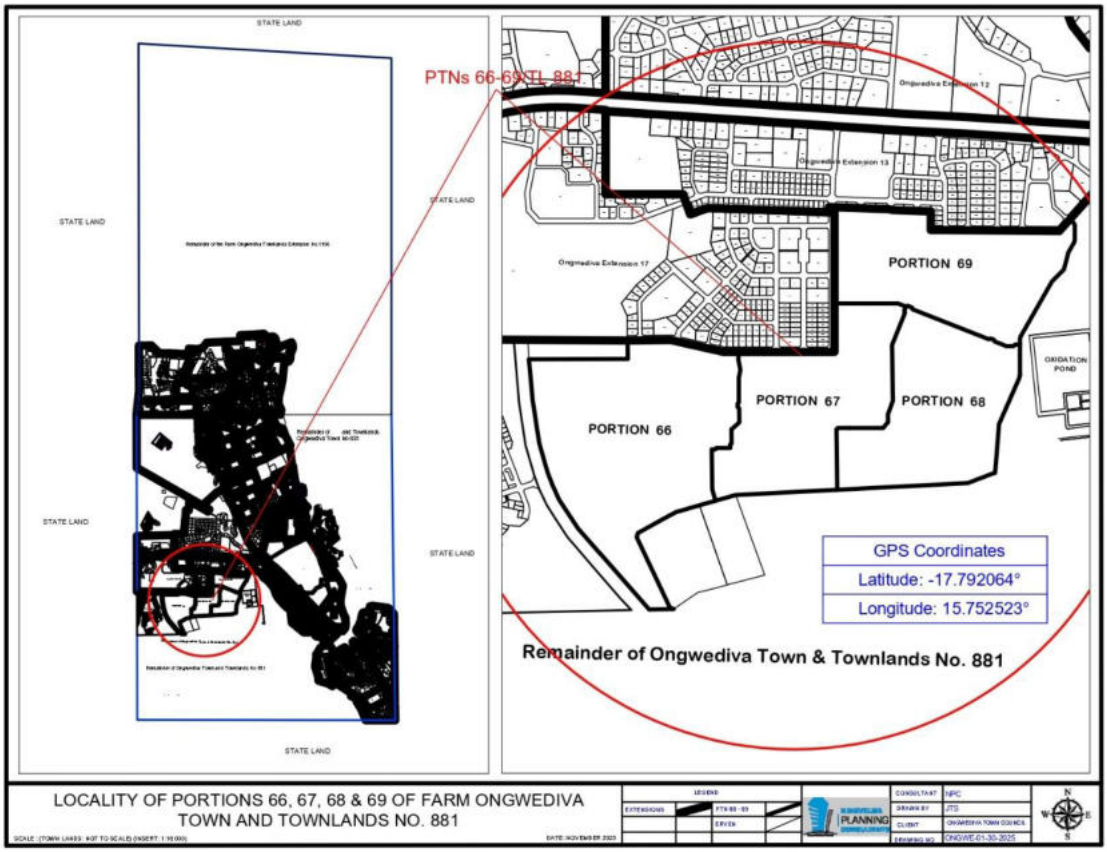

Figure 1: Locality plan

6.2 Ownership

Portions 66-69 of the Remainder of the Farm Ongwediva Town and Townlands No. 881 onto which Elyambala Proper, Extension 1, Extension 2 and Extension 3 are to be established are owned by the Ongwediva Town Council. However, there are traditional homesteads occupying the land. Thus, the Ongwediva Town Council will be managing the development during the construction and operational phases. The proposed erven will then be allocated the people residing in the area and the remainder to be sold to Ongwediva residents. The core of the traditional homesteads will be accommodated withing the layout plan and they will be compensated for the loss of livelihood as per the government compensation policy.

6.3 Description of the site

- The slope of the site is relatively flat, with seasonal water ponds located on the western side of the site.
- Although no characteristics of ground slope instability were observed on site, there is a possibility of flooding along the water ponds during rainy seasons.
- There was no ground surface water during the site investigation as this was done during the dry season of 2025. However, water is expected to accumulate in the water ponds during the wet seasons.
- There is no erosion recorded in the area.
- Medium excavations can be expected but no blasting operations are foreseen.

6.4 Photographic History

Below are the photographs indicating the general situation and environment of the proposed site and its surroundings.

Figure 2: Typical conditions of Elyambala

6.5 Description of the proposed project

The Ongwediva Town Council proposes to establish 4 townships located on Portions 66-69 of the Remainder of the Farm Ongwediva town and Townlands No. 881. The 4 townships will be known as Elyambala Proper, Extension 1, Extension 2 and Extension 3. The townships will comprise of 1002 erven and the remainder as a street. The proposed development is necessary to provide additional residential, general residential, business, accommodation, educational, institutional and public open space zoned erven to Ongwediva residents.

The township establishment involves the construction of bulk services of sewer, electricity, streets, water, telecommunications, the construction of houses, businesses buildings and the maintenance of the municipal infrastructure by the town council during the operational phase, waste disposal from sites and noise pollution control as well as technical maintenance of the municipal services.

The layout of the site is shown in figure 3 below.

6.6 Proposed Project Activities

The proposed development entails the township establishment and related infrastructure of ±1002 erven and remainder.

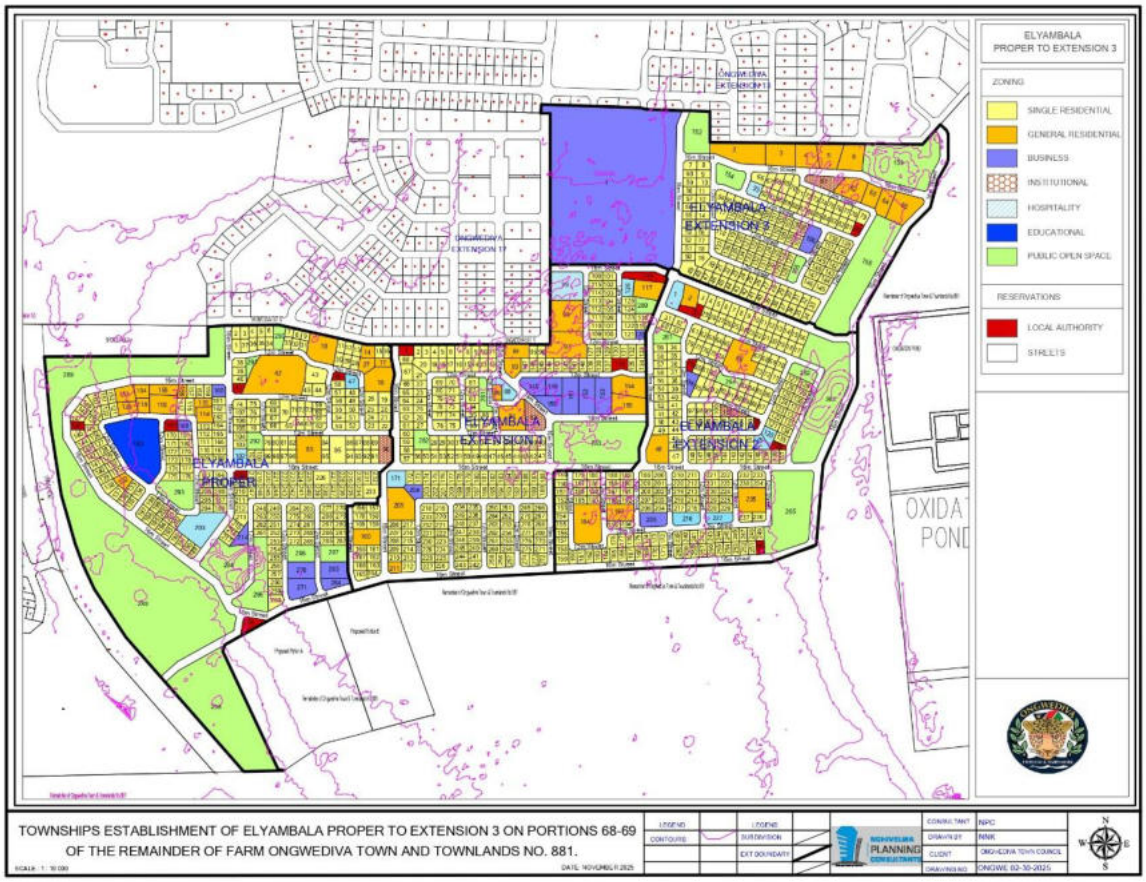

Figure 3: Layout plan for Elyambala Proper, Extension 1, Extension 2 and Extension 3

6.7 Engineering Services

The proponent is proposing the establishment of a mixed land use township on Portions 66-69 of the Remainder of the Farm Ongwediva Town and Townlands No. 881. The proposed township will consist of ±1002 erven consisting of Single Residential, General Residential, Business, Institutional, Educational, Local Authority, Accommodation, Public Open Spaces and streets. The township establishment will require bulk engineering services as per the standard engineering requirements that are used in the Namibian industry to make it safe for habitation of people.

6.7.1 Bulk Infrastructure

The proposed bulk services will be designed and constructed from scratch and will use the latest technology in terms of sustainable use of resources, recycling and sustainable energy generation. After the statutory town planning and land surveying processes are completed, the Ongwediva Town Council will appoint a consulting engineer who will design the engineering services and supervise the construction of these services as per the engineering designs.

a) Water

The proposed development will require the construction of a new water infrastructure that will be connected to the existing Ongwediva bulk water infrastructure system. The new water infrastructure will be connected to Ongwediva Extensions 13 and 17 and additional water supply pump stations are required to provide enough water pressure to the new erven to be created.

The proposed development will require about 105 cubic meters of water per day, and it is estimated that the current water supply of Ongwediva town is sufficient to accommodate the development. Should the supply not be sufficient, the Ongwediva Town Council, in conjunction with Nam water, are prepared to extend the current infrastructure to accommodate the proposed development.

b) Sewerage

The existing sewer reticulation system in Ongwediva Extensions 13 and 17 will be extended to accommodate the proposed development. Plans are already underway for the extension of Ongwediva sewerage reticulation network and relocation of existing sewer treatment plant to accommodate the proposed townships.

The existing bulk sewer infrastructure is not adequate to accommodate the proposed development, thus additional infrastructure as well as additional sewer water pump stations will be constructed to accommodate the proposed development. The proponent will construct additional sewer water infrastructure on site that will be used to pump sewerage water into the sewer water disposal sites that are situated on the southern edge of Ongwediva Townlands.

c) Electricity

The proposed development will get electricity from the existing electricity network of Ongwediva Extension 13 and Extension 17. Although additional substations and upgrades to the electricity infrastructure in the town are necessary to cater for the proposed development. The Ongwediva Town Council in its mandate to provide development to its inhabitants, is prepared to increase the electrical network capacity to cater to the development.

d) Storm water

A storm water drainage system will be constructed adjacent to the streets of the proposed Elyambala Proper, Extension 1, Extension 2 and Extension 3. These drains will connect to the existing stormwater drains in Ongwediva Extensions 13 and 17. The proposed streets of the new townships are designed to channel storm water in the south easterly direction to allow for the continuation of natural storm water flow in the area. A system of channels will be constructed along the streets of the proposed development to safely guide the storm water out of the township and into natural water bodies in the area.

e) Waste Produced

The waste to be produced by the proposed development will be disposed of at the approved waste disposal site as operated by the Ongwediva Town Council. The Ongwediva Town Council already manages the day to day waste disposal activities of the town and the new township will added waste disposal schedule. A standard waste disposal municipal levy will be charged on the residents to make sure that the waste is disposed of in a safe manner.

f) Roads

All roads to be constructed in the proposed development will be tarred roads and the main access to the development will be obtained from the main road from 3 16-meter streets running along the northern edge of the property and connecting to Ongwediva Extensions 13 and 17 and to the rest of the town. Internal streets will vary in width to be between 16 and 12 meters wide.

6.7.2 Blasting

The topography of the site is flat and there are no hills or rock formation on the property. Thus, there will be no blasting that is required during the construction of roads, buildings, storm water drains, sewerage pipes and other services that are typical for a township establishment. All ditches to be constructed will utilize traditional non-blasting methods.

6.8 Phases of the project

The project will consist of three (3) phases, namely the construction, operational and possible decommissioning phase.

6.8.1 Activities during the Construction Phase

a) Site Office

The contractor shall construct a temporary site office to run and manage all activities on side during this phase.

b) Site clearance and fencing

This will involve clearance of vegetation that is currently found at the proposed site. For public safety and for the security of construction materials and equipment, the site must be isolated from the general public.

c) Excavation

Excavations for the construction of roads, sewer ditches, water pipes, electrical poles, installation of bulk services and construction of buildings. The earth works will use excavators and manual labor and thus, this process will generate waste in form of spoiled soil and rock particles.

d) Construction of public buildings and utilities

The Ongwediva Town Council will construct the following public structures for the future inhabitants of Elyambala Proper, Extension 1, Extension 2 and Extension 3:

- A public park on one of the proposed public open spaces
- Constructions of residential erven
- Public recreational area (Open space)
- Sewer reticulation system
- Electricity supply
- Portable water supply
- Associated piping work

6.8.2 Activities during the operation and maintenance phase

During this phase, the Ongwediva Town Council, the proponent; will be responsible for the following:

- Maintenance of the site, such as waste disposal.
- Controlling the noise pollution in the area.
- Maintenance of the bulk municipal services.
- Maintenance of public parks.
- Maintenance of roads, sewerage and electricity infrastructure.
- Collection of rates and taxes.

6.8.3 Activities at the decommissioning phase

In this stage of the development, it is deemed unnecessary to decommission the project because the area has been earmarked by the local authority as a township and thus can accommodate the proposed development. Ongwediva Town is expected to expand into surrounding villages as its population increases over time. There are no mineral resources which might lead to the decommissioning of the project. The proposed development will not affect the neighbours and locals in a negative way as the people currently residing there will be accommodated and their livelihood compensated for. Therefore, there will be no need for decommissioning the project soon.

7. BASELINE DATA

7.1 Climate and Temperatures

The table 2 below briefly describe the general climatic conditions experienced within the Oshana Region including the Ongwediva area, as deduced from the Atlas of Namibia, by Mendelsohn et al 2003. The rainy season is limited between the months of November and April whereby an average of 350-400 mm of rainfall is estimated per annum. In addition, the Cuvelai has inconsistencies in rainfall timings which lead to great variation in the annual rainfall between 30-40 percent. Furthermore, Temperatures vary little across the Basin where the average is greater than 19ºC in most areas, especially during the summer months. The annual evaporation of the Basin is known to depend on the temperature, humidity, cloud cover, wind and solar radiation. The predominant wind in the area is expected to be in the easterly direction.

Average rainfall:	Rainfall in the area is averaged to be less than 350 mm-400 mm per year.
Variation in rainfall:	Variation in rainfall is averaged to be 30-40 % per year.
Average evaporation:	Evaporation in the area is averaged to be between 2800-3000 mm per year.
Precipitation:	The highest summer rains are experienced from October to April.
Water Deficit:	Water deficit in the area is averaged to be between 1501-1700mm per year.
Temperatures:	Temperatures in the area are averaged to be more than 19-20 °C per year.
Wind direction:	Wind directions in the area are predominantly easterly winds.

Table 3: Summary of general data

7.2 Geology, Topography and drainage

The Kalahari sand plateau in the north-east was originally deposited as longitudinal dunes in an east-westerly direction. These longitudinal dunes, with associated omuramba's, form the agro-ecological zone KAL 8 (de Pauw et al. 1998/99). The drainage to the north of the Mangetti (north-east of Oshivello) is still in an east-westerly direction (the "Akadhulu" or "Akazulu"). These fossil dunes do not show a great difference in relief (compared to southern Kavango and north-eastern Grootfontein districts), probably because of erosion and thus a general flattening of the topography.

As these remnant dunes flatten out completely, the rivers "Akadhulu" and "Niipele" turn south towards the Etosha pan. Roughly 80 % of the study area, to the east of Onankali - Okankolo, falls within these flat sand plains, as part of the KAL 3-3 (de Pauw et al. 1998/99). It consists of a sand drift plain with a general slope range of 0-2 % (i.e. flat), very low relative relief (< 10 m), with no preferred drainage orientation.

Drainage in the sand plateau is mainly vertical (downwards). This has resulted in the formation of numerous pans in the north-western parts of the country, spreading out up to Eenhana in the north (the KAL4 according to de Pauw et al. 1998/99). The vertical movement of water leads to increased mineralisation of the sands, thus forming finer textured, more fertile soils in these pans. Both the more fertile soils and the shallow ground water in these pans has resulted in the settling of people along these pans in the Oshana Region.

The literature review shows the results of the soil profile done at one of the above-mentioned pans, that a mini soil profile pit was dug at relevé 87138. The soil profile looked as follows:

Top: 1-2 cm bleached white sand (could be the deposit of erosion from further up).
A-Horizon: 30 cm deep, dark grey loamy sand. B-Horizon: below 30 cm, yellow grey sandy loam, very sticky to the touch. (Strohbach 1999). The broad-leafed savannah falls within growing period zone 3 (de Pauw et al.1998/99).

7.3 Vegetation

This vegetation type is typical of the "Forest savanna and woodland (northern Kalahari)" (Giess 1971). This is described as a species-rich vegetation dominated by deciduous trees like Burkea africana, Terminalia sericea, Lonchcarpus nelsii, Baikiaea plurijuga, Pterocarpus angolensis, Ochna pulchra, Combretum species and Grewia species.

Typical trees are Terminalia sericea, Combretum collinum, Lonchocarpus nelsii, Burkea africana and Acacia fleckii and the shrubs Combretum engleri, Acacia ataxacantha, Bauhinia petersiana, Ozoroa schinzii, Grewia flava, G. flavescens and G. bicolor as well as Commiphora angolensis, C. africana and C. glandulosa. In KAL 8 (Omuramba-Dune association) north of King Kauluma school

some Baikiaea plurijuga were encountered on a dune. Although this popular timber species had only a DBH of 20 cm (thus far from exploitable), some of these trees were found chopped down in this remote area.

The vegetation in this area is described as woodland dominated mainly by camelthon shrubs. The vegetation on site consists of short grass moderately scattered around the site. The project site is currently undeveloped but clearly shows; disturbances by animals and human activities, no much clearing of vegetation will occur. There are no protected species onsite that needs to be preserved and be made part of the development. No endangered species were observed on site; therefore, no threat to vegetation was identified. No wildlife was observed in the vicinity of the study area, only domestic animals mainly cattle, goats and donkey are present in the vicinity of the proposed project site.

7.4 Soils

The dominant soils in the Oshana Region are haplic Arenosols associated with ferralic Arenosols (sandy soils with a very poor nutrient-retaining capability). Strohbach (1999) describes a mini soil profile pit at relevé 87126 as follows: Top 5 cm: Humus enriched, bleached yellow-grey sand Below 5 cm: Undifferentiated pure red sand.

8. SOCIO-ECONOMIC ENVIRONMENT

8.1 Demographics

According to the 2023 National Population and Housing Census. Oshana Region had a population of 230 801 in 2023, of which the vast majority 53.2% live in urban areas and the remaining 46.8% live in rural areas. The Census also estimated that there are 124 243 females and 106 558 males. The population density is 26,7 persons per km2 and the Human Poverty index (HPI) is 21% compared to National HPI of 21.8. Life expectancy is 53.9 years for both females and males. Most eighty-six (86%) of the households residing within the Oshana Region speak Oshiwambo.

8.2 Economic activities

There has been immense commercial and industrial growth in Oshana Region. Various shopping malls, schools and other businesses have opened in the area and have improved both the economic and social stance of the Region. However, much of the economy of the Oshana region is still based on farming.

8.3 Education Profile

The Oshana Region is well placed with regards to academic rates in the whole of Namibia. According to (EMIS, 2012) there are 137 schools. The literacy rates for persons older than 15 years of the Region is 92% compared with that of Namibia which is 92,25%.

8.4 Employment Opportunities

By the year 2011, sixty-one percent (58.4%) of the population older than 15 years, were employed and thirty-nine percent (41.6%) unemployed. The population outside the labour force is comprised of students, homemakers and retired or old-aged people.

8.5 Incomes

Subsistence farming (33%) and labour migration are considered the primary livelihood sources of many households. Much of the employed population are employed in the formal sector making Wages and Salaries 30% the second main source of income in the region. Pensions 19%, non-farming business 10%, Cash Remittance 5% is the means of survival for the rest of the population.

8.6 Health Profile

In Namibia, the HIV prevalence rate in pregnant women age group 15 to 49 is estimated at 16% (UNAIDS, 2015). While the HIV prevalence rate in the Oshana Region stands at 16.1%. Ninety-four percent of the population in the region have access to safe drinking water, while 15% have poor or no access to toilet facilities.

9. ANALYSIS OF ALTERNATIVES

In terms of environmental impact assessment best practice, assessment of potential impacts from a proposed activity must include the assessment of alternatives. Assessment of alternatives is undertaken to identify the option that will minimise harm to the environment and may include site, technology and other alternatives, but must always include the option of not implementing the activity, known as the “no-go” alternative.

9.1 Alternative Site

The proponent has no other option of undertaking the proposed development in a different location other than the proposed site. This is because Ongwediva Town Council has already compensated the households in the area and are desirous to establish a township on the proposed site. The proposed site is also legally owned by the Ongwediva Town Council and are thus mandated by law

to develop it into an urban settlement. The Ongwediva Town Council thus, has no choice but to establish the proposed Elyambala Proper, Extension, Extension 2 and Extension 3 on the proposed Portions 66-69 of the Remainder of the Farm Ongwediva Town and Townlands No. 881.

Therefore, there are no other alternatives to this development, Alternative 1, is the only site that is identified for the establishment of townships. Thus, no alternative site has been identified or considered during this study.

The following reasons justify the use of the proposed site for the development:

- The proposed site is under the jurisdiction of Ongwediva Town Council.
- The Ongwediva Town Council has already compensated the households on site.
- The development will offer additional housing to the residents of Ongwediva.
- The development will increase investment in Ongwediva Town.
- The development will provide employment during the construction and operational phases; and
- The development will promote orderly and sustainable development in the town.

9.2 The "No Project" Alternative

The No-Go Option is the option not to proceed with the activity, implying a continuation of the current status quo. Therefore, the No-go Alternative would mean that the proposed township establishment of Elyambala Proper, Extension 1, Extension 2 and Extension 3 does not go ahead.

Should the proposed township establishment not take place, Ongwediva Town Council will not be able to provide housing and municipal services to its residents. Furthermore, if the townships are not established, the town will not attract public and private investment needed to create economic opportunities and this can have long term negative effects on the social and economic stability of the town.

From the environmental-socio-economic point of view, no project option is the least preferred option due to the following factors:

- The demand for land will increase across the region, leading to uncertainty.
- The community will continue to allocate land in an unorderly manner leading to informal settlements.
- Investment in the settlement will be minimal.
- Inhabitants will be deprived of basic and governmental services.
- No employment opportunities will be created for the locals.
- Poverty will not be eradicated in terms of job creation.
- The local skills would remain underutilized.

- Reduced technology advancement in the town and interaction both at local, national and international levels.
- Promotes vegetation clearing.

This is therefore not a desirable alternative.

10. PUBLIC PARTICIPATION PROCESS (PPP)

This section of the report provides details of Public Participation Process (PPP) undertaken in the compilation of the EIA final report. In terms of Section 26(1)(h) of the Namibian Environmental Assessment Regulations (2012), it is a requirement to provide details of the public participation process conducted in accordance with Section 32 of the Environmental Assessment Regulations.

Furthermore, the Public Participation forms an important component of this EIA. It has been defined by the Ministry of Environment, Forestry and Tourism that an Environmental Assessment Regulations (2012) of the Environmental Management Act (2007), as a process in which potential interested and affected parties such as service providers, traditional leaders, local authorities, environmental groups, village councils and communities, to comment on the potential environmental impacts associated with the proposed township establishment project are given an opportunity to comment on, or raise issues relevant to the proposed project and its benefits to the nation and its economy.

Apart from these legal requirements, Consultations with the public and other relevant stakeholders to ensure that their inputs are considered during the decision-making process was carried out as per the EIA regulations.

10.1 Aim for Public Participation Process (PPP)

The aim for the Public Participation Process is but not limited to:

- Informing Interested and Affected Parties (I&APs) of the proposed project.
- Identifying issues, comments and concerns as raised by I&APs.
- Promoting transparency and an understanding of the project and its consequences.
- Serving as a structure for liaison and communication with I&APs; and
- Providing local knowledge and input in identifying potential environmental (biophysical and social) impacts and “hotspots” associated with the proposed development.

10.2 Compilation of stakeholder database

The first step in the Public Participation Process (PPP) is to identify key stakeholders. A stakeholder database was compiled and the target groups for this project were invited to comment on the proposed development, A site meeting was held on the 20th of March 2026. The following were invited to Comment:

- Ongwediva Town Council (as the approving authority for town planning projects and service provider for bulk services, as the proponent, developer and overall authority on the proposed project).

Please note that some of the interested and Affected Parties are also consulted during the town planning process for township establishment.

10.3 Background Information Document

This document provides a short summary of the project and the EIA process. Therefore, a background information document (BID) was prepared and was ready to be distributed to Interested & Affected Parties. After all stakeholder and I&Aps were informed none of them requested for the Background Information Document (BID). See a copy of the BID attached.

10.4 Notification of I&Aps

The requirements for the notification of potentially interested and affected parties of this application are set out in detail in section 32(2)(b) of the EA regulation. These requirements have been addressed and include.

- Forwarding letters to government authorities and other identified relevant stakeholders.
- Fixing a notice at a place conspicuous to the public in English.
- Placing advertisements twice in at least two local newspapers.

10.5 Advertisement

The advertisement of the public participation and submission of comments for the proposed project were placed in two national newspapers circulating in Ongwediva Town, the New Era and Confidente Newspapers dated: 21st and 28th November 2025. Proof of advertisements are attached.

10.6 Notice Board

An A3 size notice detailing information about the project and the EIA process was placed on the notice board at the Ongwediva Town Council and on the site from the 21st of November 2026 until the objections period lapsed on the 23rd of December 2025.

10.7 Public Meeting

In compliance with the EIA Regulations (2012), public (I&AP) and all stakeholders were notified as a requirement for EIA process. Therefore, to incorporate the varying needs of stakeholders and I&APs, as well as to ensure the relevant interactions between stakeholders and the EIA specialist team; A public meeting took place on the 20th March 2026 at an open space in Elyambala. See below the photographic evidence of the meeting and attached attendance register.

Figure 4: Public consultation meeting at Elyambala

10.8 Issues raised by interested and affected parties

Letters for comments were sent to the identified key stakeholders for comments and none of the identified stakeholders shared their comments. This can be attributed to the fact that this is a positive development that will further develop Ongwediva as thriving urban settlement and the leaders in the area are in support of the development.

11. ENVIRONMENTAL ASSESSMENT METHODOLOGY

An appraisal of the type of effects the proposed township establishment would have on the affected environment; rate as either positive (beneficial on the environment), neutral (no impact on the environment), or negative (adverse impact on at a cost to the environment).

Rating	Description
1	Negligible / non-harmful / minimal deterioration (0 – 20%)
2	Minor / potentially harmful / measurable deterioration (20 – 40%)
3	Moderate / harmful / moderate deterioration (40 – 60%)
4	Significant / very harmful / substantial deterioration (60 – 80%)
5	Irreversible / permanent / death (80 – 100%)

Table 4: Assessment and rating severity

Rating	Description
1	Less than 1 month / quickly reversible
2	Less than 1 year / quickly reversible
3	More than 1 year / reversible over time
4	More than 10 years/ reversible over time/ life of project or facility
5	Beyond life of project or facility/ permanent

Table 5: Assessment and rating duration

Rating	Description
1	Within immediate area of the activity
2	Surrounding area within project boundary
3	Beyond project boundary
4	Regional/ Provincial
5	National/ International

Table 6: Assessment and rating extent

Consequence is calculated as the average of the sum of the ratings of severity, duration and extent of the environmental impact.

Determination of Consequence (C)	(Severity + Duration + Extent) / 3

Table 7: Determination of consequence

Rating	Description
1	Less than once a year
2	Once in a year
3	Quarterly
4	Weekly
5	Daily

Table 8: Assessment and rating of frequency

Rating	Description
1	Almost impossible
2	Unlikely
3	Probable
4	Highly likely
5	Definite

Table 9: Assessment and rating of probability

Likelihood

Likelihood considers the frequency of the activity together with the probability of the environmental impact associated with that activity occurring.

Determination of Likelihood (L) =	(Frequency + Probability) / 2

Table 10: Determination of likelihood

Environmental Significance

Environmental significance is the product of the consequence and likelihood values.

Rating	Description
L (1 - 4.9)	Low environmental significance
LM (5 - 9.9)	Low to medium environmental significance
M (10 - 14.99)	Medium environmental significance
MH (15 - 19.9)	Medium to high environmental significance
H (20 - 25)	High environmental significance. Likely to be a fatal flaw

Table 11: Determination of environmental significance

11.1 Impacts Associated with Construction Phase

Potential effects on the environment and their mitigation measures during construction phase are:

Dust pollution and air quality impacts- These are expected to be site specific, short-term and will most probably pose a negligible nuisance and health threat to those residing nearby. The construction of the proposed municipal service infrastructure will have an impact on the surrounding air quality because of construction vehicles making their way to the site. Vegetation clearance and construction site preparation does expose the soil and causes dust which increases the particulate matter concentration in the atmosphere. PM can contribute to respiratory tract infections to the people living near and adjacent to the site.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	5	5	3	4.33	5	5	5	Negative	9.33(LM)
Mitigation measures: Dust may be generated during the construction/decommissioning phase and might be aggravated when strong winds occur; therefore, dust suppression measures should be introduced during the construction phase. Vehicles travelling to and from the construction site must adhere to the speed limit to avoid producing excessive dust. A speed limit of 40 km/hr should be set for all vehicles travelling over exposed areas. Dumping trucks should be covered to avoid loss of materials during transportation, especially if material is transported off site.									
Mitigated	2	2	1	1.66	1	2	1.5	Negative	3.16 (L)

Employment Creation (Positive Impact) job creation and economic benefit to the local community since the construction activities associated with the municipal infrastructure will require labour from the local community.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	1	2	2	1.66	2	5	3.5	Positive	5.16 (LM)
Mitigation measures: Various employment opportunities will be created during all phases of the development, ranging from highly skilled to unskilled. The development is expected to create more than 100 skilled and unskilled jobs. Preference should be given to locals and Namibian Citizens. When recruiting, the responsible contractor should ensure that all genders are accommodated and given equal opportunity to compete for employment. Equity and transparency should be considered when recruiting workers and that public participation in the recruitment process be allowed, for example, community representatives should also take part in the recruiting process. Human resource development and capacity building must be a theme on the construction site; the contractor must enforce training programs that pass on skills from skilled to unskilled workers to further capacitate locals and improve their chances of future employment.									
Mitigated	1	2	5	2.66	3	5	4	Positive	6.66 (LM)

Noise caused by construction activities- Noise levels are expected to rise during the construction phase. Construction activities that can cause noise include construction vehicles, electricity generators, pressure hammers, noise from construction workers and earthmoving equipment. There are existing homesteads that are currently on and around the site, these are, however, scattered and the expected disturbance to all will be kept to a minimum as construction will only take place during the day when most people are at work. The construction of the municipal services will disturb residents to a limited extent as the construction activities will be isolated from the existing properties. Therefore, the noise levels that are likely to occur during this phase are assessed to be only a nuisance to the residents.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	4	5	2	3.66	5	5	5	Negative	8.66 (LM)
Mitigation measures: Construction should be limited to normal working days and office hours from 08h00 to 17h00 on Mondays to Fridays and 7:30 – 13:00 on Saturdays. No construction activities may be undertaken on Sunday. Provide ear plugs and earmuffs to staff undertaking the noisy activity or working within close proximity thereof or alternatively, all construction workers should be equipped with ear protection equipment. Noise pollution should be addressed and mitigated at an early stage of construction phase.									
Mitigated	1	1	1	1	1	1	1	Negative	2 (L)

Soil Loss and Erosion- Loss of topsoil during the construction period caused by the clearing and removal of vegetation, the excavation of foundations, and earthworks may expose soils to wind and rain and could result in localized erosion.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	4	3	3	3.33	5	5	5	Negative	8.33 (LM)
Mitigation measures: Removal of vegetation is restricted to the portion of land under construction. No earth works to be conducted within 30 metres of all drainage lines. Topsoil should only be exposed for minimal periods of time and adequately stockpiled to prevent the topsoil loss and run-off. Planting more indigenous trees on public open spaces should be carried out. Reuse topsoil to rehabilitate disturbed areas.									
Mitigated	1	1	1	1	2	2	2	Negative	3 (L)

Removal and use of local flora for firewood- collection of local flora for firewood may lead to the removal of the protected flora due to the lack of knowledge of the types of protected flora.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	2	3	3	2.66	4	5	4.5	Negative	7.16 (LM)
Mitigation measures: No cutting down of trees for firewood. Utilise commercially sold wood or other sources of energy. Use electricity and gas in the construction camps for cooking Training of contractors on environmental awareness and the importance of flora.									
Mitigated	1	1	1	1	1	2	1.5	Negative	2.5 (L)

Health and Safety- Health and Safety Regulations pertaining to personnel protective clothing, first aid kits being available on site, warning signs, etc. should be adhered to. During construction phase, there is a possibility of injuries to occur if no measures are taken into consideration.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	5	5	4	4.66	5	5	5	Negative	9.66 (LM)
Mitigation measures: A health and safety plan is to be developed and implemented as soon as land clearing commences. During construction, earthmoving equipment will be used on site, this increases the possibility of injuries. Thus, the responsible contractor must ensure that all staff members are briefed about the potential risks of injuries on site. Ensure the appointment of a Safety Officer to continuously monitor the safety conditions during construction. The contractor should further ensure that adequate emergency facilities are available on site. The construction staff handling chemicals or hazardous materials must be trained in the use of these materials and the environmental, health and safety consequences if not properly handled. All construction staff must have the appropriate PPE.									
Mitigated	2	1	2	1.66	1	2	1.5	Negative	3.16 (L)

Traffic - Potential impact due to increase in traffic because of the increase in traffic due to construction activities on site. Construction related activities are expected to have a minimal impact on the movement of traffic along the road. Accidents might occur if unqualified drivers are employed on the proposed development or appropriate signs are not displayed.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	5	5	3	4.33	5	3	4	Positive	8.33 (LM)
Mitigation measures: No diversion of traffic or closure of the road is expected. Traffic signs indicating that there is construction work in the area should be displayed on the main roads and feeder roads. Traffic signallers and controllers should be employed to regulate traffic of construction and normal vehicles. The responsible contractor must ensure that all drivers employed on site are licenced for the type of vehicle they operate and that they have experience in driving those types of vehicles. The contractor must ensure that there is always a supervisor on site to ensure that no driver operates construction vehicle while under the influence of alcohol or narcotics. The construction vehicle's speed limit should be 40km/h and must consider other road users.									
Mitigated	2	1	1	1.33	1	2	1.5	Positive	2.83 (L)

Waste Impacts- The construction phase of the development is likely to generate waste from clearing of vegetation, builder's rubble, general construction waste and minor hazardous waste including paint cans, cleaning acids, asphalts and oils. The development could therefore impact on the environment by generating solid waste.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	5	5	3	4.33	5	5	5	Negative	8 (M)
Mitigation measures: Ensure that no excavated soil, refuse or building rubble generated on site are placed or disposed of in the surrounding environment. Contaminated waste in the form of soil, litter, building rubble and other material must be disposed of at an appropriate disposal site. The contractor and developer should ensure that all the waste generated by the development is appropriately disposed of at the recommended waste disposal sites.									

The proponent and contractor should identify an appropriate area that is suitable to be used as a temporary disposal site. Strictly, no burning of waste on site or at the disposal site is allowed as it possess environmental and public health impacts. No construction waste should enter the surrounding environment and cleared vegetation should not be burnt on-site. To avoid contaminating the soil and underground ecosystem, wastewater should not be disposed on open soil onsite.									
Mitigated	1	1	1	1	4	2	3	Negative	4 (L)

Surface water contamination (Local water bodies) – Leakages from equipment, accidents from fuel tankers may occur during the construction phase and the waste can end up the local catch basins during the rainy season.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	5	5	5	5	5	4	5	Negative	9.5 (LM)
Mitigation measures: The construction vehicles are not allowed to be parked within 50 meters of the banks of the catch basin after working hours. The construction site camp should be constructed more than 100 meters from the banks of the local catch basin. All streets crossing the local catch basins should be constructed below the minimum water line or must have a bridge. No dumping of solid or liquid waste in standing water. No blockage of any kind that will prevent the storm water from draining naturally is allowed along the local catch basin.									
Mitigated	3	1	1	1.66	5	3	4	Negative	5.66 (LM)

Underground water Contamination – Leakages from equipment and machinery might occur during the construction phase or mixing of cement and the use of ablution facilities will lead to the contamination of the under groundwater.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	5	5	5	5	5	4	5	Negative	9.5 (LM)
Mitigation measures: Chemicals used during construction e.g. paint and paint remover are a risk. Care must be taken to avoid contamination of soil and underground water. Ensure no cement or cement containers should be left lying around on site.									

Mixing of cement should be done at specifically selected areas on mortar boards or similar structures to contain surface run-off. Proper ablution facilities should be installed at the construction site and at the campsite or alternative arrangements made. The contractor should ensure that there is no spillage when the ablution facilities are cleaned or during normal operation and that the contents are properly disposed of. Cleaning of cement mixing equipment should be done on proper cleaning trays. Prevent spillage of contaminants or of water potentially contaminated by cement, chemicals, sewage Fuel (diesel and petrol) and oil containers shall be in good condition and placed in a bunded area or on plastic sheeting covered with sand (temporary bunding).									
Mitigated	3	1	1	1.66	5	3	4	Negative	5.66 (LM)

Increased spread of communicable diseases- migrant workers with HIV/AIDS or Covid -19 may infect local people leading to a high rate of HIV/AIDS, covid-19 and other communicable diseases.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	5	5	5	5	5	5	5	Negative	10(M)
Mitigation measures: The spending power of locals and expatriates working for the developer and/or its contractors are likely to increase, and this might be a perfect opportunity for sex workers to explore. Migrant labourers from other regions and expatriates are normally vulnerable and may use the services rendered by the sex workers. A key initiative should be to educate workers. See section 9 (Socio-economic Environment) for details on region statistics. External construction workers should be housed in secure camp and are to abide by rules of the EMP to prevent public disruption (i.e. Spread of HIV/AIDS, crime, public disturbance). Contractors should be encouraged to source labour from surrounding areas to prevent the spread of HIV/AIDs and Covid – 19 from external workers. Condoms as a contraceptive should be distributed to construction employees. All government protocols on Covid – 19 (i.e., wearing masks and social distancing) should be practiced on site.									
Mitigated	2	1	4	2.33	2	3	2.5	Negative	4.8(L)

Heritage Impacts – There are no known heritage areas or artefacts that were identified on the site. However, there is potential damage or destruction to undiscovered heritage sites in the area

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	5	5	5	5	2	1	1.5	Negative	6.5 (LM)
Mitigation measures: There were no sites or objects of archaeological finds, Graves, historical and cultural significance identified, however, if during construction any possible finds are made, the operations must be halted, and a qualified archaeologist be contacted for an assessment of the findings. Work may only commence once approval is given from the heritage agency. No specific mitigation measures are required now.									
Mitigated	1	1	1	1	1	2	1.5	Negative	2.5 (L)

Ecological Impacts: No known conservation worthy vegetation are located on the site.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	1	1	1	1	1	1	1	Negative	1 (L)
Mitigation measures: No known conservation worthy vegetation is located on the site, except trees with stem diameter > 20mm.that are recommended to be conserved and be included in the town planning design of the development									
Mitigated	1	1	1	1	1	1	1	Negative	1 (L)

11.2 Impacts Associated with Operational Phase

Storm water usually runs off the area and flow into the catchment basins without any kind of treatment. This can pollute the water bodies like creeks, lakes and rivers and have adverse effects on their chemical as well as biological nature. From this background plans for storm water drainage and collection have been proposed to accommodate the storm water during the rainy season.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	4	5	3	4	2	5	3.5	Negative	7.5 (LM)
Mitigation measures: Storm water drains to be constructed along the streets in the development and be channelled through the natural water courses, excess storm water to be collected for consumption and recreational use. Storm water will be collected through network of storm drains from gardens, parking areas, paved and unpaved areas, and roadways. The storm water drainage system should have the capacity to prevent flooding of the site and surrounding areas. All buildings to be constructed above the 50-year flood line to avoid flooding of properties.									
Mitigated	1	1	2	1.33	1	2	1.5	Negative	2.83 (L)

Commercialization of the area - The project will transform the area into a commercial hub that will see an increase in economic activities, and it will bring much-needed development and services closer to the people.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	1	1	1	2	5	5	5	Positive	7 (LM)
Mitigation measures: This project will contribute to the improvement of the services and infrastructure for the surrounding communities, as it will provide more municipal services within the area. The proposed development will create job opportunities for the local community which will improve their skills.									

Jobs emanating from the construction and operation of the proposed development will be outsourced to small medium enterprises in the area. Residents to be provided with all the basic amenities and utilities required by the community for them to live a high-quality lifestyle. Commercial activities like banking and guest houses are expected to be constructed after the construction of the township, thus increasing economic activities in the area. Youth empowerment since they can use land to create businesses that will intern create employment for other youths in the area.									
Mitigated	1	2	1	1.33	5	3	4	Positive	5.33 (LM)

Improved aesthetic look of the area- The development is essential to improve the aesthetics of the area while turning it into an environmentally friendly township with improved infrastructure services. This potential impact of the infrastructure on the economic structure is of a positive nature. The construction should be completed without delay to avoid the site becoming an eyesore.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	2	2	2	2	1	1	1	Positive	3 (L)
Mitigation measures: No mitigation required because it's a positive impact. However, the developer should create awareness among the residents about energy conservation and other resources as well as to implement measures to prevent or minimize any adverse effects on the environment. This project should provide a quality of life that can be expected in an urban area in relation to the utilities, convenience, amenities and security. This project will provide quality residential accommodation to the previously disadvantaged youths from the middle to low-income segments of society. It should provide convenient transport system, accessibility to utilities and social centres to enhance the social quality of life. Public open space and parks should be vegetated to look greener and to minimize soil exposure to erosion. Camouflaged infrastructure should be utilized to blend in with the natural environment. Vegetation and trees should be planted along the main street to create an attractive look for the township.									
Mitigated	1	5	4	3.33	3	5	4	Positive	7.33 (LM)

Increased employment opportunities- the establishment of a township can increase the opportunities of employment as investment in houses, businesses and other amenities increases.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	2	3	5	3.33	3	3	3	Positive	6.33 (LM)
Mitigation measures: The principles of gender equality, maximising local employment should be implemented in the provision of jobs. Priority should be given to local people when recruiting, therefore unskilled labourers from the local community should be employed. Jobs for maintenance of infrastructure and services will be created following the completion of the township. These jobs might be made available to existing labour there creating long term employment. Jobs for security personnel to patrol the construction site and the surrounding areas will also be created. Equity, transparency, should be considered when recruiting and that public participation i.e. community representatives should also take part in the recruitment process. The township will increase the development of the town and will help with the creation of additional jobs within the town.									
Mitigated	1	4	4	3	2	5	4	Positive	6.5 (LM)

Traffic - Potential impact due to increase in traffic because of the new inhabitants that will settle in the new township and the increased economic activities in the area.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	5	5	3	4.33	5	3	4	Positive	8.33 (LM)
Mitigation measures: A slight increase in the traffic is expected as the new inhabitants takes up residents in the new houses to be constructed because of the proposed township. The main streets should be wide enough to accommodate the anticipated increase in traffic flow. Make provisions for traffic turning off at high intensity intersections. Sidewalks for pedestrians should be provided along the streets.									

Appropriate road signs and markings should be provided throughout and to the entrance and exit points of the new township. Signs should be provided at intersections particularly at higher order intersections. Speed humps should be installed to control the speed of traffic. Traffic turning circles to be utilized at high intensity intersections. Bicycle lanes to be introduces to cater for cyclists.									
Mitigated	2	1	1	1.33	1	2	1.5	Positive	2.83 (L)

Waste management- the new township will be incorporated in the existing waste management process of Ongwediva Town Council and all waste generated will be disposed of at an approved waste disposal site.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	5	3	3	3.66	5	5	5	Negative	8.66 (LM)
Mitigation measures: During the operations phase, the Ongwediva Town Council waste management team will be responsible for waste generated by the new township. Ongwediva Town Council to incorporate the new township into its formal waste collection strategy and that the waste is to be collected regularly and to be disposed of at an authorized waste disposal site. The Ongwediva Town Council to dispose of the waste generated at an approved waste disposal site. Illegal dumping of waste in any form is prohibited.									
Mitigated	1	1	1	1	1	2	1.5	Negative	2.5 (L)

Land use -The proposed development will result in a change in land use as more land uses are added to the town. The density will change with some loss of grazing taking place. However, it will impact positively on the socio-economic development of Ongwediva as much needed houses and small business investment are expected after the completion of the township.

	Severity	Duration	Extent	Consequence	Frequency	Probability	Likelihood	Status	Confidence/ Significance
Unmitigated	1	5	4	3.33	1	5	3	Positive	6.33 (LM)
Mitigation measures: The land use will remain residential, business and others However, the density will change as this will be a township development. The development will be compatible with the surrounding land use on completion of the construction phase. Residents will benefit from the security of land tenure that normally accompany urban development in Namibia. Business will be able to access financing to expand and set up new ventures in the settlement. The local government will benefit as the provision of serviced land will increase due to this development. The construction of illegal houses and business will be kept to a minimum as land becomes developed. Additional revenue is realized as the local government levies the property owners in the form of service delivery and land taxes. Harmonious town planning that will lead to the harmonious living for the local inhabitants. No informal settlements should occupy the land									
Mitigated	1	2	1	1.33	5	3	4	Positive	5.32 (LM)

11.5 Impacts Associated with Decommissioning Phase

At this point, it is difficult to visualise and assess the decommissioning phase, although the procedures for decommissioning phase should be the same as for the construction phase however, there will be possible pollution during the decommissioning phase of the project. Furthermore, during the decommissioning phase, an Environmental Impact Assessment (EIA) will be required, and the disposal of decommissioned equipment and hazardous contaminated materials should be disposed following the disposal of hazardous material legislation.

12. CONCLUSIONS

In conclusion, the 8th administration of the government of the Republic of Namibia has resolved to prioritize housing provision to change the socio-economic standing of the population. This centrally driven shift in policy aims to provide a significant number of housing units to Namibians and fulfil one of the fundamental constitutional provisions of right to shelter. The Ongwediva Town Council is doing its part by providing additional 1002 erven of which 879 are for residential purposes.

Ongwediva Town Council resolved to establish Elyambala Proper, Extension 1, Extension 2 and Extension 3 on the Portions 66-69 of the Remainder of the Farm Ongwediva Town and Townlands no. 881. The area known as Portions 66-69 is located within the Ongwediva Townlands in the area locally known as Elyambala. The establishment of townships is a listed activity and cannot be undertaken without and Environmental Clearence.

Therefore, the Ongwediva Town Council appointed Nghivelwa Planning Consultants, a Town and Regional Planning and Environmental Management Consultancy firm to conduct an Environmental Impact Assessment and Environmental Management Plan (EMP) for the proposed Township Establishment of Elyambala Proper, Extension 1, Extension 2 and Extension 3 on the Portions 66-69 of the Remainder of the Farm Ongwediva Town and Townlands no. 881. The Environmental Impact Assessment has been conducted to meet the requirements of the Namibia's Environmental Management Act (No. 7 of 2007).

We further conclude that the proposed development has more positive than negative impacts to the natural environment and will provide much needed development in the form of municipal services, businesses and housing to the population of Ongwediva town. The development will complement the efforts of the Government of the Republic of Namibia and help with the housing backlog that is being experienced in the country and provide shelter to the Namibian people.

REFERENCES

Ben J. Strohbach. (2001). Vegetation degradation trends in the northern Owambo Basin Namibia Northern Region.

DEAT (2006) Guideline 5: Assessment of Alternatives and Impacts in support of the Environmental Impact Assessment Regulations, 2006. Integrated Environmental Management Guideline Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

DEAT (2006) Guideline 4: Public Participation in support of the Environmental Impact Assessment Regulations, 2006. Integrated Environmental Management Guideline Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

DEAT (2006) Guideline 5: Assessment of Alternatives and Impacts in support of the Environmental Impact Assessment Regulations, 2006. Integrated Environmental Management Guideline Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

Education Management Information System Education Statistics (2011) Environmental Management Act guideline of Namibia. Oshana Regional Poverty Profile (2007).

Mandelsohn J., Jarvis A., Roberts C. And Robertson T. (2013), A Profile and Atlas of the Cuvelai-Etosha Basin, RAISON, Namibia.

Miller R.McG. (2008). Geology of Namibia.

NSA (2023) Namibia Housing and Population Survey.

Namibia Development Consultant 2001/2006 Oshana Region environmental study.

City-facts.com. (2023). Ongwediva - Population Trends and Demographics - CityFacts (city-facts.com).