

# *Environmental Assessment Scoping Report for*

*Subdivision, Rezoning and  
Creation of Street, on Erf 20,  
Katima Mulilo, Zambezi Region.*

*September 2023*

**APP-002140**





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## PROJECT DETAILS

<b>Title</b>	Environmental Scoping Report for the: <ul style="list-style-type: none"> <li>Subdivision, Rezoning and Creation of Street, on Erf 20, Katima Mulilo, Zambezi Region.</li> </ul>		
<b>Report Status</b>	Final		
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## EXECUTIVE SUMMARY

### Introduction

The Katima Mulilo Town Council hereinafter referred to as the proponent intends to undertake the following activities:

- **Subdivision of Erf 20, Katima Mulilo into 33 Erven & Remainder**
- **Rezoning of Erven 1 – 20 of Erf 20 Katima Mulilo from “Nature Reserve” to “General Residential” with a density of 1:100**
- **Rezoning of Erven 21, 23 – 32 of Erf 20 Katima Mulilo from “Nature Reserve” to “Hospitality”**
- **Rezoning of Erf 22 of Erf 20 Katima Mulilo from “Nature Reserve” to “Special” for a historical monument**
- **Rezoning of Erf 33 of Erf 20 Katima Mulilo from “Nature Reserve” to “Public Open Space”**
- **Rezoning of RE/20 Katima Mulilo from “Nature Reserve” to “Street”**
- **Reservation of Erf 33 of Erf 20 Katima Mulilo for a Public Open Space**
- **Reservation of RE/20 Katima Mulilo for a Street**

The above development triggers listed activities in terms of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012).

As such the proponent appointed Stubenrauch Planning Consultants (SPC) to undertake an independent Environmental Assessment (EA) in order to obtain an Environmental Clearance Certificate (ECC) for the above activities. The competent authority is the Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs and Forestry (MEFT: DEAF).

### Project Description

The concept of future urban planning is focused on the development needs of the town, growing in line with strategic growth objectives identified by the town of Katima Mulilo. The proposed development is aimed at fulfilling the future development needs to meet the socio-economic objectives to grow the town sustainably. The concept aims at creating cities that are liveable, viable and promote social equity.

The Katima Mulilo Town Council (Proponent) intends to subdivide Erf 20, Katima Mulilo into 33 Erven & Remainder, to create smaller properties which will be sold to possible investors. Eleven (11) of the 33 subdivided erven will be rezoned from “Nature Reserve” to “Hospitality” and will then be sold to possible investors to operate tourism accommodations such as lodges, guest houses and hotels.

It is also the intention of the proponent to create middle to high density housing, thus twenty (20) of the subdivided erven are to be rezoned from “Nature Reserve” to “General Residential” to accommodate middle to high density housing. Furthermore, the proponent respected one special

monument in a subdivided erf 22 of 33 which is to be rezoned from “Nature Reserve” to “Special” to accommodate a Special Monument in the proposed erven.

Erf 20, Katima Mulilo currently has a few physical structures on-site that will be demolished once the subject application is approved. Furthermore, Erf 20, Katima Mulilo is populated with trees and vegetation, but these will be respected during all phases of the subdivision, rezoning and construction of buildings.

The northern side of Erf 20, Katima Mulilo is a flood prone area, and will thus only be used for landscaping and gardening purposes after the development is done. Therefore, Erf 20, Katima Mulilo is the perfect location for investors to operate tourism accommodation as the erf is situated along the Zambezi River providing a view of the river.

### **Public Participation**

Communication with Interested and Affected Parties (I&APs) about the proposed development was facilitated through the following means and in this order:

- A Background Information Document (BID) containing descriptive information about the proposed activities was compiled and sent out to all identified and registered I&APs via email on **08 June 2023**;
- Notices were placed in the New Era newspapers dated **08 June 2023 and 15 June 2023**, briefly explaining the activity and its locality, inviting members of the public to register as I&APs (**Appendix B**); and
- A notice was fixed at the project site (see **Appendix A**);

Public consultation was carried out according to the Environmental Management Act’s EIA Regulations. After the initial notification, the I&APs were given two weeks to submit their comments on the project (until **29 June 2023**). The comment period will remain open until the final scoping report is submitted to MEFT.

The Draft Scoping Report was circulated from the **15 August 2023 until the 29 August 2023** so that the public could review and comment on it. The overall commentary received from the public on the draft report will be documented in the comments and responses report document of this report.

### **Conclusions and Recommendations**

With reference to **Table 10**, none of the negative construction phase impacts were deemed to have a high significant impact on the environment. The construction impacts were assessed to a **Medium to Low (negative)** significance, without mitigation measures. With the implementation of the recommended mitigation measures in Chapter 7 as well as in the EMP, the significance of the construction phase impacts is likely to be reduced to a **Low (negative)**.

With reference to **Table 10**, none of the negative operational phase impacts were deemed to have a high significance impact on the environment. The operational impacts were assessed to a **Medium (negative)** significance, without mitigation measures. With the implementation of the recommended mitigation measures in Chapter 7 as well as in the EMP, the significance of the construction phase impacts is likely to be reduced to a **Low (negative)**.

It is recommended that this project be authorised because should the development not proceed the subject area will remain undeveloped and underutilised and no additional revenue incomes to be generated. Therefore, none of the positive or negative impacts from the proposed development would be realized.

The accommodation establishments have positive socio-economic impacts as it sustains both the owners of the property, and the people employed there. It forms an important part of the tourism sector of the town of Katima Mulilo and contributes to the local economy, by providing temporary accommodation to the holiday goers that visit this town.

The “General Residential” erven will also have a positive impact on the socio-economic aspect of the town, as it will allow Council to generate an additional income once the erven are sold. The local community is expected to benefit from the development because of the potential job opportunities during construction as well as the increased development within the area. Furthermore, the community of Katima Mulilo are further expected to benefit from the “Business” zoned erven that will creates employment opportunities for the locals. The significance of the social impact was therefore deemed to be **Medium (positive)**.

The “no go” alternative was thus deemed to have a **High (negative)** impact, as all the benefits resulting from the development would not be realised.

The significance of negative impacts can be reduced with effective and appropriate mitigation provided in this report and the EMP. If authorised, the implementation of the EMP should be included as a condition of approval.

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## LIST OF ACRONYMS

<b>AIDS</b>	Acquired Immune Deficiency Syndrome
<b>CRR</b>	Comments and response report
<b>dB</b>	Decibels
<b>DESR</b>	Draft Environmental Scoping Report
<b>EA</b>	Environmental Assessment
<b>EAP</b>	Environmental Assessment Practitioner
<b>EAR</b>	Environmental Assessment Report
<b>ECC</b>	Environmental Clearance Certificate
<b>ECO</b>	Environmental Control Officer
<b>EIA</b>	Environmental Impact Assessment
<b>EMA</b>	Environmental Management Act
<b>EMP</b>	Environmental Management Plan
<b>FESR</b>	Final Environmental Scoping Report
<b>GTZ</b>	Gesellschaft für Technische Zusammenarbeit
<b>HIV</b>	Human Immunodeficiency Virus
<b>I&amp;AP</b>	Interested and Affected Party
<b>IUCN</b>	International Union for Conservation of Nature
<b>MEFT</b>	Ministry of Environment, Forestry and Tourism
<b>MEFT: DEAF</b>	Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs and Forestry
<b>MURD</b>	Ministry of Urban and Rural Development
<b>MWTC</b>	Ministry of Works Transport and Communication
<b>NAMPAB</b>	Namibia Planning Advisory Board
<b>NPC</b>	Namibia Planning Commission
<b>POS</b>	Public Open Space
<b>PPP</b>	Public Participation Process
<b>SADC</b>	Southern African Development Community
<b>SME</b>	Small Medium Enterprise
<b>SPC</b>	Stubenrauch Planning Consultants
<b>USAID</b>	United States Agency for International Development
<b>VMMC</b>	Voluntary Medical Male Circumcision

# 1 INTRODUCTION

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## 1.1 PROJECT BACKGROUND

The Katima Mulilo Town Council hereinafter referred to as the proponent intends to undertake the following activities:

- **Subdivision of Erf 20, Katima Mulilo into 33 Erven & Remainder**
- **Rezoning of Erven 1 – 20 of Erf 20 Katima Mulilo from “Nature Reserve” to “General Residential” with a density of 1:100**
- **Rezoning of Erven 21, 23 – 32 of Erf 20 Katima Mulilo from “Nature Reserve” to “Hospitality”**
- **Rezoning of Erf 22 of Erf 20 Katima Mulilo from “Nature Reserve” to “Special” for a historical monument**
- **Rezoning of Erf 33 of Erf 20 Katima Mulilo from “Nature Reserve” to “Public Open Space”**
- **Rezoning of RE/20 Katima Mulilo from “Nature Reserve” to “Street”**
- **Reservation of Erf 33 of Erf 20 Katima Mulilo for a Public Open Space**
- **Reservation of RE/20 Katima Mulilo for a Street.**

The above are listed activities in terms of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012).

In terms of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012), the following listed activities in **Table 1** were triggered by the proposed project:

**Table 1:** List of triggered activities identified in the EIA Regulations which apply to the proposed project.

<b>Activity description and No(s):</b>	<b>Description of relevant Activity</b>	<b>The portion of the development as per the project description that relates to the applicable listed activity</b>
Activity 5.1 (d) Land Use and Development Activities	The rezoning of land from use for nature conservation or zoned open space to any other land use.	The proposed project involves the rezoning of land from nature conservation to various land uses.
Activity 10.1 (a) Infrastructure	The construction of oil, water, gas and petrochemical and other bulk supply pipelines;	The proposed project involves the installation of bulk services.

Activity description and No(s):	Description of relevant Activity	The portion of the development as per the project description that relates to the applicable listed activity
Activity 10.1 (b) Infrastructure	The construction of Public roads	The proposed project includes the construction of roads.
Activity 10.2 (a) Infrastructure	The route determination of roads and design of associated physical infrastructure where – it is a public road	The proposed project includes the route determination of roads.

The above activities will be discussed in more detail in Chapter 4. The proponent appointed Stubenrauch Planning Consultants (SPC) to undertake an independent Environmental Assessment (EA) in order to obtain an Environmental Clearance Certificate (ECC) for the above activities. The competent authority is the Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs and Forestry (MEFT: DEAF).

The process will be undertaken in terms of the gazetted Namibian Government Notice No. 30 Environmental Impact Assessment Regulations (herein referred to as EIA Regulations) and the Environmental Management Act (No 7 of 2007) (herein referred to as the EMA). The EIA process will investigate if there are any potential significant bio-physical and socio-economic impacts associated with the intended activities. The EIA process would also serve to provide an opportunity for the public and key stakeholders to provide comments and participate in the process.

## **1.2 PROJECT LOCATION**

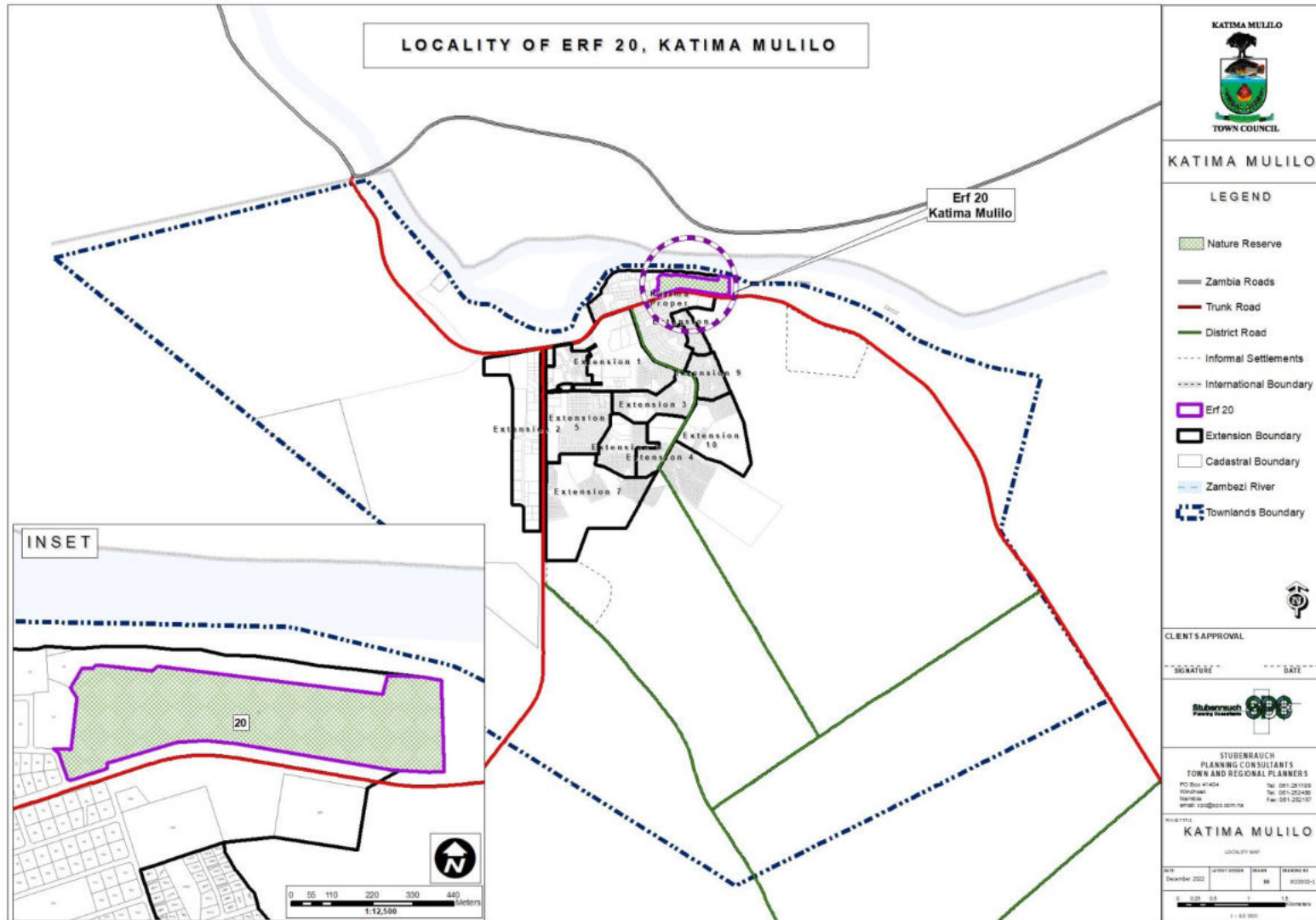
Erf 20 is located in the neighborhood of Katima Mulilo Proper, along the Zambezi River, as depicted on the Locality map in **Figure 1** below. The proposed project measure **21, 9769** Ha in extent.

## **1.3 LAND USE**

In accordance with the Katima Mulilo Zoning Scheme, Erf 20, Katima Mulilo is zoned for “Nature Reserve” purposes, and is surrounded by erven zoned for “Residential”, “Business”, and “Sport” purposes.

## **1.4 OWNERSHIP**

As per the Certificate of Registered Title No. T5076/1995, the ownership of Erf 20 vests with the Katima Mulilo Town Council.



**Figure 1: Locality of Erf 20, Katima Mulilo**

### 1.5 TERMS OF REFERENCE AND SCOPE OF PROJECT

The scope of this project is limited to conducting an environmental impact assessment and applying for an Environmental Clearance Certificate for the following as indicated in section 1.1 above:

- Subdivision of Erf 20, Katima Mulilo into 33 Erven & Remainder
- Rezoning of Erven 1 – 20 of Erf 20 Katima Mulilo from “Nature Reserve” to “General Residential” with a density of 1:100
- Rezoning of Erven 21, 23 – 32 of Erf 20 Katima Mulilo from “Nature Reserve” to “Hospitality”
- Rezoning of Erf 22 of Erf 20 Katima Mulilo from “Nature Reserve” to “Special” for a historical monument
- Rezoning of Erf 33 of Erf 20 Katima Mulilo from “Nature Reserve” to “Public Open Space”
- Rezoning of RE/20 Katima Mulilo from “Nature Reserve” to “Street”
- Reservation of Erf 33 of Erf 20 Katima Mulilo for a Public Open Space
- Reservation of RE/20 Katima Mulilo for a Street

### 1.6 ASSUMPTIONS AND LIMITATIONS

In undertaking this investigation and compiling the Environmental Scoping Report, the following assumptions and limitations apply:

- Assumes the information provided by the proponent is accurate and discloses all information available.
- The limitation that no alternative except for the preferred layout plans and the ‘no-go’ option was considered during this assessment. The unique character and appeal of Katima Mulilo were however taken into consideration with the design perspective. Various layout alternatives were initially considered by the proponent, also taking terrain and environmental constraints into account, thus the current design plans being the most feasible result.

### 1.7 CONTENT OF ENVIRONMENTAL ASSESSMENT REPORT

Section 8 of the gazetted EIA Regulations requires specific content to be addressed in a Scoping / Environmental Assessment Report. **Table 2** below is an extract from the EMA and highlights the required contents of a Scoping / Environmental Assessment Report whilst assisting the reader to find the relevant section in the report.

**Table 2:** Contents of the Scoping / Environmental Assessment Report

Section	Description	Section of FESR/ Annexure
8 (a)	The curriculum vitae of the EAPs who prepared the report;	Refer to <b>Annexure E</b>
8 (b)	A description of the proposed activity;	Refer to Chapter 4

Section	Description	Section of FESR/ Annexure
8 (c)	A description of the site on which the activity is to be undertaken and the location of the activity on the site;	Refer to Chapter 3
8 (d)	A description of the environment that may be affected by the proposed activity and the manner in which the geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed listed activity;	Refer to Chapter 3
8 (e)	An identification of laws and guidelines that have been considered in the preparation of the scoping report;	Refer to Chapter 2
8 (f)	Details of the public consultation process conducted in terms of regulation 7(1) in connection with the application, including	Refer to Chapter 5
	(i) the steps that were taken to notify potentially interested and affected parties of the proposed application	Refer to Chapter 5
	(ii) proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the proposed application have been displayed, placed or given;	Refer to <b>Annexures A and B</b> for site notices and advertisements respectively.
	(iii) a list of all persons, organisations and organs of state that were registered in terms of regulation 22 as interested and affected parties in relation to the application;	Refer to <b>Annexure C</b>
	(iv) a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues;	Refer to <b>Annexure C</b>
8 (g)	A description of the need and desirability of the proposed listed activity and any identified alternatives to the proposed activity that are feasible and reasonable, including the advantages and disadvantages	Refer to Chapter 4

Section	Description	Section of FESR/ Annexure
	that the proposed activity or alternatives have on the environment and on the community that may be affected by the activity;	
8 (h)	A description and assessment of the significance of any significant effects, including cumulative effects, that may occur as a result of the undertaking of the activity or identified alternatives or as a result of any construction, erection or decommissioning associated with the undertaking of the proposed listed activity;	Refer to Chapter 7
8 (i)	terms of reference for the detailed assessment;	NB – Assessment of impacts are included in this EA Report
8 (j)	An environmental management plan	Refer to <b>Annexure F</b>

## 2 LEGAL FRAMEWORK

### 2.1 LEGISLATION RELEVANT TO THE PROPOSED DEVELOPMENT

There are multiple legal instruments that regulate and have a bearing on good environmental management in Namibia. **Table 3** below provides a summary of the legal instruments considered to be relevant to this development and the environmental assessment process.

**Table 3:** Legislation applicable to the proposed development

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
The Constitution of the Republic of Namibia as Amended	Article 91 (c) provides for duty to guard against “the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia.”  Article 95(l) deals with the “maintenance of ecosystems, essential ecological processes and biological diversity” and sustainable use of the country’s natural resources.	Sustainable development should be at the forefront of this development.
Environmental Management Act No. 7 of 2007 (EMA)	Section 2 outlines the objective of the Act and the means to achieve that.  Section 3 details the principle of Environmental Management	The development should be informed by the EMA.
EIA Regulations GN 28, 29, and 30 of EMA (2012)	GN 29 Identifies and lists certain activities that cannot be undertaken without an environmental clearance certificate.  GN 30 provides the regulations governing the environmental assessment (EA) process.	<b>Activity 5.1 (d) Land Use and Development activities</b> <b>Activity 10.1 (a) Infrastructure</b> <b>Activity 10.1 (b) Infrastructure</b> <b>Activity 10.2 (a) Infrastructure</b>
Convention on Biological Diversity (1992)	Article 1 lists the conservation of biological diversity amongst the objectives of the convention.	The project should consider the impact it will have on the biodiversity of the area.
Draft Procedures and Guidelines for conducting EIAs and compiling EMPs (2008)	Part 1, Stage 8 of the guidelines states that if a proposal is likely to affect people, certain guidelines should be considered by the proponent in the scoping process.	The EA process should incorporate the aspects outlined in the guidelines.



LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Namibia Vision 2030	Vision 2030 states that the solitude, silence and natural beauty that many areas in Namibia provide are becoming sought after commodities and must be regarded as valuable natural assets.	Care should be taken that the development does not lead to the degradation of the natural beauty of the area.
Water Act No. 54 of 1956	Section 23(1) deals with the prohibition of pollution of underground and surface water bodies.	The pollution of water resources should be avoided during construction and operation of the development.
The Ministry of Environment and Tourism (MET) Policy on HIV & AIDS	MET has recently developed a policy on HIV and AIDS. In addition, it has also initiated a programme aimed at mainstreaming HIV and gender issues into environmental impact assessments.	The proponent and its contractor have to adhere to the guidelines provided to manage the aspects of HIV/AIDS. Experience with construction projects has shown that a significant risk is created when migrant construction workers interact with local communities.
Urban and Regional Planning Act 5 of 2018	The Act provides to consolidate the laws relating to urban and regional planning; to provide for a legal framework for spatial planning in Namibia; to provide for principles and standards of spatial planning; to establish the urban and regional planning board; to decentralise certain matters relating to spatial planning; to provide for the preparation, approval and review of the national spatial development framework, regional structure plans and urban structure plans; to provide for the preparation, approval, review and amendment of zoning schemes; to provide for the establishment of townships; to provide for the alteration of boundaries of approved townships, to provide for the disestablishment of approved townships; to provide for the change of name of approved townships; to provide for the subdivision and consolidation of land; to provide for the alteration,	The subdivision and consolidation of land as well as the establishment of townships is to be done in accordance with the act.

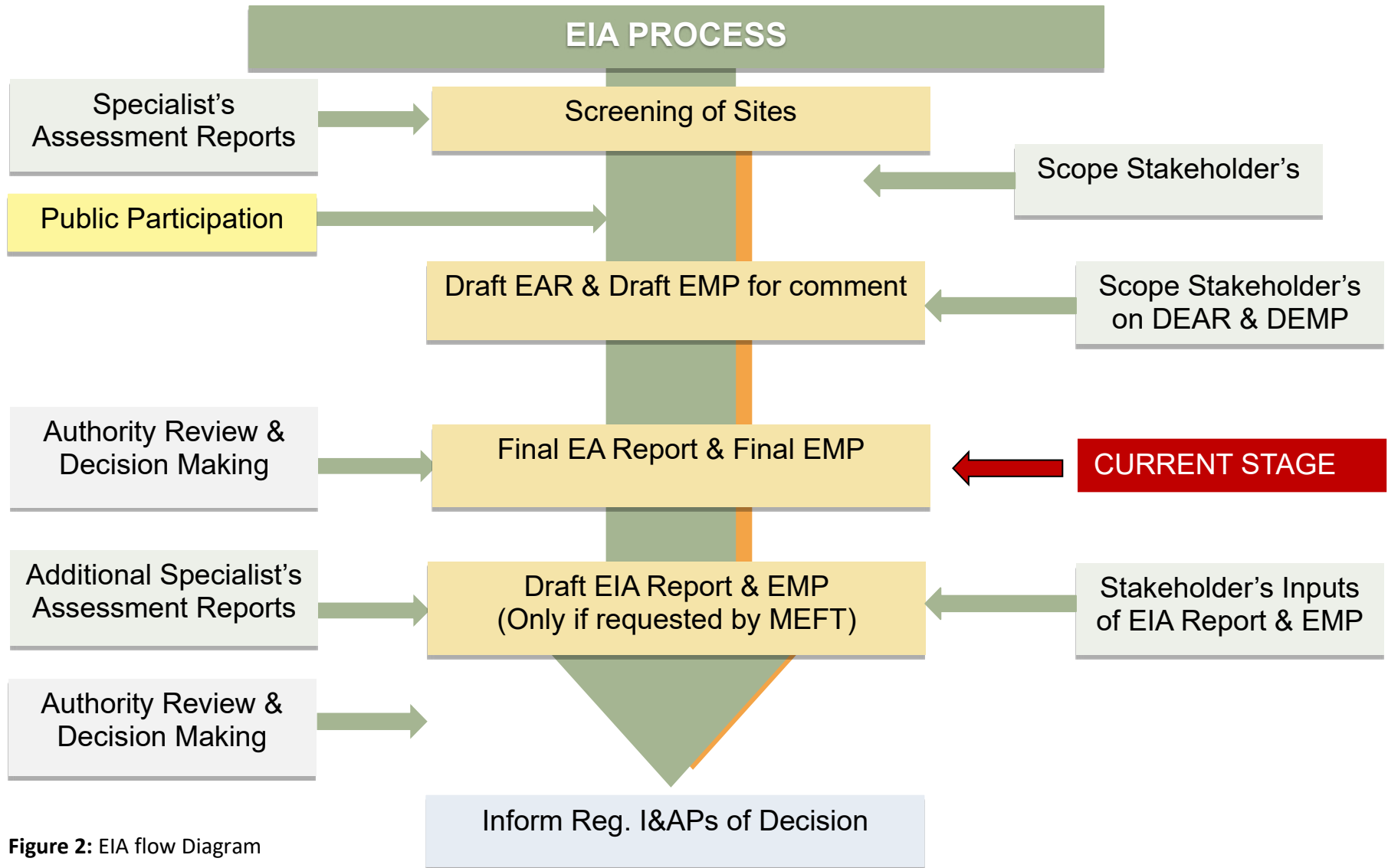
LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	suspension and deletion of conditions relating to land; and to provide for incidental matters.	
Local Authorities Act No. 23 of 1992	The Local Authorities Act prescribes the manner in which a town or municipality should be managed by the Town or Municipal Council.	The development must comply with provisions of the Local Authorities Act.
Labour Act no. 11 of 2007	Chapter 2 details the fundamental rights and protections. Chapter 3 deals with the basic conditions of employment.	Given the employment opportunities presented by the development, compliance with the labour law is essential.
National Heritage Act No. 27 of 2004	The Act is aimed at protecting, conserving and registering places and objects of heritage significance.	All protected heritage resources (e.g. human remains etc.) discovered, need to be reported immediately to the National Heritage Council (NHC) and require a permit from the NHC before they may be relocated.
Roads Ordinance 17 of 1972	<ul style="list-style-type: none"> <li>• Section 3.1 deals with width of proclaimed roads and road reserve boundaries</li> <li>• Section 27.1 is concerned with the control of traffic on urban trunk and main roads</li> <li>• Section 36.1 regulates rails, tracks, bridges, wires, cables, subways or culverts across or under proclaimed roads</li> <li>• Section 37.1 deals with Infringements and obstructions on and interference with proclaimed roads.</li> </ul>	Adhere to all applicable provisions of the Roads Ordinance.
Public and Environmental Health Act of 2015	This Act (GG 5740) provides a framework for a structured uniform public and environmental health system in Namibia. It covers notification, prevention and control of diseases and sexually transmitted	Contractors and users of the proposed development are to comply with these legal requirements.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	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. It repeals the Public Health Act 36 of 1919 (SA GG 979).	
Nature Conservation Ordinance no. 4 of 1975	Chapter 6 provides for legislation regarding the protection of indigenous plants	Indigenous and protected plants must be managed within the legal confines.
Water Quality Guidelines for Drinking Water and Wastewater Treatment	Details specific quantities in terms of water quality determinants, which wastewater should be treated to before being discharged into the environment (see Appendix B).	These guidelines are to be applied when dealing with water and waste treatment
Environmental Assessment Policy of Namibia (1995)	The Policy seeks to ensure that the environmental consequences of development projects and policies are considered, understood and incorporated into the planning process, and that the term ENVIRONMENT is broadly interpreted to include biophysical, social, economic, cultural, historical and political components.	This EIA considers this term of Environment.
Water Resources Management Act No. 11 of 2013	Part 12 deals with the control and protection of groundwater  Part 13 deals with water pollution control	The pollution of water resources should be avoided during construction and operation of the development. Should water need to be abstracted, a water abstraction permit will be required from the Ministry of Water, Agriculture and Forestry.
Forest Act 12 of 2001 and Forest Regulations of 2015	To provide for the establishment of a Forestry Council and the appointment of certain officials; to	Protected tree and plant species as per the Forest Act No 12 of 2001 and Forest Regulations of 2015 may

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	<p>consolidate the laws relating to the management and use of forests and forest produce; to provide for the protection of the environment and the control and management of forest fires; to repeal the Preservation of Bees and Honey Proclamation, 1923 (Proclamation No. 1 of 1923), Preservation of Trees and Forests Ordinance, 1952 (Ordinance No. 37 of 1952) and the Forest Act, 1968 (Act No. 72 of 1968); and to deal with incidental matters.</p>	<p>not be removed without a permit from the Ministry of Agriculture, Water and Forestry.</p>
<p>Atmospheric Pollution Prevention Ordinance No 45 of 1965</p>	<p>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.</p>	<p>The development should consider the provisions outlined in the act. The proponent should apply for an Air Emissions permit from the Ministry of Health and Social Services (if needed).</p>

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Hazardous Substance Ordinance 14 of 1974	To provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances; to provide for the division of such substances into groups in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances; and to provide for matters connected therewith.	The handling, usage and storage of hazardous substances on site should be carefully controlled according to this Ordinance.
Soil Conservation Act No 76 of 1969	Act to consolidate and amend the law relating to the combating and prevention of soil erosion, the conservation, improvement and manner of use of the soil and vegetation and the protection of the water sources	The proposed activity should ensure that soil erosion and soil pollution is avoided during construction and operation.

This EIA process will be undertaken in accordance with the EIA Regulations. A Flow Diagram (refer to **Figure 2** below) provides an outline of the EIA process to be followed.



**Figure 2:** EIA flow Diagram

### 3 ENVIRONMENTAL BASELINE DESCRIPTION

#### 3.1 SOCIAL ENVIRONMENT

##### 3.1.1 Socio-Economic Context

The statistics shown in **Table 4** below are derived from the 2011 Namibia Population and Housing Census (Namibia Statistics Agency, 2011), and presented from a local and regional perspective.

**Table 4:** Statistics of the Katima Mulilo Urban Constituency (Namibia Statistics Agency, 2011)

<b>KATIMA MULILO URBAN</b>	
<b>ATTRIBUTE</b>	<b>INDICATOR</b>
Population	28 362
Females	15 319
Males	13 043
Population under 5 years	14%
Population aged 5 to 14 years	23%
Population aged 15 to 59 years	61%
Population aged 60 years and above	2%
Female: male ratio	85:100
Literacy rate of 15 years old and above	90%
People above 15 years who have never attended school	5%
People above 15 years who are currently attending school	21%
People above 15 years who have left school	73%
People aged 15 years and above who belong to the labour force	66%
Population employed	49%
Homemakers	24%
Students	65%
Retired or old age income recipients	11%
Income from pension	3%
Income from business and non-farming activities	28%
Income from farming	2%
Income from cash remittance	8%
Wages and salaries	57%
Main Language	Zambezi Languages-90%
<b>ZAMBEZI REGION</b>	
<b>ATTRIBUTE</b>	<b>INDICATOR</b>
Population	90 569
Population aged 60 years and above	6%
Population aged 5 to 14 years	25%
Population aged 15 to 59 years	55%

### **3.1.2 Archaeological and Heritage Context**

Archaeological and heritage sites are not readily documented for the Katima Mulilo area. According to Kinahan (2013) a number of archeological sites have been identified in the Katima Mulilo area through field surveys and assessments. Due to the increased development experienced in the area archeological sites are further identified during surveys conducted for large scale projects, however research in this regard is still in the infant stage and thus there is the risk of sites with cultural significance being damaged or destroyed with development (Kinahan, 2013).

There are a number of monuments within the Zambezi Region which are remnants of the country's colonial past. A building at Luhonono (former Schuckmansburg) still stands, that served as an ammunition storage during the German period. Schuckmansburg served as the administrative centre for the region at that time. From more recently, there is a monument to the Singalamwe massacre, where people were tortured and killed for supporting the freedom struggle. Today there is a graveyard in Masida village for them (Ministry of Lands and Resettlements, 2015).

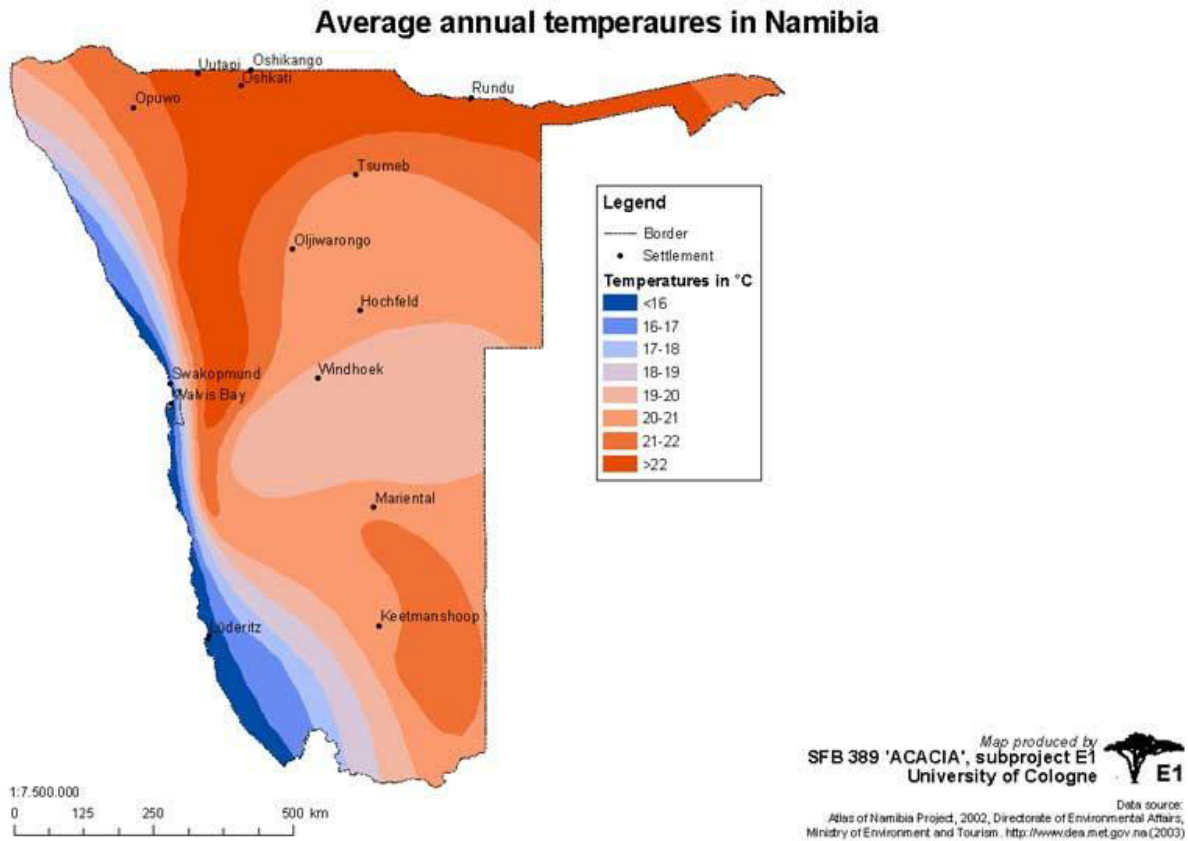
Erf 20, Katima Mulilo is not located in a Heritage Protection Zone, but the historical monument located on Erf 20, Katima Mulilo is accommodated within the proposed development.

## **3.2 BIO-PHYSICAL ENVIRONMENT**

### **3.2.1 Climate**

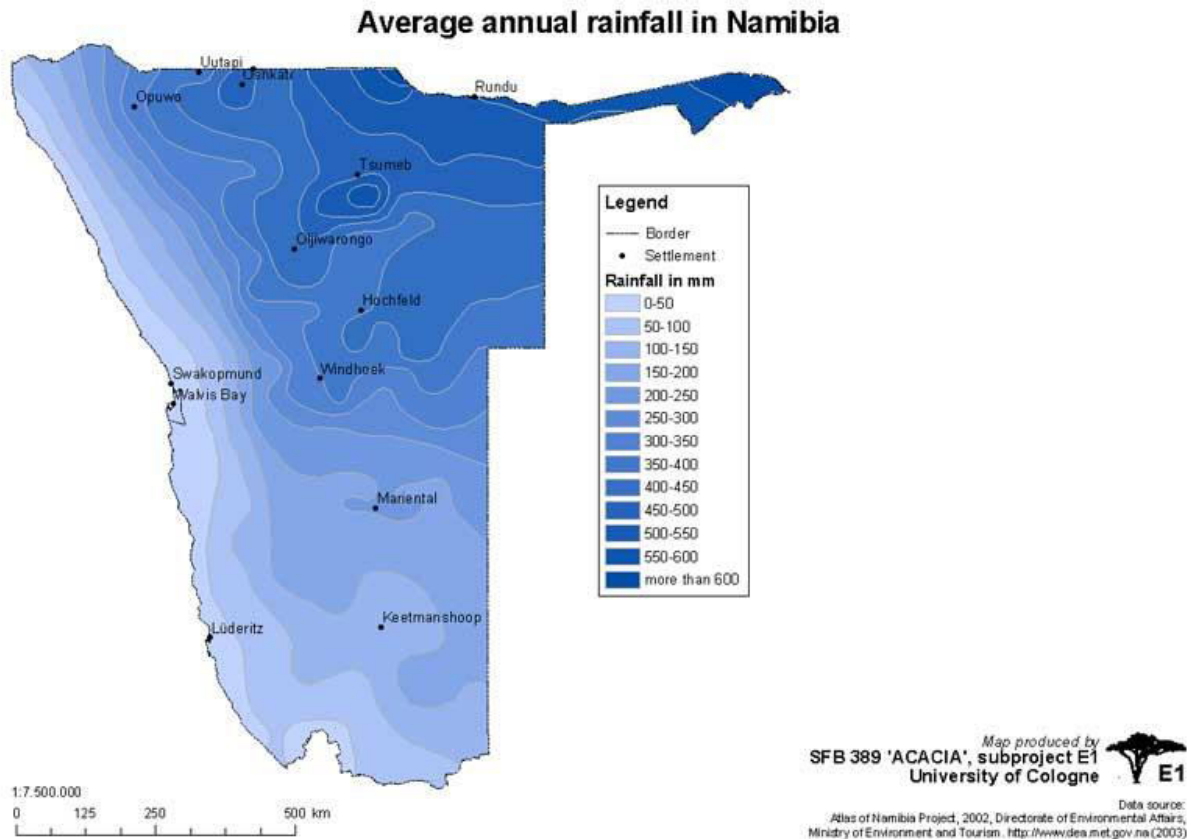
The Zambezi has a tropical climate with higher rainfall, less evaporation and a warmer winter than the rest of the country. The average annual temperature ranges between 21-22°C as indicated in **Figure 3** below. The average maximum temperature for Katima Mulilo below varies between 34 and 36°C with the average minimum temperature between 2 and 4°C.





**Figure 3:** Annual average temperature ([http://www.uni-koeln.de/sfb389/e/e1/download/atlas\\_namibia/e1\\_download\\_climate\\_e1.htm#temperature\\_annual](http://www.uni-koeln.de/sfb389/e/e1/download/atlas_namibia/e1_download_climate_e1.htm#temperature_annual))

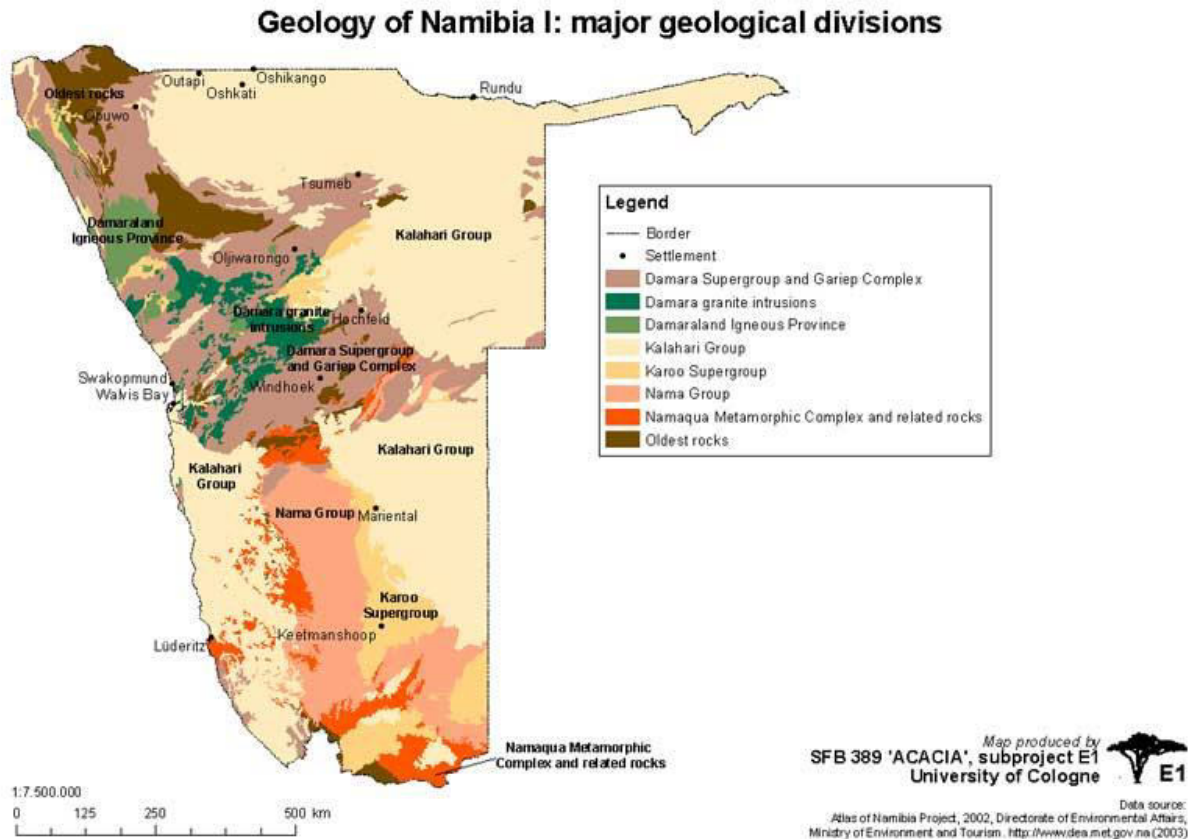
Rainfall is mostly experienced during the summer, with the average annual rainfall being more than 600 mm per year as indicated in **Figure 4** below. Most of the rain in Katima Mulilo is experienced between November and early April.



**Figure 4:** Average annual Rainfall ([http://www.uni-koeln.de/sfb389/e/e1/download/atlas\\_namibia/pics/climate/rainfall-annual.jpg](http://www.uni-koeln.de/sfb389/e/e1/download/atlas_namibia/pics/climate/rainfall-annual.jpg))

### 3.2.2 Topography, Geology and Soils

The Zambezi Region is relatively flat with the highest areas occurring in the western part of the region. The region is covered in thick deposits of Kalahari sand leaving very little underlying geology exposed (Robertson, Jarvis, Mendelsohn, & Swart, 2012). The soils in the region is characterized by the Kalahari Basin, which is dominated by sand dunes. The region is divided into six major land types as depicted in **Figure 5** below. Katima Mulilo falls within the Kalahari Woodland land type indicated as beige in **Figure 5** below.



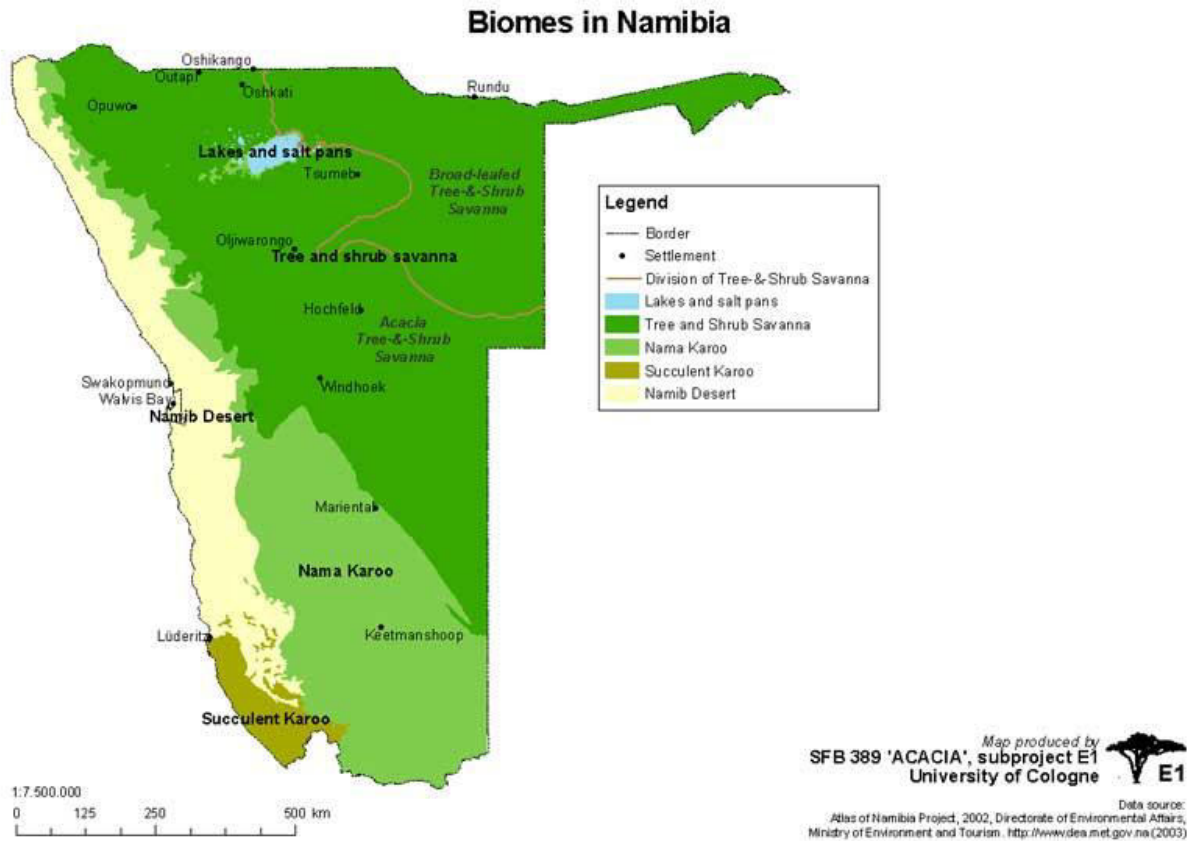
**Figure 5:** Geology of Namibia ([http://www.uni-koeln.de/sfb389/e/e1/download/atlas\\_namibia/pics/physical/geology.jpg](http://www.uni-koeln.de/sfb389/e/e1/download/atlas_namibia/pics/physical/geology.jpg))

### 3.2.3 Hydrology and Hydrogeology

One of the most important features in the region is the perennial Zambezi River that flows into the Indian Ocean and is shared between eight Southern African countries (Ministry of Agriculture Water and Rural Development, 2011). The region is defined by four perennial rivers: the Zambezi, Kwando, Linyanti and Chobe. Lake Liambezi is an ephemeral lake in the Linyanti-Chobe-Zambezi River system.

Groundwater in the region is considered to be generally good, particularly within 5-20 km from the rivers as they recharge the aquifers (Ministry of Agriculture Water and Rural Development, 2011). Boreholes concentrated along the main roads have been drilled in the region to provide water for people and livestock. Water has additionally been supplied via pipelines due to the varying water quality and unreliable yields.





**Figure 7:** Biomes of Namibia ([http://www.uni-koeln.de/sfb389/e/e1/download/atlas\\_namibia/pics/living\\_resources/biomes.jpg](http://www.uni-koeln.de/sfb389/e/e1/download/atlas_namibia/pics/living_resources/biomes.jpg))

## 4 PROJECT DESCRIPTION

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### 4.1 PROJECT COMPONENTS

As previously outlined in Section 1.1, the proposed project involves the following activities:

- **Subdivision of Erf 20, Katima Mulilo into 33 Erven & Remainder**
- **Rezoning of Erven 1 – 20 of Erf 20 Katima Mulilo from “Nature Reserve” to “General Residential” with a density of 1:100**
- **Rezoning of Erven 21, 23 – 32 of Erf 20 Katima Mulilo from “Nature Reserve” to “Hospitality”**
- **Rezoning of Erf 22 of Erf 20 Katima Mulilo from “Nature Reserve” to “Special” for a historical monument**
- **Rezoning of Erf 33 of Erf 20 Katima Mulilo from “Nature Reserve” to “Public Open Space”**
- **Rezoning of RE/20 Katima Mulilo from “Nature Reserve” to “Street”**
- **Reservation of Erf 33 of Erf 20 Katima Mulilo for a Public Open Space**
- **Reservation of RE/20 Katima Mulilo for a Street**

These components will be described in further detail below, in terms of their design, layout and footprint.

### 4.2 ALTERNATIVES

As pointed out in Section 1.4 above various layout alternatives were initially considered by the proponent, ultimately resulting in the final layouts. As such only the no-go alternative will be discussed below.

#### 4.2.1 No – Go Alternative

The no-go alternative is the baseline against which all alternatives are assessed. The no-go alternative would essentially entail maintaining the current situation, whereby the subject area would remain vacant and undeveloped. Thus, the Katima Mulilo Town Council and the residents will not be able to receive the benefits which may result from the construction and operational phase of the development. Thus, the no-go alternative is not considered to be the preferred option.

### 4.3 THE PROPOSED DEVELOPMENT

The concept of future urban planning is focused on the development needs of the town, growing in line with strategic growth objectives identified by the town of Katima Mulilo. The proposed development is aimed at fulfilling the future development needs to meet the socio-economic



objectives to grow the town sustainably. The concept aims at creating cities that are liveable, viable and promote social equity.

The Katima Mulilo Town Council (Proponent) intends to subdivide Erf 20, Katima Mulilo into 33 Erven & Remainder, to create smaller properties which will be sold to possible investors. Eleven (11) of the 33 subdivided erven will be rezoned from “Nature Reserve” to “Hospitality” and will then be sold to possible investors to operate tourism accommodations such as lodges, guest houses and hotels.

It is also the intention of the proponent to create middle to high density housing, thus twenty (20) of the subdivided erven are to be rezoned from “Nature Reserve” to “General Residential” to accommodate middle to high density housing. Furthermore, the proponent respected one special monument in a subdivided erf 22 of 33 which is to be rezoned from “Nature Reserve” to “Special” to accommodate a Special Monument in the proposed erven.

Erf 20, Katima Mulilo currently has a few physical structures on-site that will be demolished once the subject application is approved. Furthermore, Erf 20, Katima Mulilo is populated with trees and vegetation, but these will be respected during all phases of the subdivision, rezoning and construction of buildings.

The northern side of Erf 20, Katima Mulilo is a flood prone area, and will thus only be used for landscaping and gardening purposes after the development is done. Therefore, Erf 20, Katima Mulilo is the perfect location for investors to operate tourism accommodation as the erf is situated along the Zambezi River providing a view of the river.

The following town planning steps are required to facilitate the intended development:

- **Subdivision of Erf 20, Katima Mulilo into 33 Erven & Remainder**
- **Rezoning of Erven 1 – 20 of Erf 20 Katima Mulilo from “Nature Reserve” to “General Residential” with a density of 1:100**
- **Rezoning of Erven 21, 23 – 32 of Erf 20 Katima Mulilo from “Nature Reserve” to “Hospitality”**
- **Rezoning of Erf 22 of Erf 20 Katima Mulilo from “Nature Reserve” to “Special” for a historical monument**
- **Rezoning of Erf 33 of Erf 20 Katima Mulilo from “Nature Reserve” to “Public Open Space”**
- **Rezoning of RE/20 Katima Mulilo from “Nature Reserve” to “Street”**
- **Reservation of Erf 33 of Erf 20 Katima Mulilo for a Public Open Space**
- **Reservation of RE/20 Katima Mulilo for a Street.**

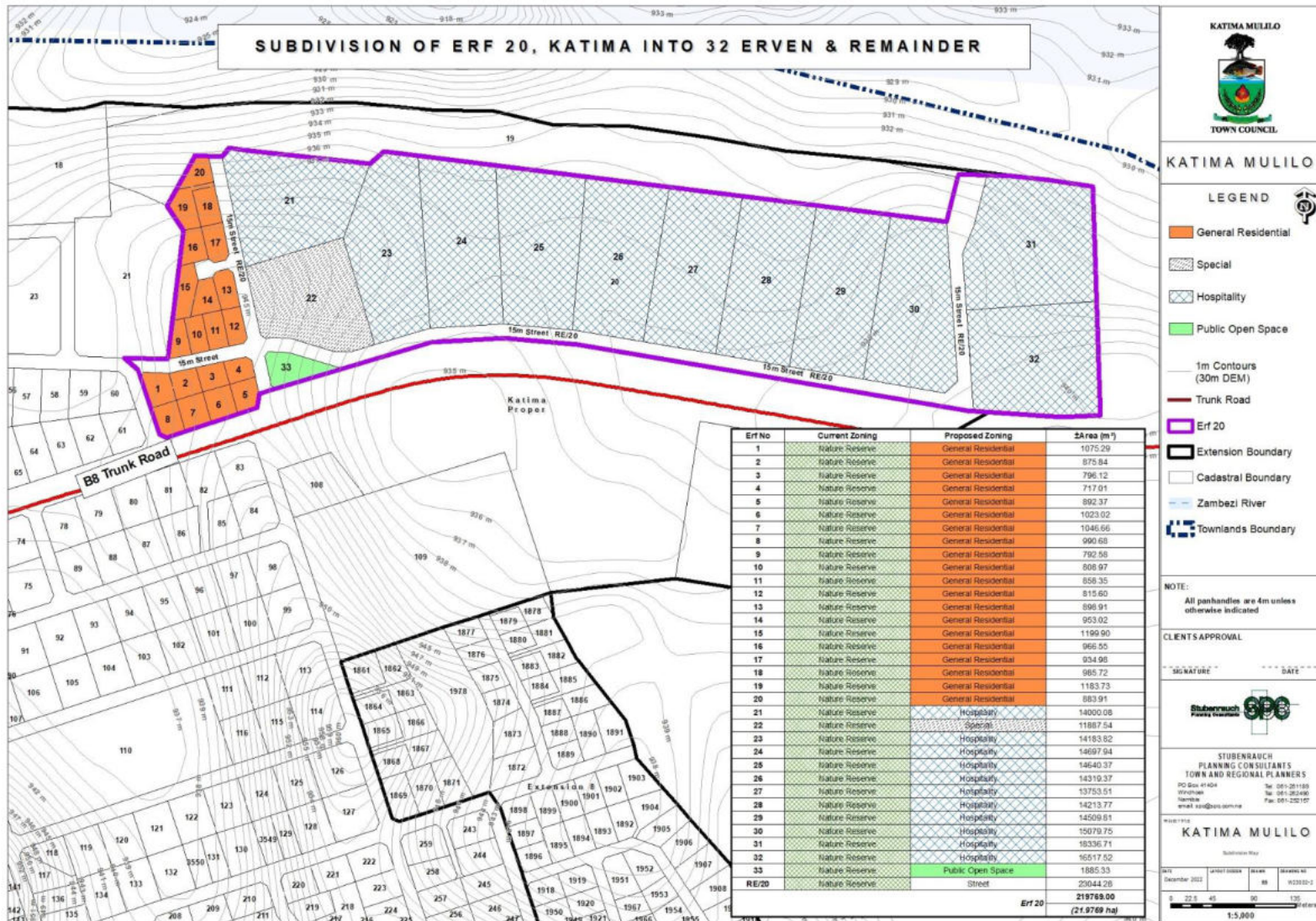
### 4.3.1 The Subdivision

The Katima Mulilo Town Council intends to subdivide Erf 20, Katima Mulilo into 33 Erven & Remainder, in order to create smaller properties to be sold to possible investors.

**Table 5:** Erf Summary - Land Use

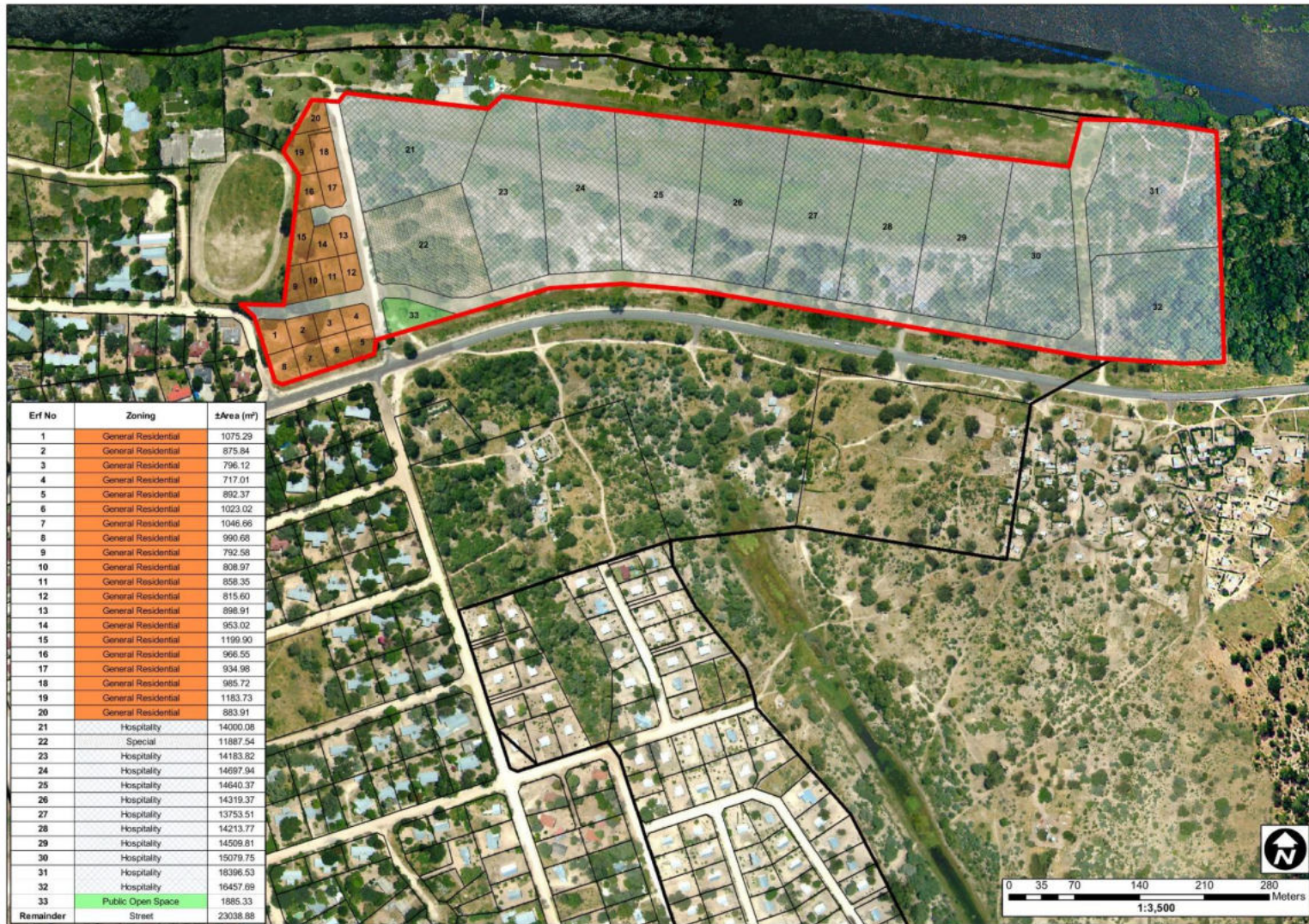
<b>Erf Number</b>	<b>Current Zoning</b>	<b>Erf Size (Ha)</b>	<b>Erf Number</b>	<b>Current Zoning</b>	<b>Erf Size (Ha)</b>
1	Nature Reserve	1075.29	19	Nature Reserve	1183.73
2	Nature Reserve	875.84	20	Nature Reserve	883.91
3	Nature Reserve	796.12	21	Nature Reserve	14000.08
4	Nature Reserve	717.01	22	Nature Reserve	11887.54
5	Nature Reserve	892.37	23	Nature Reserve	14183.82
6	Nature Reserve	1023.02	24	Nature Reserve	14697.94
7	Nature Reserve	1046.66	25	Nature Reserve	14640.37
8	Nature Reserve	990.68	26	Nature Reserve	14319.37
9	Nature Reserve	792.58	27	Nature Reserve	13753.51
10	Nature Reserve	808.97	28	Nature Reserve	14213.77
11	Nature Reserve	868.35	29	Nature Reserve	14509.81
12	Nature Reserve	815.60	30	Nature Reserve	15079.75
13	Nature Reserve	898.91	31	Nature Reserve	18396.53
14	Nature Reserve	953.02	32	Nature Reserve	16457.69
15	Nature Reserve	1199.90	33	Nature Reserve	1885.33
16	Nature Reserve	966.55	Rem/20	Nature Reserve	23038.88
17	Nature Reserve	934.98	<b>Total</b>		<b>21, 9769</b>
18	Nature Reserve	985.72			





**Figure 8:** Subdivision of Erf 20 Katima into 33 Erven and Remainder





**Figure 9:** Aerial Map of proposed Subdivision of Erf 20 of Katima Mulilo

### 4.3.2 Rezoning

The proposed rezoning will allow the Katima Mulilo Town Council to sell the erven to possible investors in order for them to operate tourism accommodation or high-density residential units.

The following rezoning approvals are required:

- Rezoning of Erven 1 – 20 of Erf 20 Katima Mulilo from “Nature Reserve” to “General Residential” with a density of 1:100 as seen in **Figure 10** below.
- Rezoning of Erven 21, 23 – 32 of Erf 20 Katima Mulilo from “Nature Reserve” to “Hospitality” as seen in **Figure 11** below.
- Rezoning of Erf 22 of Erf 20 Katima Mulilo from “Nature Reserve” to “Special” for a historical monument as seen in **Figure 12** below.
- Rezoning of Erf 33 of Erf 20 Katima Mulilo from “Nature Reserve” to “Public Open Space” as seen in **Figure 13** below.
- Rezoning of RE/20 Katima Mulilo from “Nature Reserve” to “Street” as seen in **Figure 14** below.

**Table 6:**Rezoning of subdivided erven

Erf No	Erf Size (Ha)	Current Zoning	Proposed Zoning	Erf No	Erf Size (Ha)	Current Zoning	Proposed Zoning
1	1075.29	Nature Reserve	General Residential	19	1183.73	Nature Reserve	General Residential
2	875.84	Nature Reserve	General Residential	20	883.91	Nature Reserve	General Residential
3	796.12	Nature Reserve	General Residential	21	14000.08	Nature Reserve	Hospitality
4	717.01	Nature Reserve	General Residential	22	11887.54	Nature Reserve	Special(for a Monument)
5	892.37	Nature Reserve	General Residential	23	14183.82	Nature Reserve	Hospitality
6	1023.02	Nature Reserve	General Residential	24	14697.94	Nature Reserve	Hospitality
7	1046.66	Nature Reserve	General Residential	25	14640.37	Nature Reserve	Hospitality
8	990.68	Nature Reserve	General Residential	26	14319.37	Nature Reserve	Hospitality
9	792.58	Nature Reserve	General Residential	27	13753.51	Nature Reserve	Hospitality

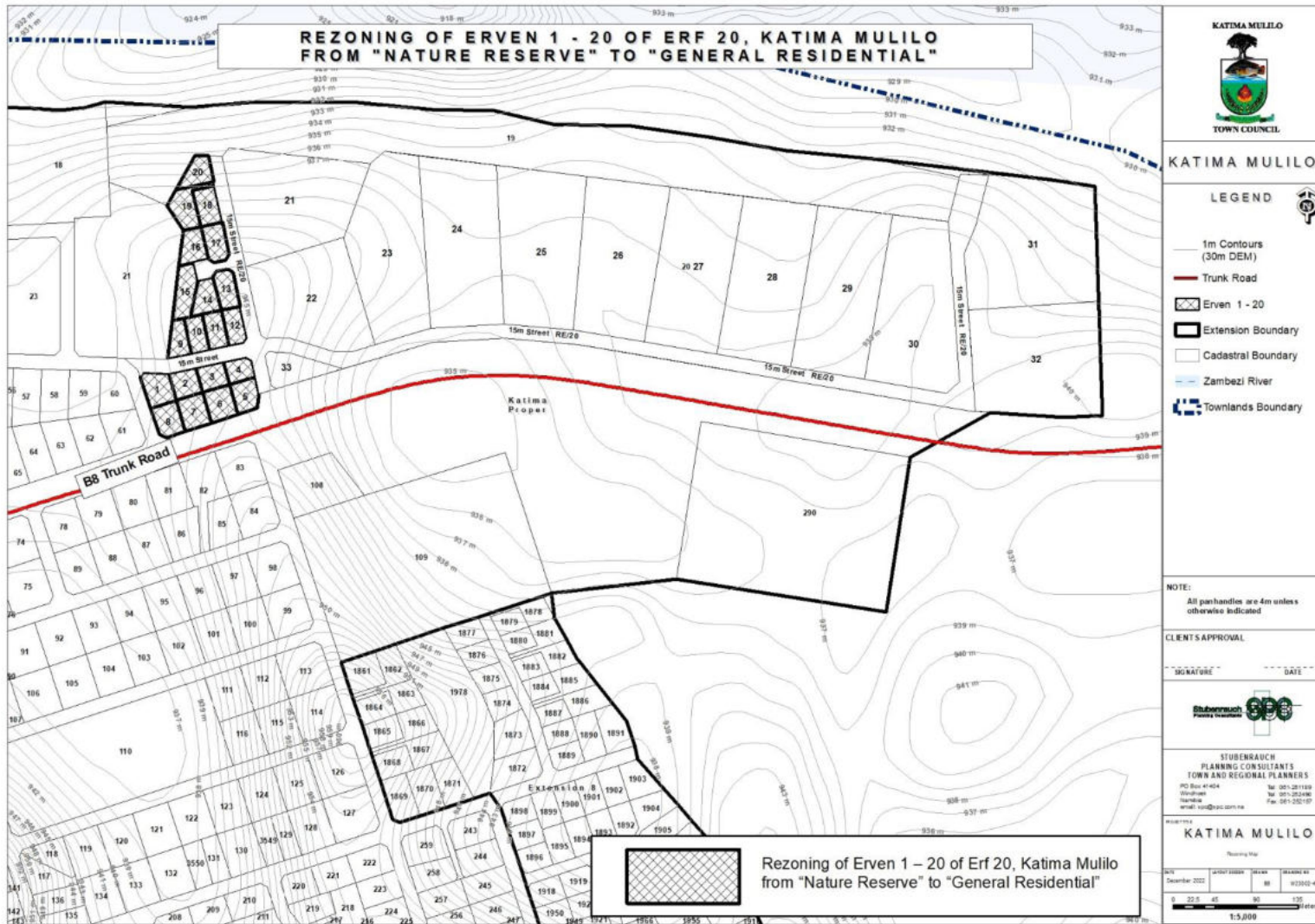
<b>10</b>	808.97	Nature Reserve	General Residential	<b>28</b>	14213.77	Nature Reserve	Hospitality
<b>11</b>	868.35	Nature Reserve	General Residential	<b>29</b>	14509.81	Nature Reserve	Hospitality
<b>12</b>	815.60	Nature Reserve	General Residential	<b>30</b>	15079.75	Nature Reserve	Hospitality
<b>13</b>	898.91	Nature Reserve	General Residential	<b>31</b>	18396.53	Nature Reserve	Hospitality
<b>14</b>	953.02	Nature Reserve	General Residential	<b>32</b>	16457.69	Nature Reserve	Hospitality
<b>15</b>	1199.90	Nature Reserve	General Residential	<b>33</b>	1885.33	Nature Reserve	Public Open Space
<b>16</b>	966.55	Nature Reserve	General Residential	<b>Rem/20</b>	23038.88	Nature Reserve	Street
<b>17</b>	934.98	Nature Reserve	General Residential				
<b>18</b>	985.72	Nature Reserve	General Residential				

Table 7 below is an extract of the Katima Mulilo Zoning Scheme which depicts the primary uses and consent uses under a “Hospitality” and “General Residential” zoned properties.

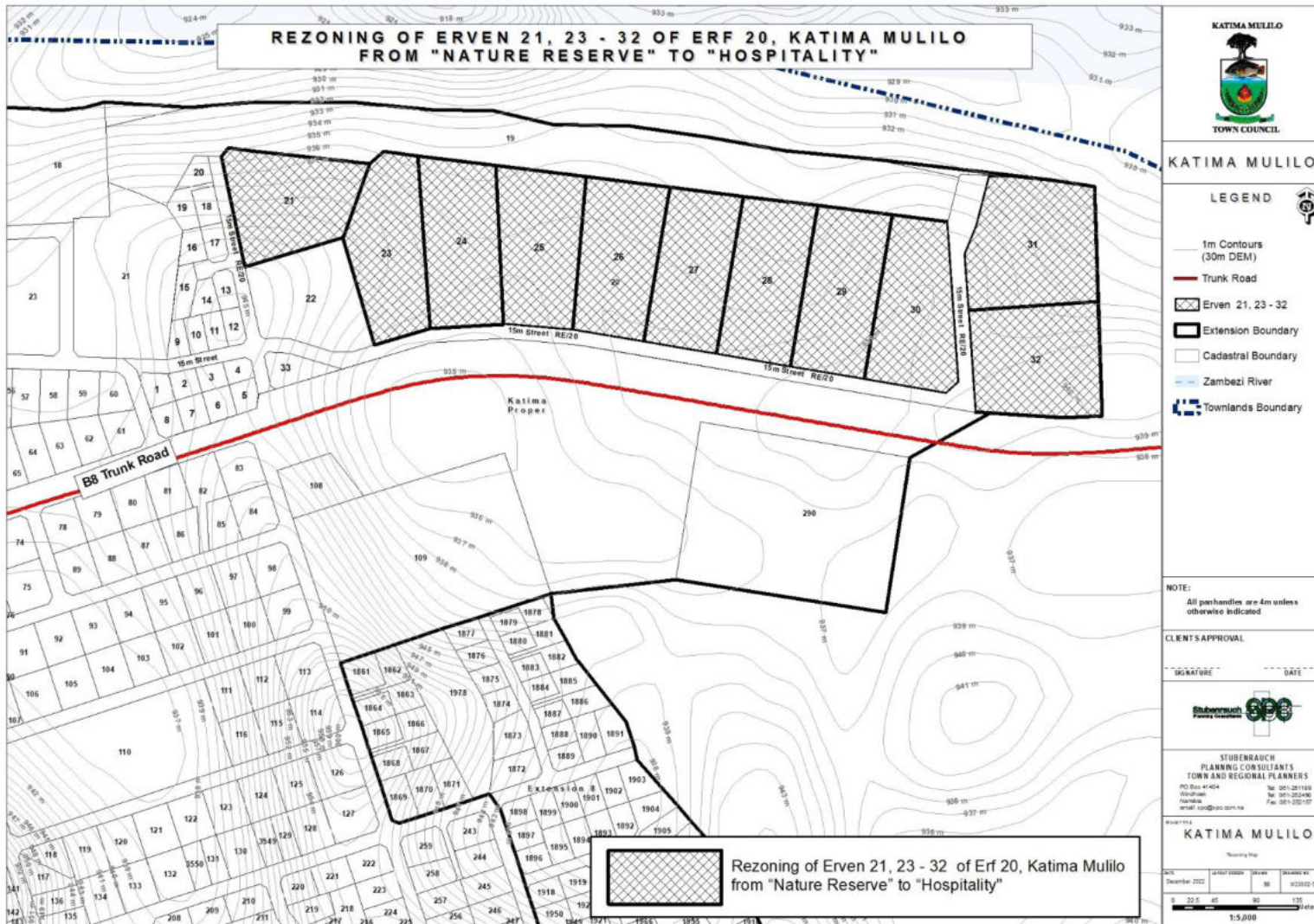
**Table 7:** Depicts the primary uses and consent uses under a “Hospitality” and “General Residential” zoned properties in Katima Mulilo Zoning Scheme

<b>Zoning</b>	<b>Primary Uses</b>	<b>Consent Uses</b>
General residential	Dwelling units, Block of flats, Duplex flats, Town houses, Residential Building, Pensions, Guest house	Place of instruction, Place of public worship, Institutional buildings, Hotel, Motel, Day care center, Shebeen
Hospitality	Hotel, Motel, Accommodation Establishment, Dwelling unit	Tourist facility



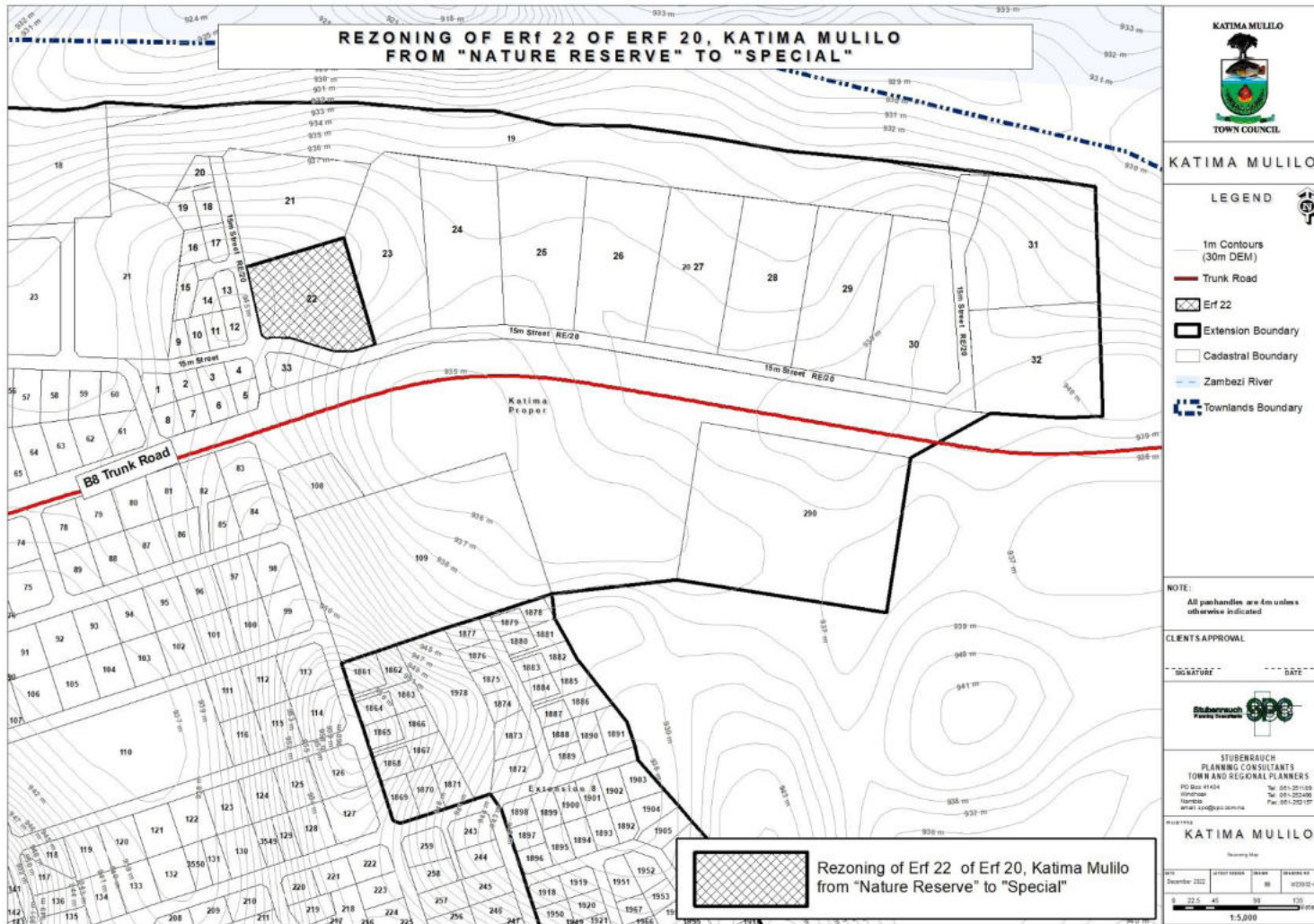


**Figure 10:** Rezoning of Erven 1 – 20 of Erf 20 Katima Mulilo from “Nature Reserve” to “General Residential”



**Figure 11:** Rezoning of Erven 21, 23 – 32 of Erf 20 Katima Mulilo from “Nature Reserve” to “Hospitality”

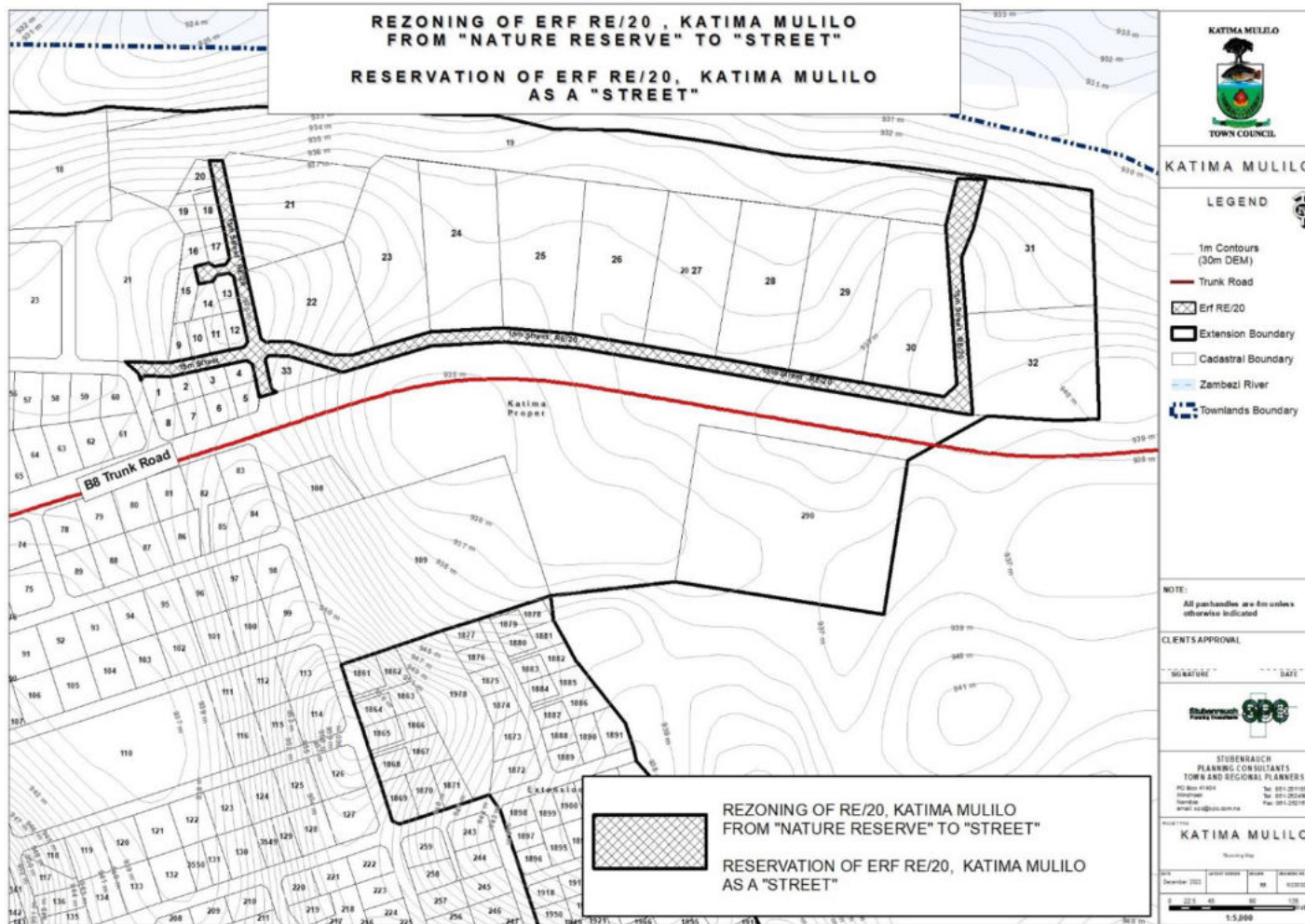




**Figure 12:** Rezoning of Erf 22 of Erf 20 Katima Mulilo from “Nature Reserve” to “Special” for a historical monument







**Figure 14:** Rezoning of RE/20 Katima Mulilo from “Nature Reserve” to “Street”

### **4.3.3 The proposed reservation**

The proponent proposed to reserve two erven of Erf 20 Katima Mulilo, one for Public Open Space and one to be a street.

The following Reservation approvals are required:

- Reservation of Erf 33 of Erf 20 Katima Mulilo for a Public Open Space
- Reservation of RE/20 Katima Mulilo for a Street

### **4.3.4 Engineering Services and Access Provision**

The existing buildings on site are connected to the reticulation systems, which includes water, electricity, and sewer, of the Katima Mulilo Town Council.

There is an existing road (15m) over Erf 20, Katima Mulilo, running through the property, giving access to the Protea Hotel bordering Erf 20, Katima Mulilo on the north cadastral boundary. This road is respected within the proposed layout. Access to newly created erven 4, 5, 12, 13, 17, 18 and 20 will also be taken from the existing road as surveyed and depicted on the attached General Plan.

Within the proposed development, provision for an internal street network of 15m was provided to allow for access to the rest of the proposed newly created erven, as depicted on the **Figure 14** above.

## 5 PUBLIC PARTICIPATION PROCESS

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### 5.1 PUBLIC PARTICIPATION REQUIREMENTS

In terms of Section 21 of the EIA Regulations a call for open consultation with all I&APs at defined stages of the EIA process is required. This entails participatory consultation with members of the public by providing an opportunity to comment on the proposed project. Public Participation has thus incorporated the requirements of Namibia's legislation, but also takes account of international guidelines, including Southern African Development Community (SADC) guidelines and the Namibian EIA Regulations. Public participation in this project has been undertaken to meet the specific requirements in accordance with the international best practice. Please see **Table 8** below for the activities undertaken as part of the public participation process. The I&APs were given time to comment from **08 June 2023 to 29 June 2023**.

**Table 8:**Table of Public Participation Activities

ACTIVITY	REMARKS
Placement of site notice/poster in Katima Mulilo	See <b>Annexure A</b>
Placing advertisements in local newspapers namely the New Era ( <b>08 June 2023 and 15 June 2023</b> ).	See <b>Annexure B</b>
Written notice to surrounding property owners and Interested and Affected Parties via Email ( <b>08 June 2023</b> )	See <b>Annexure C</b>

At the time of the final report writing, no environmental or social concerns regarding the development were received by the consultant from the public. The public interest on this project is minimal.

#### 5.1.1 Environmental Assessment Phase 2

The second phase of the PPP involved the lodging of the Draft Environmental Scoping Report (DESR) to all registered I&APs for comment. Registered and potential I&APs were informed of the availability of the DESR for public comment *via* a letter/email dated **15 August 2023**. An Executive Summary of the DESR was also included in the letters to the registered I&APs. I&APs had until **29 August 2023** to submit comments or raise any issues or concerns they may have with regard to the proposed project.

## 6 ASSESSMENT METHODOLOGY

*The purpose of this chapter is to describe the assessment methodology utilized in determining the significance of the construction and operational impacts of the proposed project, and where applicable the possible alternatives, on the biophysical and socio-economic environment.*

Assessment of predicted significance of impacts for a proposed development is by its nature, inherently uncertain – environmental assessment is thus an imprecise science. To deal with such uncertainty in a comparable manner, a standardised and internationally recognised methodology has been developed. Such accepted methodology is applied in this study to assess the significance of the potential environmental impacts of the proposed development, outlined as follows in **Table 9**.

**Table 9:** Impact Assessment Criteria

CRITERIA	CATEGORY
Impact	Description of the expected impact
<b>Nature</b> Describe type of effect	<b>Positive:</b> The activity will have a social / economical / environmental benefit. <b>Neutral:</b> The activity will have no effect <b>Negative:</b> The activity will have a social / economical / environmental harmful effect
<b>Extent</b> Describe the scale of the impact	<b>Site Specific:</b> Expanding only as far as the activity itself (onsite) <b>Small:</b> restricted to the site's immediate environment within 1 km of the site (limited) <b>Medium:</b> Within 5 km of the site (local) <b>Large:</b> Beyond 5 km of the site (regional)
<b>Duration</b> Predicts the lifetime of the impact.	<b>Temporary:</b> < 1 year (not including construction) <b>Short-term:</b> 1 – 5 years <b>Medium term:</b> 5 – 15 years <b>Long-term:</b> >15 years (Impact will stop after the operational or running life of the activity, either due to natural course or by human interference) <b>Permanent:</b> Impact will be where mitigation or moderation by natural course or by human interference will not occur in a particular means or in a particular time period that the impact can be considered temporary
<b>Intensity</b> Describe the magnitude (scale/size) of the Impact	<b>Zero:</b> Social and/or natural functions and/ or processes remain unaltered <b>Very low:</b> Affects the environment in such a way that natural and/or social functions/processes are not affected <b>Low:</b> Natural and/or social functions/processes are slightly altered

CRITERIA	CATEGORY
	<p><b>Medium:</b> Natural and/or social functions/processes are notably altered in a modified way</p> <p><b>High:</b> Natural and/or social functions/processes are severely altered and may temporarily or permanently cease</p>
<p><b>Probability of occurrence</b> Describe the probability of the Impact <u>actually</u> occurring</p>	<p><b>Improbable:</b> Not at all likely</p> <p><b>Probable:</b> Distinctive possibility</p> <p><b>Highly probable:</b> Most likely to happen</p> <p><b>Definite:</b> Impact will occur regardless of any prevention measures</p>
<p><b>Degree of Confidence in predictions</b> State the degree of confidence in predictions based on availability of information and specialist knowledge</p>	<p><b>Unsure/Low:</b> Little confidence regarding information available (&lt;40%)</p> <p><b>Probable/Med:</b> Moderate confidence regarding information available (40-80%)</p> <p><b>Definite/High:</b> Great confidence regarding information available (&gt;80%)</p>
<p><b>Significance Rating</b> The impact on each component is determined by a combination of the above criteria.</p>	<p><b>Neutral:</b> A potential concern which was found to have no impact when evaluated</p> <p><b>Very low:</b> Impacts will be site specific and temporary with no mitigation necessary.</p> <p><b>Low:</b> The impacts will have a minor influence on the proposed development and/or environment. These impacts require some thought to adjustment of the project design where achievable, or alternative mitigation measures</p> <p><b>Medium:</b> Impacts will be experienced in the local and surrounding areas for the life span of the development and may result in long term changes. The impact can be lessened or improved by an amendment in the project design or implementation of effective mitigation measures.</p> <p><b>High:</b> Impacts have a high magnitude and will be experienced regionally for at least the life span of the development, or will be irreversible. The impacts could have the no-go proposition on portions of the development in spite of any mitigation measures that could be implemented.</p>

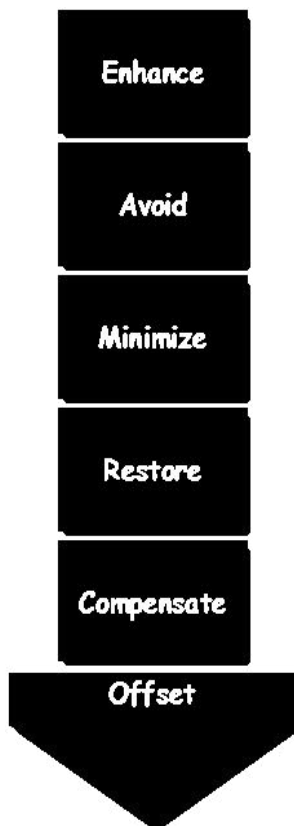
\*NOTE: Where applicable, the magnitude of the impact has to be related to the relevant standard (threshold value specified and source referenced). The magnitude of impact is based on specialist knowledge of that particular field.

For each impact, the EXTENT (spatial scale), MAGNITUDE (size or degree scale) and DURATION (time scale) are described. These criteria are used to ascertain the SIGNIFICANCE of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The decision as to which combination of alternatives and mitigation measures to apply lies with the proponent, and their acceptance and approval ultimately with the relevant environmental authority.

The SIGNIFICANCE of an impact is derived by taking into account the temporal and spatial scales and magnitude. Such significance is also informed by the context of the impact, i.e. the character and identity of the receptor of the impact.

### 6.1 MITIGATION MEASURES

There is a mitigation hierarchy of actions which can be undertaken to respond to any proposed project or activity (See **Figure 15** below). These cover avoidance, minimization, restoration and compensation. It is possible and considered sought after to enhance the environment by ensuring that positive gains are included in the proposed activity or project. If negative impacts occur, then the hierarchy indicates the following steps.



**Impact avoidance:** This step is most effective when applied at an early stage of project planning. It can be achieved by:

- not undertaking certain projects or elements that could result in adverse impacts;
- avoiding areas that are environmentally sensitive; and
- putting in place preventative measures to stop adverse impacts from occurring.

**Impact minimization:** This step is usually taken during impact identification and prediction to limit or reduce the degree, extent, magnitude, or duration of adverse impacts. It can be achieved by:

- scaling down or relocating the proposal;
- redesigning elements of the project; and
- taking supplementary measures to manage the impacts.

**Restoration:** This step is taken to improve degraded or removed ecosystems following exposure to impacts that cannot be completely avoided or minimised. Restoration tries to return an area to the original ecosystem that occurred before impacts. Restoration is frequently needed towards the end of a project's life cycle but may be possible in some areas during operation.

Figure 15: Mitigation Hierarchy

**Impact compensation:** This step is usually applied to remedy unavoidable residual adverse impacts. It can be achieved by:

- rehabilitation of the affected site or environment, for example, by habitat enhancement;
- restoration of the affected site or environment to its previous state or better; and
- replacement of the same resource values at another location (off-set), for example, by wetland engineering to provide an equivalent area to that lost to drainage or infill.

## **7 ASSESSMENT OF POTENTIAL IMPACTS AND POSSIBLE MITIGATION MEASURES**

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### ***7.1 INTRODUCTION***

This Chapter describes the potential impacts on the biophysical and socio-economic environments, which may occur due to the proposed activities described in Chapter 4. These include potential impacts, which may arise during the operation of the proposed development (i.e. long-term impacts) as well as the potential construction related impacts (i.e. short to medium term). The assessment of potential impacts will help to inform and confirm the selection of the preferred layouts to be submitted to MEFT: DEAF for consideration. In turn, MEFT: DEAF's decision on the environmental acceptability of the proposed project and the setting of conditions of authorisation (should the project be authorised) will be informed by this chapter, amongst other information, contained in this EA Report.

The baseline and potential impacts that could result from the proposed development are described and assessed with potential mitigation measures recommended. Finally, comment is provided on the potential cumulative impacts which could result should this development, and others like it in the area, be approved.

### ***7.2 PLANNING AND DESIGN PHASE IMPACTS***

During the planning and design phase consideration should be given on aspects such as impacts of traffic and existing municipal infrastructure.

#### **7.2.1 Traffic Impacts**

The intended development may have an impact on traffic in the subject area as the sites are currently undeveloped. Once the proposed sites are developed traffic in the area is expected to increase. The traffic is not expected to increase significantly as the erven are in close proximity to an already developed area within the town.

#### **7.2.2 Existing Service Infrastructure Impacts**

The proposed subdivision and rezonings will have little impacts on the existing municipal services, as some of the erven will be connected to the current services as connected to the current buildings on site. The current municipal services (water, sewage and electricity) are sufficient to accommodate the additional erven that cannot be accommodated by the existing services.



### **7.3 CONSTRUCTION PHASE IMPACTS ON THE BIOPHYSICAL ENVIRONMENT**

The construction phase impacts are those impacts on the biophysical and socio-economic environment that would occur during the construction phase. These impacts are inherently temporary in duration but may have longer lasting effects.

#### **7.3.1 Flora and Fauna Impacts (Biodiversity)**

There are trees located on the subject erf. The trees located on the subject site should be accommodated in the proposed use for the area. Trees protected under the Forestry Act 12 of 2001 should be protected within the development and may not be removed without a permit from the local Department of Forestry.

It is anticipated that the proposed development area and associated infrastructure (e.g. water, sewage, access route, etc.) would have localised negative implications on the environment and associated fauna and flora should the proposed mitigation measures as outlined in the EMP be enforced.

#### **7.3.2 Surface and Ground Water Impacts**

Surface and groundwater impacts may be encountered during the construction and operation phase, especially if development takes place within the rainy season. The risk of contaminating such water sources can be increased by accidental spillage of oils and fuels and any other equipment used during construction. This risk is minimized by the fact that the construction phase will be a short-term activity.

#### **7.3.3 Soil Erosion Impacts**

Given the characteristics of the proposed site, soil erosion is likely to be encountered especially if construction will take place during the rainy season.

### **7.4 CONSTRUCTION PHASE IMPACTS ON THE SOCIO-ECONOMIC ENVIRONMENT**

#### **7.4.1 Heritage impacts**

Erf 20, Katima Mulilo is not located in a Heritage Protection Zone, but the historical monument located on Erf 20, Katima Mulilo is accommodated within the proposed development. Thus, there will be no impact on the heritage resources of the area. The project management should however be made aware of the provisions of the National Heritage Act regarding the prompt reporting of archaeological finds. Section 3.1.2 provides an overview of the archaeological and heritage context of the town and region.

#### **7.4.2 Health, Safety and Security Impacts**

Due to the demand for construction workers during the construction of the proposed project an influx of migrant workforce who will require temporary accommodation in Katima Mulilo might be experienced. Experience with other construction projects in a developing-world context has shown that, where migrant construction workers have the opportunity to interact with the local community, a significant risk is created for the development of social conditions and sexual behaviors that contribute to the spread of HIV and AIDS.

In response to the threat the pandemic poses, MEFT has developed a policy on HIV and AIDS. This policy, which was developed with support from USAID, GTZ and the German Development Fund, provides for a non-discriminatory work environment and for workplace programs managed by a Ministry-wide committee. The MEFT has also recently initiated a programme aimed at mainstreaming HIV and gender issues into environmental impact assessments.

#### **7.4.3 Traffic Impacts**

Traffic is expected to increase during the construction phase of the project in areas where construction will take place. A number of trucks and other heavy machinery will be required to deliver, handle and position construction materials as well as to remove spoil material. Not only will the increase in traffic result in associated noise impacts, but it will also impact on the roads in the area.

#### **7.4.4 Noise Impacts**

Construction may result in associated noise impacts. These noise impacts will mainly be associated with construction machinery and construction vehicles. The impact is however limited mainly to the construction period only.

#### **7.4.5 Dust and Emission Impacts**

Excavation and stockpiles during the construction phase could result in dust impacts, if not managed correctly. Dust could impact negatively on the health of the nearby community if mitigation measures are not implemented. Dust impacts are primarily associated with the construction phase.

#### **7.4.6 Municipal Services**

The construction phase will result in additional people on-site, who will require provision of the following services:

- Potable water for domestic (ablution and drinking) and construction purposes.
- Temporary toilets during the construction phase.
- Solid waste management (domestic and construction waste).

These services if not managed well are likely to create an opportunity for water wastage; litter; solid and human waste pollution.

#### **7.4.7 Storage and Utilisation of Hazardous Substances**

Hazardous substances are regarded by the Hazardous Substance Ordinance (No. 14 of 1974) as those substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances. During the construction period, the use and storage of these types of hazardous substances, such as shutter oil, curing compounds, types of solvents, primers and adhesives and diesel, on-site could have negative impacts on the surrounding environment if these substances spill and enter the environment.

#### **7.4.8 Waste Impacts**

During construction waste may be generated on site. Waste generated during construction must be disposed of at the nearest approved landfill site.

### **7.5 OPERATIONAL PHASE IMPACTS**

The operational phase impacts are those impacts on the biophysical and socio-economic environment that would occur during the operational phase of the proposed project and are inherently long-term in duration.

#### **7.5.1 Visual and Sense of Place Impacts**

The extent of this disturbance will depend on how highly the interested and affected parties valued the initial aesthetic quality of the site. The intended activities for the proposed site may alter the sense of place for the existing community and property owners situated in close proximity to the site, as well as the residents of Katima Mulilo who frequent the site.

#### **7.5.2 Noise Impacts**

The operational activities may result in associated noise impacts, depending on the exact type of activities taking place on the properties. However due to the nature of the land uses proposed for the subject even it is not expected that the noise levels will be significant if managed well.

### 7.5.3 Emission Impacts

The air quality in the area is considered to be fairly good. Additional emissions are not expected due to the land uses that are intended for the site.

### 7.5.4 Waste Impacts

Increased amounts of waste may be generated as a result of the operational activities at the sites. Effective waste management on site should be practiced as per the recommendations in the EMP.

### 7.5.5 Social Impacts

Accommodation establishments has positive socio-economic impacts as it sustains both the owners of the property, and the people employed there. It forms an important part of the tourism sector of the town of Katima Mulilo and contributes to the local economy, by providing temporary accommodation to the holiday goers that visit this town.

The “General Residential” erven will also have a positive impact on the socio-economic aspect of the town, as it will allow Council to generate an additional income once the erven are sold.

## 7.6 CUMULATIVE IMPACTS

The cumulative impact of the proposed developments regarding the degradation of the project area is very difficult to rate. If all proposed mitigation measures are however in place to minimise the overall impacts then the cumulative impact can be expected to be rated as **Medium-Low (negative)** for the proposed developments.

## 7.7 ENVIRONMENTAL MANAGEMENT PLAN

An Environmental Management Plan (EMP) is contained in **Annexure F** of this report. The purpose of the EMP is to outline the type and range of mitigation measures that should be implemented during the construction, operation and decommissioning phases of the project to ensure that negative impacts associated with the development are avoided or mitigated.

## 7.8 SUMMARY OF POTENTIAL IMPACTS

A summary of all the potential impacts from the proposed project assessed above is included in **Table 10**. The **Tables 11 – 13** provide a summary of the mitigation measures proposed for the impacts. While some difference in magnitude of the potential impacts would result from the proposed alternatives this difference was not considered to be significant for any of the potential impacts. As such, the table below applies to all proposed alternatives.

**Table 10:** Summary of the significance of the potential impacts

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	Significance	Probability	Confidence	Reversibility	Cumulative impact
<b>PLANNING AND DESIGN PHASE</b>										
<b>1. Traffic Impacts</b>	Erf 20 Katima Mulilo	No mitigation	Local	Medium-Low	Short term	Medium	Probable	Certain	Reversible	
		Mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
<b>CONSTRUCTION PHASE</b>										
<b>1. Biodiversity (Fauna and Flora)</b>	Erf 20 Katima Mulilo	No mitigation	Local	Medium-Low	Short term	Low	Probable	Certain	Reversible	
		Mitigation	Local	Low	Short term	Very Low	Probable	Certain	Reversible	
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
<b>2. Surface &amp; ground water</b>	Erf 20 Katima Mulilo	No mitigation	Local	Medium	Short term	Medium	Probable	Certain	Reversible	
		Mitigation	Local	Low	Short term	Medium - low	Probable	Certain	Reversible	
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
<b>3. Soil erosion</b>	Erf 20 Katima Mulilo	No mitigation	Local	Medium	Short term	Medium - low	Probable	Certain	Reversible	
		Mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	Significance	Probability	Confidence	Reversibility	Cumulative impact
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
<b>4. Heritage</b>	Erf 20 Katima Mulilo	No mitigation	Local	Very low	Short term	Very low	Probable	Certain	Irreversible	
		Mitigation	Local	Negligible	Short term	Negligible	Probable	Certain	Irreversible	
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
<b>5. Health, safety and security</b>	Erf 20 Katima Mulilo	No mitigation	Local	Medium-Low	Short term	Medium-Low	Probable	Certain	Reversible	
		Mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
<b>6. Traffic impacts</b>	Erf 20 Katima Mulilo	No mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	
		Mitigation	Local	Very low	Short term	Very low	Probable	Certain	Reversible	
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
<b>7. Noise impacts</b>	Erf 20 Katima Mulilo	No mitigation	Local	Medium	Short term	Medium - low	Probable	Certain	Reversible	
		Mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
<b>8. Emissions impacts</b>	Erf 20 Katima Mulilo	No mitigation	Local	Medium	Short term	Low	Probable	Certain	Reversible	
		Mitigation	Local	Low	Short term	Very Low	Probable	Certain	Reversible	

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	Significance	Probability	Confidence	Reversibility	Cumulative impact
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
9. Municipal services	Erf 20 Katima Mulilo	No mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	
		Mitigation	Local	Very low	Short term	Very low	Probable	Certain	Reversible	
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
10. Waste	Erf 20 Katima Mulilo	No mitigation	Local	Low	Short term	Medium	Probable	Certain	Reversible	
		Mitigation	Local	Very low	Short term	Low	Probable	Certain	Reversible	
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
11. Hazardous Substances	Erf 20 Katima Mulilo	No mitigation	Local	Low	Short term	Medium	Probable	Certain	Reversible	
		Mitigation	Local	Very low	Short term	Low	Probable	Certain	Reversible	
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	
<b>OPERATIONAL PHASE</b>										
1. Visual & sense of place	Erf 20 Katima Mulilo	No mitigation	Local	Medium	Medium term	Medium	Probable	Certain	Reversible	
		Mitigation	Local	Medium-Low	Medium term	Medium-Low	Probable	Certain	Reversible	

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	Significance	Probability	Confidence	Reversibility	Cumulative impact
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	
<b>2. Noise</b>	Erf 20 Katima Mulilo	No mitigation	Local	Medium-Low	Medium term	Medium-Low	Probable	Certain	Reversible	
		Mitigation	Local	Low	Medium term	Low	Probable	Certain	Reversible	
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	
<b>3. Emissions</b>	Erf 20 Katima Mulilo	No mitigation	Local	Medium-Low	Medium term	Low	Probable	Certain	Reversible	
		Mitigation	Local	Low	Medium term	Very Low	Probable	Certain	Reversible	
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	
<b>4. Social impact</b>	Erf 20 Katima Mulilo	No mitigation	Local	Medium	Long term	Medium (+)	Probable	Probable	Reversible	
		Mitigation	Local	Medium	Long term	Medium (+)	Probable	Probable	Reversible	
	No go	No mitigation	Local	Neutral	Long term	Neutral	Probable	Probable	Reversible	
		Mitigation	Local	Neutral	Long term	Neutral	Probable	Probable	Reversible	



**Table 11:** Proposed mitigation measures for the planning and design phase

<b>PLANNING AND DESIGN PHASE IMPACTS</b>	
<b>Impact</b>	<b>Mitigation Measures</b>
<b>Traffic</b>	<ul style="list-style-type: none"> <li>• Ensure that road junctions have good sightlines.</li> <li>• Provide formal road crossings at relevant areas.</li> <li>• Provide for speed reducing interventions such as speed bumps at relevant road sections.</li> </ul>
<b>Existing Service Infrastructure</b>	<ul style="list-style-type: none"> <li>• It is recommended that alternative and renewable sources of energy be explored and introduced into the proposed development to reduce dependency on the grid.</li> <li>• Solar geysers and panels should be considered to provide for general lighting and heating of water and buildings.</li> <li>• Water saving mechanisms should be considered for incorporation within the developments in order to further reduce water demands.</li> <li>• Re-use of treated wastewater should be considered wherever possible to reduce the consumption of potable water.</li> </ul>

**Table 12:** Proposed mitigation measures for the construction phase

<b>CONSTRUCTION PHASE IMPACTS</b>	
<b>Impact</b>	<b>Mitigation Measures</b>
<b>Flora and Fauna</b>	<ul style="list-style-type: none"> <li>• Adapt the proposed developments to the local environment – e.g. small adjustments to the site layout could avoid potential features such as water bodies and vegetation.</li> <li>• Prevent the destruction of protected and endemic plant species.</li> <li>• Prevent contractors from collecting wood, veld food, etc. during the construction phase.</li> <li>• Do not clear cut the entire development site, but rather keep the few individual trees/shrubs not directly affecting the developments as part of the landscaping.</li> <li>• The plants that are to be kept should be clearly marked with “danger tape” to prevent accidental removal.</li> </ul>

CONSTRUCTION PHASE IMPACTS	
Impact	Mitigation Measures
	<ul style="list-style-type: none"> <li>• Regular inspection of the marking tool should be carried out.</li> <li>• The very important plants should be “camped off” to prevent the unintended removal or damage to these trees.</li> <li>• Recommend the planting of local indigenous species of flora as part of the landscaping as these species would require less maintenance than exotic species.</li> <li>• Transplant removed plants where possible, or plant new plants in lieu of those that have been removed.</li> <li>• Prevent the introduction of potentially invasive alien ornamental plant species such as; <i>Lantana</i>, <i>Opuntia</i>, <i>Prosopis</i>, <i>Tecoma</i>, etc.; as part of the landscaping as these species could infest the area further over time.</li> </ul>
<b>Surface and Ground Water Impacts</b>	<ul style="list-style-type: none"> <li>• It is recommended that construction takes place outside of the rainy season in order to limit flooding on site and surface water pollution.</li> <li>• No dumping of waste products of any kind in or in close proximity to surface water bodies.</li> <li>• Heavy construction vehicles should be kept out of any surface water bodies and the movement of construction vehicles should be limited where possible to the existing roads and tracks.</li> <li>• Ensure that oil/ fuel spillages from construction vehicles and machinery are minimised and that where these occur, that they are appropriately dealt with.</li> <li>• Drip trays must be placed underneath construction vehicles when not in use to contain all oil that might be leaking from these vehicles.</li> <li>• Contaminated runoff from the construction sites should be prevented from entering the surface and ground water bodies.</li> <li>• All materials on the construction site should be properly stored.</li> <li>• Disposal of waste from the sites should be properly managed and taken to the designated landfill site.</li> <li>• Construction workers should be given ablution facilities at the construction sites that are located at least <b>30 m</b> away from any surface water and regularly serviced.</li> </ul>

<b>CONSTRUCTION PHASE IMPACTS</b>	
<b>Impact</b>	<b>Mitigation Measures</b>
	<ul style="list-style-type: none"> <li>• Washing of personnel or any equipment should not be allowed on site. Should it be necessary to wash construction equipment these should be done at an area properly suited and prepared to receive and contain polluted waters.</li> </ul>
<b>Soil Erosion</b>	<ul style="list-style-type: none"> <li>• It is recommended that construction takes place outside of the rainy season in order to limit potential flooding and the runoff of loose soil causing further erosion.</li> <li>• Appropriate erosion control structures must be put in place where soil may be prone to erosion.</li> <li>• Checks must be carried out at regular intervals to identify areas where erosion is occurring.</li> <li>• Appropriate remedial actions are to be undertaken wherever erosion is evident.</li> </ul>
<b>Heritage</b>	<ul style="list-style-type: none"> <li>• The project management should be made aware of the provisions of the National Heritage Act regarding the prompt reporting of archaeological finds.</li> <li>• In the event of such finds, construction must stop, and the project management or contractors should notify the National Heritage Council of Namibia immediately.</li> </ul>
<b>Health, Safety and Security</b>	<ul style="list-style-type: none"> <li>• Construction personnel should not overnight at the site, except the security personnel.</li> <li>• Ensure that all construction personnel are properly trained depending on the nature of their work.</li> <li>• Provide for a first aid kit and a properly trained person to apply first aid when necessary.</li> <li>• Restrict unauthorised access to the site and implement access control measures.</li> <li>• Clearly demarcate the construction site boundaries along with signage of “no unauthorised access”.</li> <li>• Clearly demarcate dangerous areas and no-go areas on site.</li> <li>• Staff and visitors to the site must be fully aware of all health and safety measures and emergency procedures on site.</li> <li>• The contractor must comply with all applicable occupational health and safety requirements.</li> <li>• The workforce should be provided with all necessary Personal Protective Equipment where appropriate.</li> </ul>

<b>CONSTRUCTION PHASE IMPACTS</b>	
<b>Impact</b>	<b>Mitigation Measures</b>
<b>Traffic</b>	<ul style="list-style-type: none"> <li>• Limit and control the number of access points to the site.</li> <li>• Ensure that road junctions have good sightlines.</li> <li>• Construction vehicles need to be in a road worthy condition and maintained throughout the construction phase.</li> <li>• Transport the materials in the least number of trips as possible.</li> <li>• Adhere to the speed limit.</li> <li>• Implement traffic control measures where necessary.</li> </ul>
<b>Noise</b>	<ul style="list-style-type: none"> <li>• No amplified music should be allowed on site.</li> <li>• Inform immediate neighbours of construction activities to commence and provide for continuous communication between the neighbours and contractor.</li> <li>• Limit construction times to acceptable daylight hours. Construction should be limited to normal working days and office hours from 08h00 to 17h00 and 7:30 – 13:00 on Saturdays.</li> <li>• Install technology such as silencers on construction machinery if noise levels are significantly high.</li> <li>• Provide ear plugs and earmuffs to staff undertaking the noisy activity or working within proximity thereof or alternatively, all construction workers should be equipped with ear protection equipment.</li> <li>• Do not allow the use of horns as a general communication tool but use it only where necessary as a safety measure.</li> </ul>
<b>Dust and Emission</b>	<ul style="list-style-type: none"> <li>• It is recommended that dust suppressants such as Duster be applied to all the construction clearing activities to ensure at least 50% control efficiency on all the unpaved roads and reduce water usage.</li> <li>• Construction vehicles to only use designated roads.</li> <li>• During high wind conditions the contractor must make the decision to cease works until the wind has calmed down.</li> <li>• Vehicles travelling to and from the construction site must adhere to the speed limits so as to avoid producing excessive dust. A speed limit of 40 km/hr should be set for all vehicles travelling over exposed</li> </ul>

<b>CONSTRUCTION PHASE IMPACTS</b>	
<b>Impact</b>	<b>Mitigation Measures</b>
	<p>areas</p> <ul style="list-style-type: none"> <li>• Cover any stockpiles with plastic to minimise windblown dust.</li> <li>• Provide workers with dust masks.</li> </ul>
<b>Waste</b>	<ul style="list-style-type: none"> <li>• It is recommended that waste from the temporary toilets be disposed of at an approved Wastewater Treatment Works.</li> <li>• A sufficient number of waste bins should be placed around the site for the general waste.</li> <li>• A sufficient number of skip containers for the heavy waste and rubble should be provided for around the site.</li> <li>• Ensure that no excavated soil, refuse or building rubble generated on site are placed or dumped on surrounding properties or land</li> <li>• Solid waste will be collected and disposed of at an appropriate local land fill or an alternative approved site, in consultation with the local authority.</li> <li>• Strictly, no burning of waste on the site or at the disposal site is allowed as it possess environmental and public health impacts</li> </ul>
<b>Hazardous Substances</b>	<ul style="list-style-type: none"> <li>• Storage of the hazardous substances in a bunded area, with a volume of 120 % of the largest single storage container or 25 % of the total storage containers whichever is greater.</li> <li>• Refuel vehicles in designated areas that have a protective surface covering and utilise drip trays for stationary plant.</li> </ul>

**Table 13:** Proposed mitigation measures for the operational phase

<b>OPERATIONAL PHASE IMPACTS</b>	
<b>Impact</b>	<b>Mitigation Measures</b>
<b>Visual and Sense of Place</b>	<ul style="list-style-type: none"> <li>• It is recommended that more 'green' technologies be implemented within the architectural designs and building materials of the development where possible in order to minimise the visual prominence of such a development within the more natural surrounding landscape.</li> <li>• Natural colours and building materials such as wood and stone should be incorporated as well as the use of indigenous vegetation in order to help beautify the development.</li> <li>• Visual pollutants can further be prevented through mitigations (i.e. keep existing trees, introduce tall indigenous trees; keep structures unpainted and minimise large advertising billboards).</li> <li>• Ensure proper and regular maintenance of the area.</li> <li>• No illegal dumping of waste should be allowed</li> </ul>
<b>Noise</b>	<ul style="list-style-type: none"> <li>• Do not allow commercial activities that generate excessive noise levels.</li> <li>• Continuous monitoring of noise levels should be conducted to make sure the noise levels does not exceed acceptable limits.</li> <li>• No activity having a potential noise impact should be allowed after 18:00 hours if possible.</li> </ul>
<b>Emissions</b>	<ul style="list-style-type: none"> <li>• Consider tarring of the internal road network.</li> <li>• Manage activities that generate emissions.</li> </ul>
<b>Waste</b>	<ul style="list-style-type: none"> <li>• Solid waste will be collected from site regularly.</li> <li>• Waste should be disposed of at an appropriate local land fill, in consultation with the local authority.</li> <li>• No waste may be buried or burned.</li> </ul>
<b>Social Impacts</b>	No specific mitigation measures are required, only that the local community be consulted in terms of possible job creation opportunities and must be given first priority if unspecialised job vacancies are available.

## 8 CONCLUSION

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*The purpose of this Chapter is to briefly summarise and conclude the FESR and describe the way forward.*

### 8.1 CONSTRUCTION PHASE IMPACTS

With reference to **Table 10**, none of the negative construction phase impacts were deemed to have a high significance impact on the environment. The construction impacts were assessed to a **Medium to Low (negative)** significance, without mitigation measures. With the implementation of the recommended mitigation measures in Chapter 7 as well as in the EMP, the significance of the construction phase impacts is likely to be reduced to a **Low (negative)**.

### 8.2 OPERATIONAL PHASE

The most significant operational phase impact **medium (positive)** is the social impact. This is as a result of the potential job opportunities during construction as well the increased development within the area. Furthermore, the community of Katima Mulilo are expected to benefit from the new accommodation facilities, general residentials due to it providing housing and additional amenities which may not be readily available in the town.

### 8.3 LEVEL OF CONFIDENCE IN ASSESSMENT

With reference to the information available at the project planning cycle, the confidence in the environmental assessment undertaken is regarded as being acceptable for the decision-making, specifically in terms of the environmental impacts and risks. The Environmental Assessment Practitioner believes that the information contained within this FESR is adequate to allow MEFT: DEAF to be able to determine the environmental acceptability of the proposed project.

It is acknowledged that the project details will evolve during the detailed design and construction phases. However, these are unlikely to change the overall environmental acceptability of the proposed project and any significant deviation from what was assessed in this FESR should be subject to further assessment. If this was to occur, an amendment to the Environmental Authorisation may be required in which case the prescribed process would be followed.

### 8.4 MITIGATION MEASURES

With the implementation of the recommended mitigation measures in Chapter 7 as well as in the EMP, the significance of the construction and operational phase impacts is likely to be reduced to a **Low (negative)**. **It is further extremely important to include an Environmental Control Officer (ECO)**

**on site during the construction phase of the proposed project to ensure that all the mitigation measures discussed in this report and the EMP are enforced.**

It is noted that where appropriate, these mitigation measures and any others identified by MEFT: DEAF could be enforced as Conditions of Approval in the Environmental Authorisation, should MEFT: DEAF issue a positive Environmental Authorisation.

### **8.5 OPINION WITH RESPECT TO THE ENVIRONMENTAL AUTHORISATION**

Regulation 15(j) of the EMA, requires *that the EAP include an opinion as to whether the listed activity must be authorised and if the opinion is that it must be authorised, any condition that must be made in respect of that authorisation.*

It is recommended that this project be authorised because should the development not proceed the subject area will remain vacant and undeveloped. The local community is expected to benefit from the development as a result of the potential job opportunities during construction as well as the increased development within the area. Furthermore, the community of Katima Mulilo are further expected to benefit from the new township which will make available much needed residential erven. The significance of the social impact was therefore deemed to be **Medium (positive)**.

The “no go” alternative on the other hand was deemed to have a **High (negative)** impact, as all the social benefits resulting from the development would not be realised.

The significance of negative impacts can be reduced with effective and appropriate mitigation provided in this report and the EMP. If authorised, the implementation of an EMP should be included as a condition of approval.

### **8.6 WAY FORWARD**

The FESR is herewith submitted to MEFT: DEAF for consideration and decision making. If MEFT: DEAF approves, or requests additional information / studies all registered I&APs and stakeholders will be kept informed of progress throughout the assessment process.



## 9 REFERENCES

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