

# *Final Environmental Assessment Scoping Report for:*

November 2021

*Subdivision, Permanent Closure  
and Consolidation of Erf A/815  
and Erf 809, Lüderitz.*

**APP-003319**

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## PROJECT DETAILS

<b>Title</b>	Environmental Scoping Report for the: <ul style="list-style-type: none"> <li>Subdivision, Permanent Closure and Consolidation of Erf A/815 and Erf 809, Lüderitz.</li> </ul>		
<b>Report Status</b>	Final		
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## EXECUTIVE SUMMARY

### Introduction

B. C. Biewenga (Kairos Cottage), hereinafter referred to as the proponent intends to undertake the following activities:

- **Subdivision of Erf 815, Lüderitz into Erf A, B and Remainder;**
- **Permanent closure of Erf A/815, Lüderitz as a Public Open Space;**
- **Consolidation of Erf A/815 and Erf 809, Lüderitz into Consolidated Erf X.**

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 and Tourism: Department of Environmental Affairs and Forestry (MEFT: DEAF).

### Project Description

Kairos Cottage, located on Erf 809, Lüderitz serves as a bed and breakfast and is currently encroaching over the boundary of Erf 815, Lüderitz which is a public open space area. The public open space (Erf 809) is not currently being used as a walkway by the public. In order to rectify this encroachment, the following statutory steps need to be undertaken:

- **Subdivision of Erf 815, Lüderitz into Erf A, B and Remainder;**
- **Permanent closure of Erf A/815, Lüderitz as a Public Open Space;**
- **Consolidation of Erf A/815 and Erf 809, Lüderitz into Consolidated Erf X.**

The proponent intends to subdivide Erf 815 into three erven namely Erf A/815, B/815 and the RE/815 as can be observed in **Figure 9** below. This will allow the permanent closure of a portion of the public open space, Erf A/815, to be consolidated with adjacent Erf 809 as indicated in **Figure 10 and 11** below. Erven B/815 and RE/815 will remain public open spaces.

### 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 **10 June 2021**;
- Notices were placed in The New Era and The Sun newspapers dated **10 June 2021 and 17 June 2021**, 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 **1 July 2021**).

The Draft Scoping Report was circulated from the **12<sup>th</sup> of July 2021 until the 26<sup>th</sup> of July 2021** so that the public could review and comment on it. The comment period will remain open until the final scoping report is submitted to MEFT.

### Conclusions and Recommendations

With reference to **Table 7**, 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 7**, 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 existing structure will continue to encroach on the adjacent erf. None of the positive or negative impacts from the proposed development would be realized.

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.

## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	<b>PROJECT BACKGROUND.....</b>	<b>1</b>
1.2	<b>PROJECT LOCATION .....</b>	<b>2</b>
1.3	<b>TERMS OF REFERENCE AND SCOPE OF PROJECT .....</b>	<b>5</b>
1.4	<b>ASSUMPTIONS AND LIMITATIONS .....</b>	<b>5</b>
1.5	<b>CONTENT OF ENVIRONMENTAL ASSESSMENT REPORT .....</b>	<b>5</b>
<b>2</b>	<b>LEGAL FRAMEWORK.....</b>	<b>8</b>
2.1	<b>LEGISLATION RELEVANT TO THE PROPOSED DEVELOPMENT.....</b>	<b>8</b>
<b>3</b>	<b>ENVIRONMENTAL BASELINE DESCRIPTION .....</b>	<b>15</b>
3.1	<b>SOCIAL ENVIRONMENT.....</b>	<b>15</b>
3.1.1	Socio-Economic Context.....	15
<b>4</b>	<b>PROJECT DESCRIPTION .....</b>	<b>21</b>
4.1	<b>PROJECT COMPONENTS.....</b>	<b>21</b>
4.2	<b>ALTERNATIVES .....</b>	<b>21</b>
4.2.1	No – Go Alternative .....	21
4.3	<b>THE PROPOSED DEVELOPMENT .....</b>	<b>21</b>
4.4	<b>ENGINEERING SERVICES AND ACCESS PROVISION .....</b>	<b>24</b>
<b>5</b>	<b>PUBLIC PARTICIPATION PROCESS.....</b>	<b>25</b>
5.1	<b>PUBLIC PARTICIPATION REQUIREMENTS .....</b>	<b>25</b>
5.1.1	Environmental Assessment Phase 2 .....	25
<b>6</b>	<b>ASSESSMENT METHODOLOGY .....</b>	<b>26</b>
6.1	<b>MITIGATION MEASURES .....</b>	<b>28</b>
<b>7</b>	<b>ASSESSMENT OF POTENTIAL IMPACTS AND POSSIBLE MITIGATION MEASURES .....</b>	<b>30</b>
7.1	<b>INTRODUCTION .....</b>	<b>30</b>
7.2	<b>CONSTRUCTION PHASE IMPACTS ON THE BIOPHYSICAL ENVIRONMENT .....</b>	<b>30</b>
7.2.1	Flora and Fauna Impacts (Biodiversity) .....	30
7.2.2	Surface and Ground Water Impacts.....	31
7.2.3	Soil Erosion Impacts .....	31
7.3	<b>CONSTRUCTION PHASE IMPACTS ON THE SOCIO-ECONOMIC ENVIRONMENT.....</b>	<b>31</b>
7.3.1	Heritage impacts .....	31
7.3.2	Health, Safety and Security Impacts .....	31
7.3.3	Traffic Impacts.....	31
7.3.4	Noise Impacts.....	32
7.3.5	Dust and Emission Impacts.....	32
7.3.6	Municipal Services .....	32
7.3.7	Storage and Utilisation of Hazardous Substances.....	32

<b>7.4</b>	<b>OPERATIONAL PHASE IMPACTS</b> .....	<b>33</b>
7.4.1	Impacts on the surrounding area .....	33
7.4.2	Visual Impacts .....	33
7.4.3	Traffic Impacts.....	33
7.4.4	Loss of Public Open Space.....	33
<b>7.5</b>	<b>CUMULATIVE IMPACTS</b> .....	<b>33</b>
<b>7.1</b>	<b>ENVIRONMENTAL MANAGEMENT PLAN</b> .....	<b>33</b>
<b>7.2</b>	<b>SUMMARY OF POTENTIAL IMPACTS</b> .....	<b>34</b>
<b>8</b>	<b>CONCLUSION</b> .....	<b>44</b>
<b>8.1</b>	<b>CONSTRUCTION PHASE IMPACTS</b> .....	<b>44</b>
<b>8.2</b>	<b>OPERATIONAL PHASE</b> .....	<b>44</b>
<b>8.3</b>	<b>LEVEL OF CONFIDENCE IN ASSESSMENT</b> .....	<b>44</b>
<b>8.4</b>	<b>MITIGATION MEASURES</b> .....	<b>44</b>
<b>8.5</b>	<b>OPINION WITH RESPECT TO THE ENVIRONMENTAL AUTHORISATION</b> .....	<b>45</b>
<b>8.6</b>	<b>WAY FORWARD</b> .....	<b>45</b>
<b>9</b>	<b>REFERENCES</b> .....	<b>46</b>

#### LIST OF FIGURES

Figure 1: Locality of Erven 809 and 815, Lüderitz .....	3
Figure 2: Aerial Map of Erven 809 and 815, Lüderitz .....	4
Figure 3: EIA flow Diagram.....	14
Figure 4: Annual average temperature (Acacia Project E1, n.d.).....	17
Figure 5: Average annual Rainfall (Acacia Project E1, n.d.) .....	17
Figure 6: Geology of Namibia (Acacia Project E1, n.d.) .....	18
Figure 7: Groundwater basins and hydrogeological regions in Namibia (Ministry of Agriculture Water and Rural Development, 2011).....	19
Figure 8: Lüderitz Bay Island .....	20
Figure 9: Subdivision of Erf 815, Lüderitz into Erf A, B and Remainder.....	22
Figure 10: Permanent Closure of Erf A/815, Lüderitz as Public Open Space.....	23
Figure 11: Consolidation of Erven 809 and A/815 Lüderitz, into Consolidated Erf X .....	23
Figure 12: Mitigation Hierarchy .....	28

#### LIST OF TABLES

Table 1: List of triggered activities identified in the EIA Regulations which apply to the proposed project.....	1
Table 2: Contents of the Scoping / Environmental Assessment Report.....	5
Table 3: Legislation applicable to the proposed development.....	8
Table 4: Statistics of the Lüderitz Constituency and //Karas Region (Namibia Statistics Agency, 2011).....	15

Table 5: Table of Public Participation Activities.....	25
Table 6: Impact Assessment Criteria.....	26
Table 7: Summary of the significance of the potential impacts .....	35
Table 8: Proposed mitigation measures for the construction phase .....	39
Table 9: Proposed mitigation measures for the operational phase .....	43

#### **LIST OF ANNEXURES**

<b>Annexure A:</b>	Proof of Site Notice
<b>Annexure B:</b>	Proof of Advertisements
<b>Annexure C:</b>	Public Participation process I&AP Database & Registered List Notification Letters and Emails sent of BID Notification Letters and Emails Sent of DESR Available for Comment Comments Received (if any)
<b>Annexure D:</b>	Curriculum Vitae and ID of Environmental Assessment Practitioner
<b>Annexure E:</b>	Environmental Management Plan
<b>Annexure F:</b>	Letter from Lüderitz Town Council

## 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>IBA</b>	Important Bird Area
<b>IUCN</b>	International Union for Conservation of Nature
<b>MEFT</b>	Ministry of Environment, Forestry and Tourism
<b>MEFT: DEA</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>PPP</b>	Public Participation Process
<b>SADC</b>	Southern African Development Community
<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

B. C. Biewenga (Kairos Cottage), hereinafter referred to as the proponent intends to undertake the following activities:

- **Subdivision of Erf 815, Lüderitz into Erf A, B and Remainder;**
- **Permanent closure of Erf A/815, Lüderitz as a Public Open Space;**
- **Consolidation of Erf A/815 and Erf 809, Lüderitz into Consolidated Erf X.**

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).

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

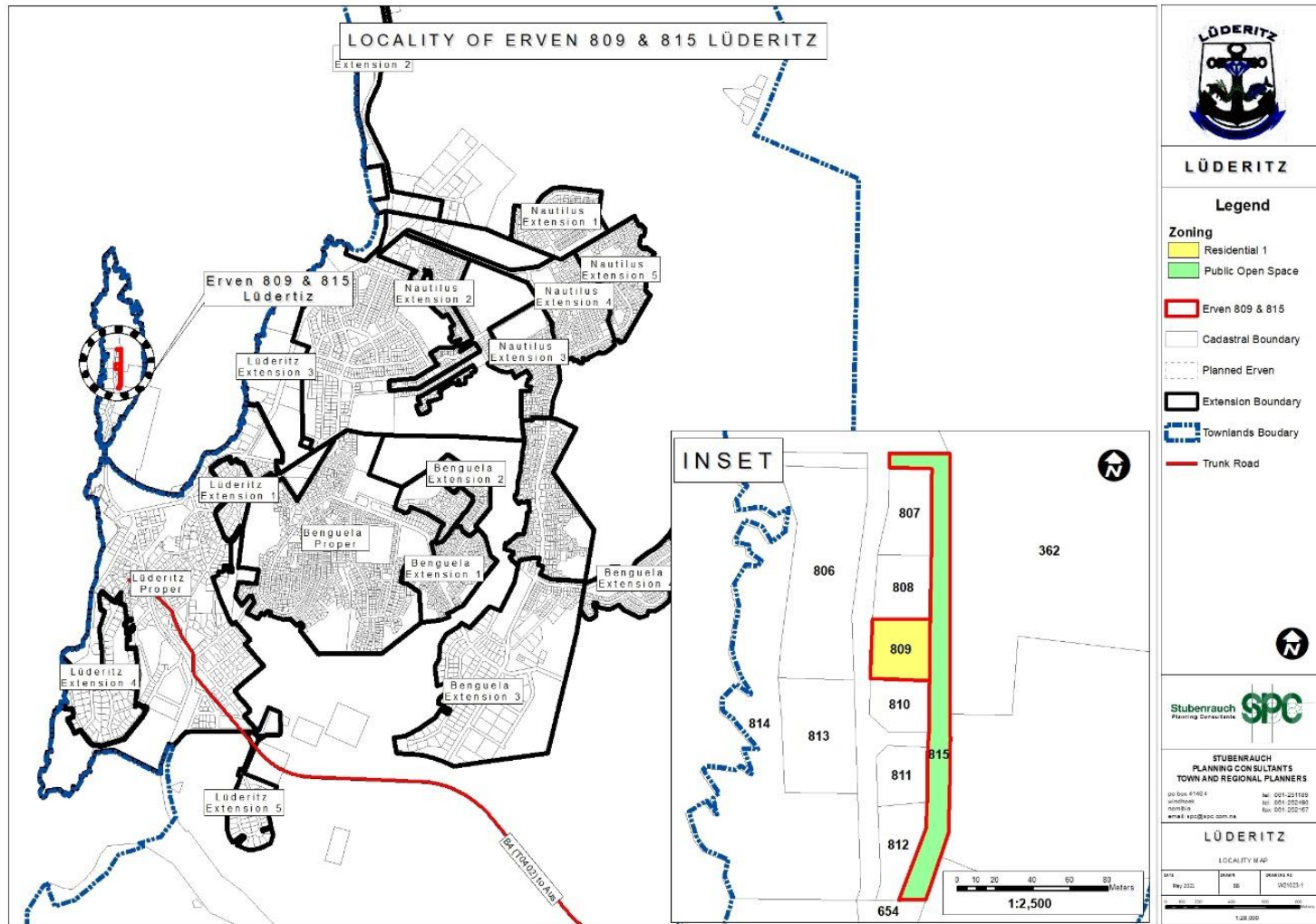
<b>Activity description and No(s):</b>	<b>Description of relevant activity</b>	<b>The portion of the development as per the project description that relates to the applicable listed activity</b>
Activity 5.1 (d)	The rezoning of land from -use for nature conservation or zoned open space to any other land use.	The proposed project includes the permanent closure and rezoning of a public open space.

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 (MEFT: DEA).

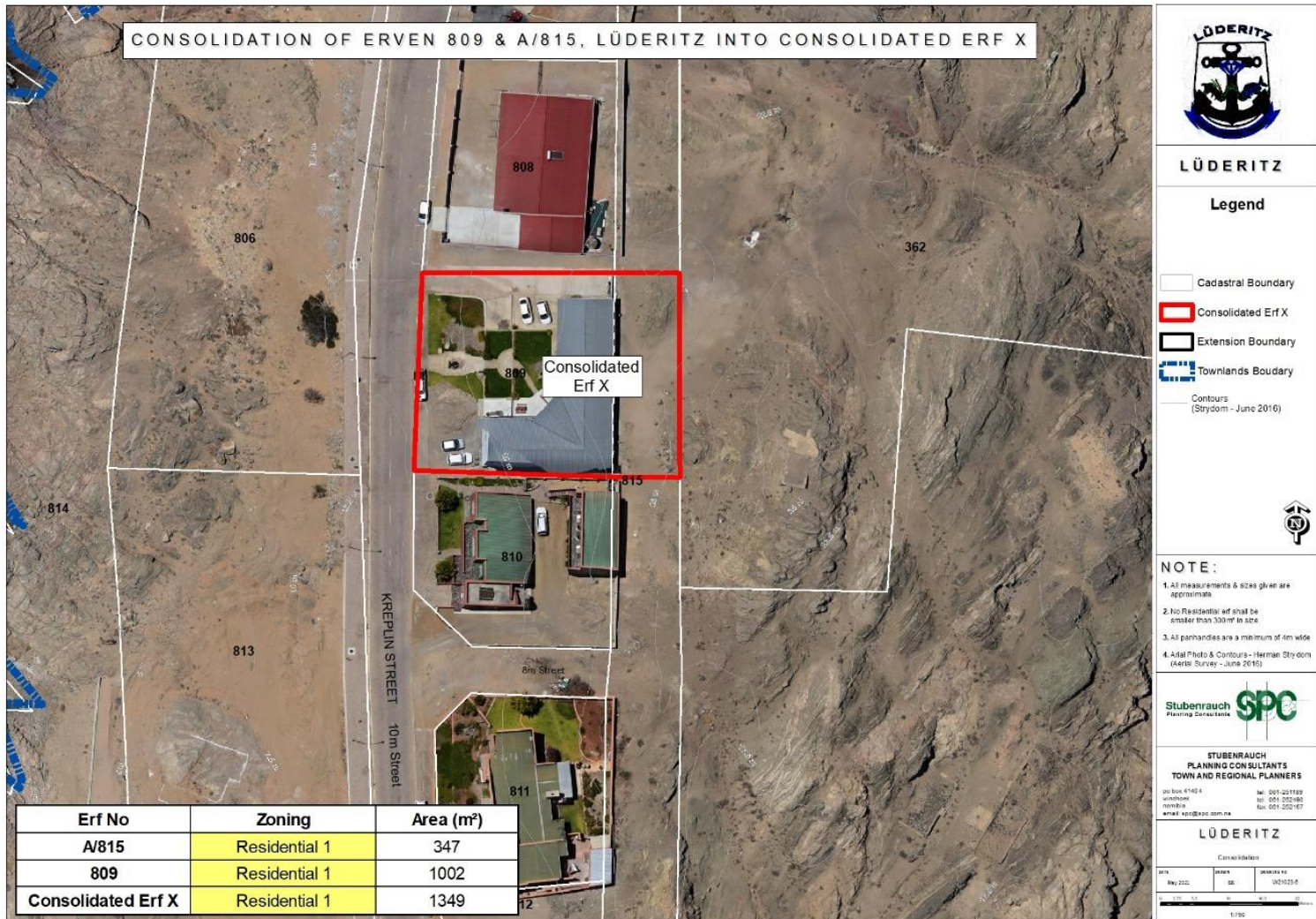
The process will be undertaken in terms of the gazetted Namibian Government Notice No. 30 Environmental Impact Assessment Regulations (herein referred to as EIA Regulations) and the Environmental Management Act (No 7 of 2007) (herein referred to as the EMA). The EIA process will investigate if there 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**

The subject erven are located in Kreplin street in Lüderitz and access will be granted via this existing street and would cater for the proposed traffic. The erf currently accommodates a bed and breakfast building (Kairos Cottage) which is owned by the proponent and is to be extended for the construction of the proposed facility. The subject erven are located in a primarily residential area with a few dwellings located around the erf. Please refer to below locality map (**Figure 1**) and aerial photo (**Figure 2**).



**Figure 1:** Locality of Erven 809 and 815, Lüderitz



**Figure 2:** Aerial Map of Erven 809 and 815, Lüderitz

### 1.3 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 815, Lüderitz into Erf A, B and Remainder;**
- **Permanent closure of Erf A/815, Lüderitz as a Public Open Space;**
- **Consolidation of Erf A/815 and Erf 809, Lüderitz into Consolidated Erf X.**

### 1.4 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 Lüderitz were however taken into consideration with the design perspective.

### 1.5 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 D</b>
8 (b)	A description of the proposed activity;	Refer to Chapter 4
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

<b>Section</b>	<b>Description</b>	<b>Section of FESR/ Annexure</b>
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 that the proposed activity or alternatives have on the environment and on the community that may be affected by the activity;	Refer to Chapter 4
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	Refer to Chapter 7

Section	Description	Section of FESR/ Annexure
	construction, erection or decommissioning associated with the undertaking of the proposed listed activity;	
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 E</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.	The following listed activities are triggered by the proposed development:  <b>Activity 5.1 (d)</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 must 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.
Township and Division of Land Ordinance 11 of 1963	The Townships and Division of Land Ordinance regulates subdivisions of portions of land falling within a Local Authority area	In terms of Section 19 such applications are to be submitted to NAMPAB and Townships Board respectively.
Urban and Regional Planning Act No 5 of 2018	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	The proposed development must adhere to the provisions regarding the subdivision and rezoning of land.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	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, 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	Contractors and users of the proposed development are to

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	<p>public and environmental health system in Namibia. It covers notification, prevention and control of diseases and sexually transmitted infections; maternal, ante-natal and neo-natal care; water and food supplies; infant nutrition; waste management; health nuisances; public and environmental health planning and reporting. It repeals the Public Health Act 36 of 1919 (SA GG 979).</p>	<p>comply with these legal requirements.</p>
<p>Nature Conservation Ordinance no. 4 of 1975</p>	<p>Chapter 6 provides for legislation regarding the protection of indigenous plants</p>	<p>Indigenous and protected plants must be managed within the legal confines.</p>
<p>Water Quality Guidelines for Drinking Water and Wastewater Treatment</p>	<p>Details specific quantities in terms of water quality determinants, which wastewater should be treated to before being discharged into the environment</p>	<p>These guidelines are to be applied when dealing with water and waste treatment</p>
<p>Environmental Assessment Policy of Namibia (1995)</p>	<p>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.</p>	<p>This EIA considers this term of Environment.</p>
<p>Water Resources Management Act No. 11 of 2013</p>	<p>Part 12 deals with the control and protection of groundwater</p> <p>Part 13 deals with water pollution control</p>	<p>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.</p>

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
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 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.	Protected tree and plant species as per the Forest Act No 12 of 2001 and Forest Regulations of 2015 may not be removed without a permit from the Ministry of Agriculture, Water and Forestry.
Atmospheric Pollution Prevention Ordinance No 45 of 1965	Part II - control of noxious or offensive gases, Part III - atmospheric pollution by smoke, Part IV - dust control, and Part V - air pollution by fumes emitted by vehicles.	The development should consider the provisions outlined in the act. The proponent should apply for an Air Emissions permit from the Ministry of Health and Social Services (if needed).

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 3** below) provides an outline of the EIA process to be followed.

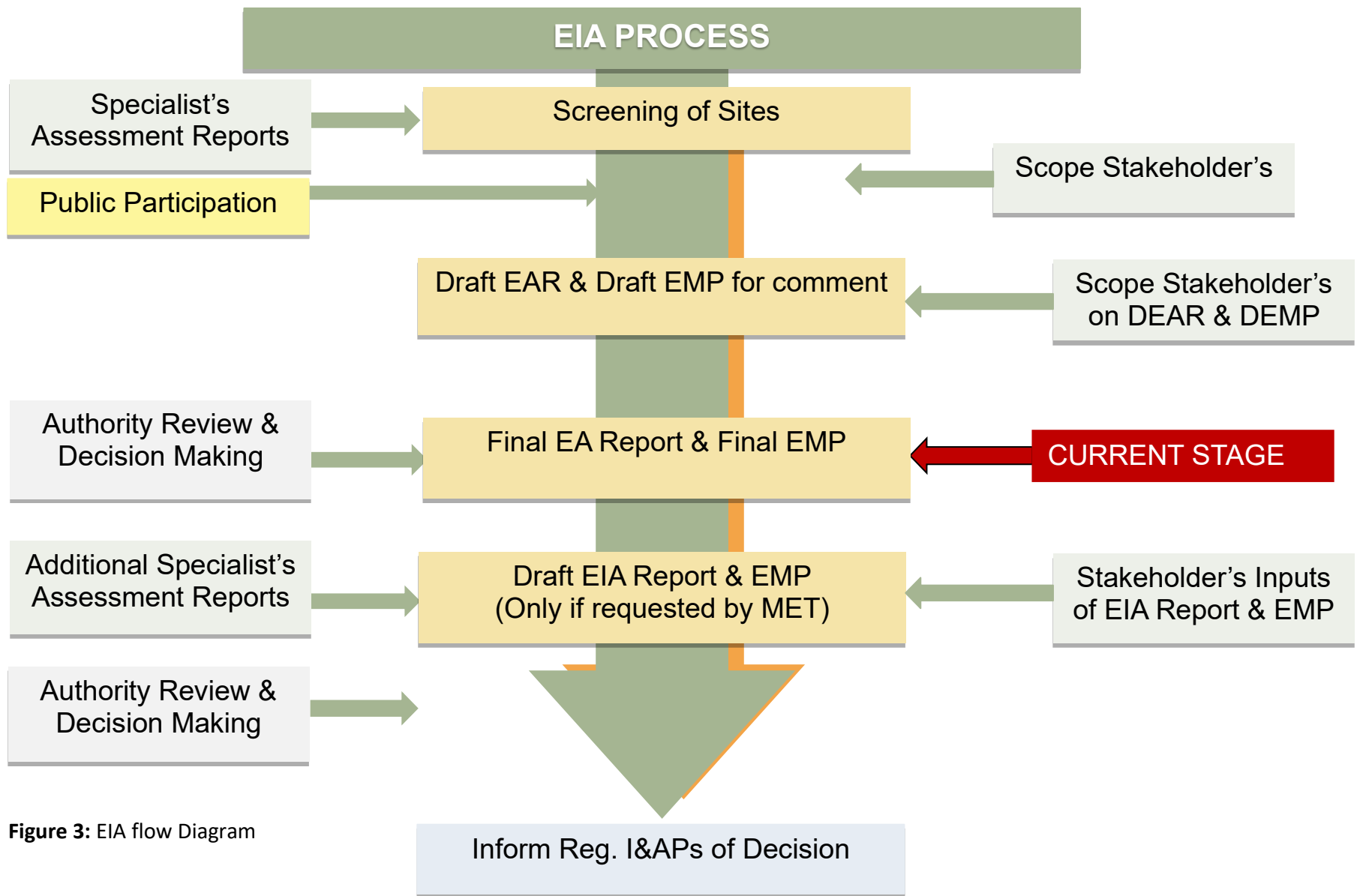


Figure 3: EIA flow Diagram

### 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, 2013), and presented from a local and regional perspective.

**Table 4:** Statistics of the Lüderitz Constituency and //Karas Region (Namibia Statistics Agency, 2011)

<b>LÜDERITZ CONSTITUENCY</b>	
<b>ATTRIBUTE</b>	<b>INDICATOR</b>
Population	13 859
Females	6 887
Males	6 972
Population under 5 years	10%
Population aged 5 to 14 years	20%
Population aged 15 to 59 years	66%
Population aged 60 years and above	4%
Female: male ratio	100:101
Literacy rate of 15 years old and above	98%
People above 15 years who have never attended school	5%
People above 15 years who are currently attending school	10%
People above 15 years who have left school	82%
People aged 15 years and above who belong to the labour force	78%
Population employed	72%
Homemakers	7%
Students	78%
Retired or old age income recipients	45%
Income from pension	5%
Income from business and non-farming activities	8%
Income from farming	1%
Income from cash remittance	3%
Wages and salaries	79%
Main Language	Afrikaans Languages- 36%
<b>//KARAS REGION</b>	
<b>ATTRIBUTE</b>	<b>INDICATOR</b>
Population	77,421
Population aged 60 years and above	6%
Population aged 5 to 14 years	19%
Population aged 15 to 59 years	63%

### 3.1.2 Archaeological and Heritage Context

Lüderitz falls within a historical diamond mining area and some artefacts of historical importance may still be located in the area. Other archaeological sites in Lüderitz consist mainly of small surface scatters of stone artefacts and artifact debris, as well as small shell middens composed mainly of various limpet species, with osteological evidence of penguin, fish and seals on the more recent sites (Kinahan, 2016). Some of these sites are also associated with the nomadic pastoralist pottery dating to within the last 2000 years. In addition, several small rock shelter sites have been investigated and a number of burial sites have been excavated.

It is unlikely that the proposed project area will have any significant archaeological resources due to the fact that no major historical activity took place within close proximity to the sites. An accidental find procedure may, however, be required in the EMP.

## 3.2 BIO-PHYSICAL ENVIRONMENT

### 3.2.1 Air Quality

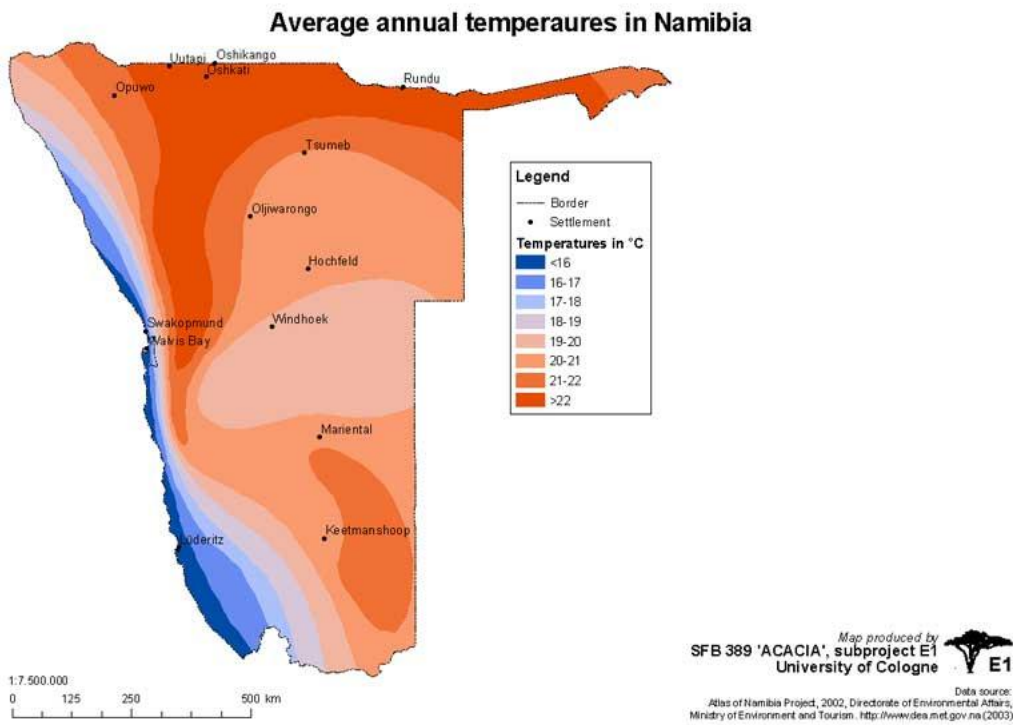
Air quality in Lüderitz is considered to range between good and moderate, which may be as a result of anthropogenic activities within the town. With any construction activity the creation of fugitive dust will result which may be both a nuisance and a health risk. Dust may be generated by a variety of activities on site but taking the existing background dust levels into consideration, the increase resulting from this activity will be negligible under normal circumstances or when considered in combination with other activities.

### 3.2.2 Climate

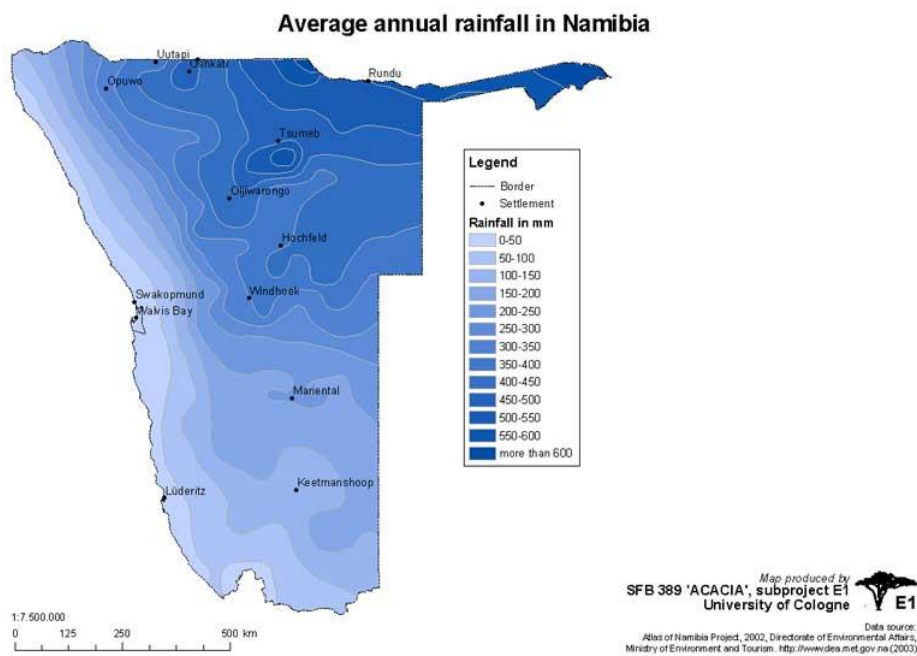
Lüderitz has a desert climate (BWk, according to the Köppen climate classification), relatively dry with an annual average temperature below 16°C per year as indicated in **Figure 4**.

The median annual rainfall varies between about 0-50mm as indicated in **Figure 5**. Rainfall in the area is highly unpredictable and rainfall events are equally unlikely throughout the year. Windy and cold conditions can occur due to the cold South Atlantic current on the coast. Summer rains occur in the area and coastal fog plays an important role in the moisture regime of many organisms (Mendelsohn, *et al.*, 2002).





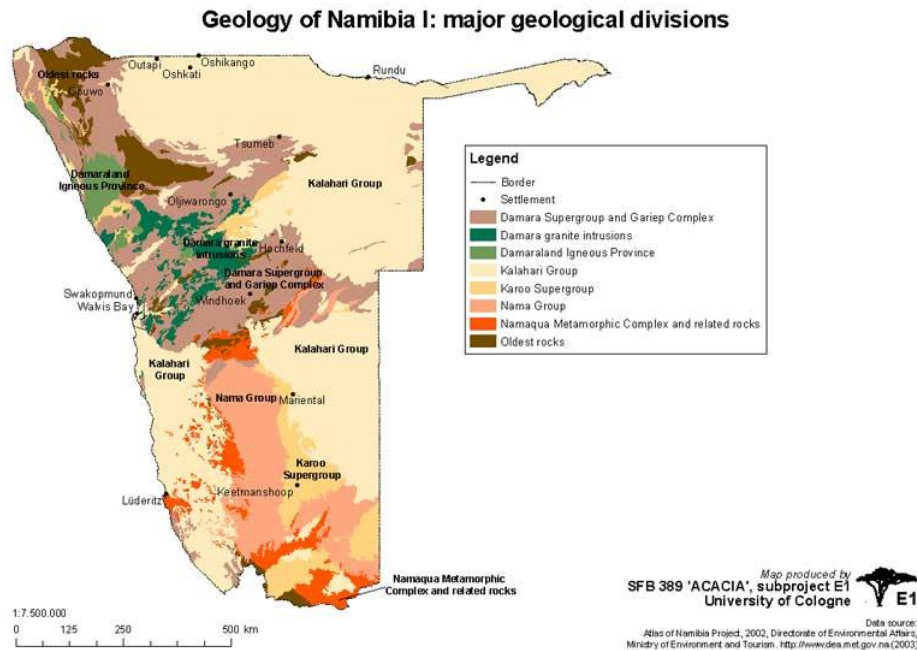
**Figure 4:** Annual average temperature (Acacia Project E1, n.d.)



**Figure 5:** Average annual Rainfall (Acacia Project E1, n.d.)

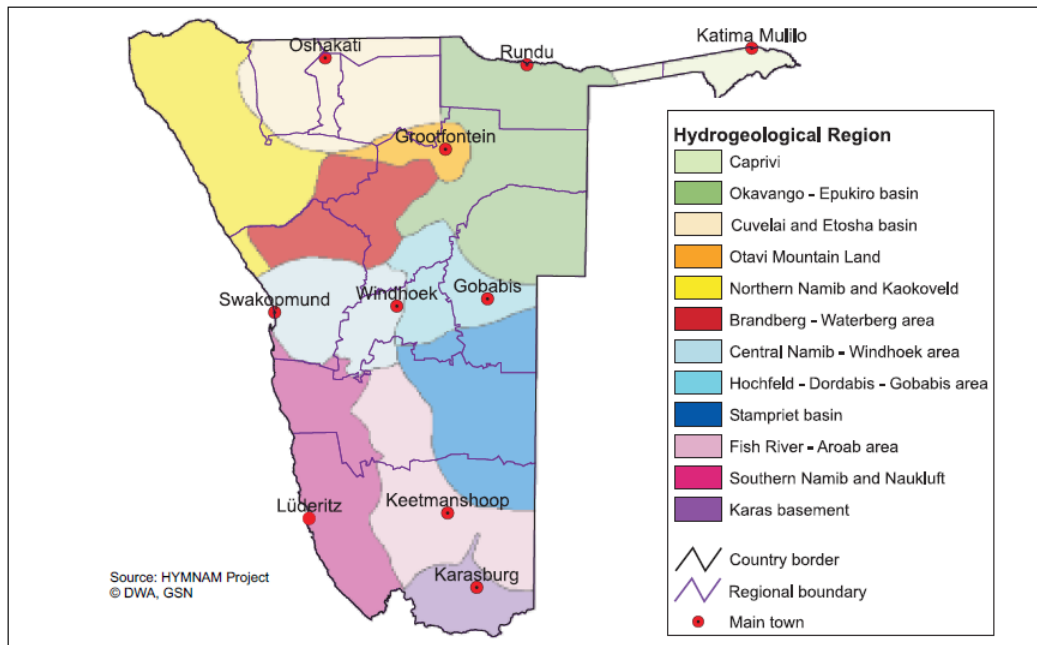
### 3.2.3 Topography, Hydrogeology and Geology

The Lüderitz area forms part of the Namaqua Metamorphic Complex geological division as depicted in **Figure 6**. This area is characterised by complex rock type (Mendelsohn *et al.*, 2002). The subject site is undulated with a moderate steep downward slope from East to West.



**Figure 6:** Geology of Namibia (Acacia Project E1, n.d.)

The town of Lüderitz and the western part of the //Karas Region falls within the Southern Namib and Naukluft hydrogeological region as shown in **Figure 7**. The only permanent water in this region is the Orange River, which supplies water to towns and mines (Oranjemund, Rosh Pinah) as well as agricultural and tourism projects. The water supply to Lüderitz is based on fossil water reserves in the Koichab paleo-channel. The Koichab wellfield (49) is situated 100 km north-east of Lüderitz at the foot of a massive dune formation up to 200m high (Ministry of Agriculture Water and Rural Development, 2011). The Koichab area was proposed as early as 1914 as the most suitable source of water supply for the growing town of Lüderitz, however a water supply scheme was only established in 1968 (Ministry of Agriculture Water and Rural Development, 2011).



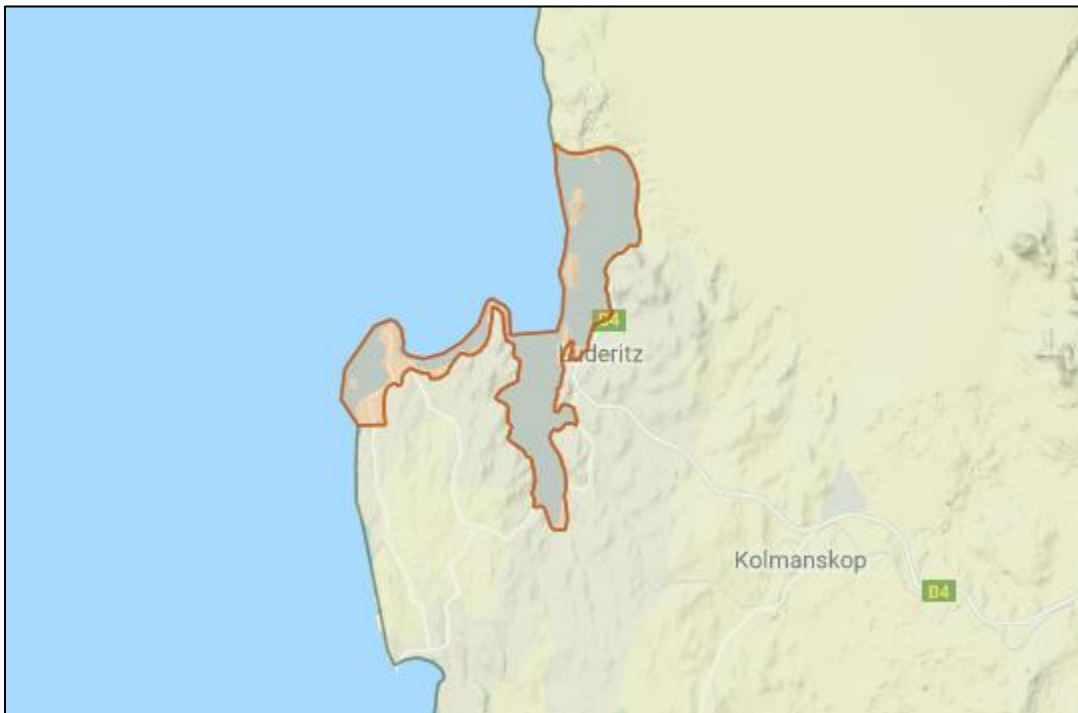
**Figure 7:** Groundwater basins and hydrogeological regions in Namibia (Ministry of Agriculture Water and Rural Development, 2011)

### 3.3 Terrestrial Ecology

#### 3.3.1 Flora and Fauna

The succulent Karoo Ecosystem is the most diverse desert system in the world. There is high plant, particularly succulent, diversity. According to MET (2014), some 1050 species are known to occur in the Tsau//Khaeb (Sperrgebiet) National Park near Lüderitz. This contributes to nearly 25% of the entire flora of Namibia on less than 3% of land area of the country. It is for this reason that the succulent Karoo is listed amongst the world’s 25 biodiversity hotspots. The subject site is situated within an urban area, as such no significant flora is expected to be found on the proposed site.

Lüderitz falls within an Important Bird Area (IBA) as depicted in **Figure 8** below. The area is characterized by high species abundance due to the nutrient rich waters caused by upwelling. The Lüderitz Bay Island Complex consist of four coastal islands namely Halifax, Penguin, Seal and Flamingo Island (BirdLife International, 2021). The shoreline and the Lüderitz harbour form part of the IBA. The island complex is considered to be globally important as it regularly supports more than 10,000 seabirds, many of which are threatened. The Islands are managed by the Ministry of Fisheries and Marine Resources.



**Figure 8:** Lüderitz Bay Island

## 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 815, Lüderitz into Erf A, B and Remainder;**
- **Permanent closure of Erf A/815, Lüderitz as a Public Open Space;**
- **Consolidation of Erf A/815 and Erf 809, Lüderitz into Consolidated Erf X.**

These components will be described in further detail below, in terms of the proposed construction, operation and footprint of the facility.

### 4.2 ALTERNATIVES

#### 4.2.1 No – Go Alternative

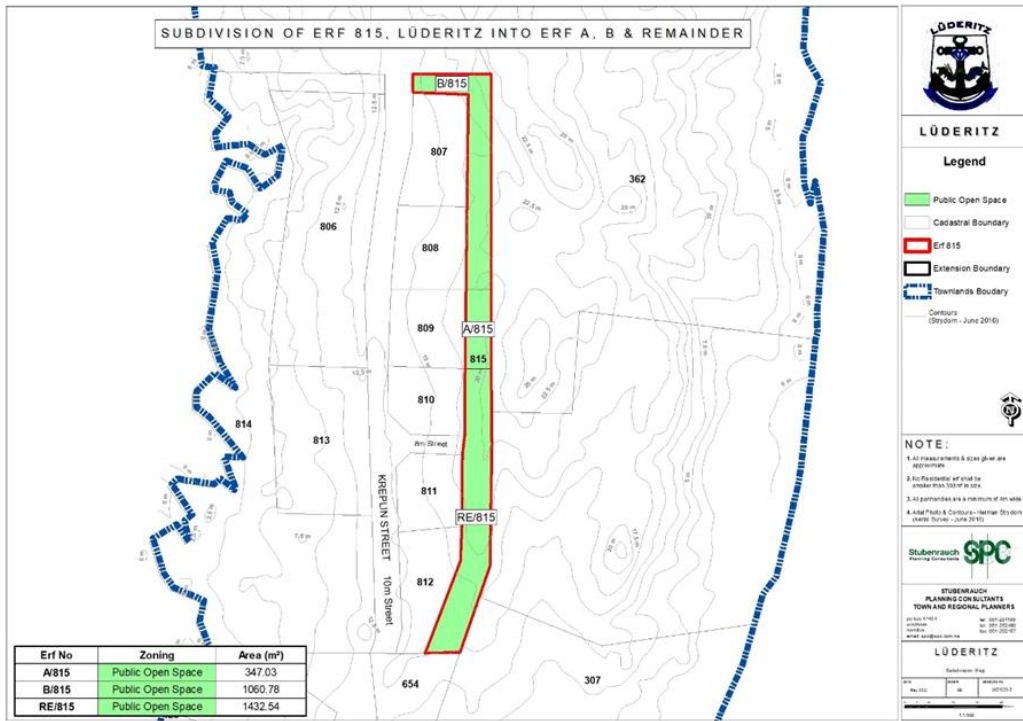
The no-go alternative is the baseline against which all alternatives are assessed. The no-go alternative would essentially entail maintaining the current situation, whereby the existing Erf 815 will remain public open space in its entirety. Additionally, Erf 809 will remain to encroach onto the adjacent Erf 815. Thus, none of the positive or negative impacts associated with the intended development would realize.

### 4.3 THE PROPOSED DEVELOPMENT

Kairos Cottage, located on Erf 809, Lüderitz serves as a bed and breakfast and is currently encroaching over the boundary of Erf 815, Lüderitz which is a public open space area. The public open space (Erf 809) is not currently being used as a walkway by the public. In order to rectify this encroachment, the following statutory steps need to be undertaken:

- **Subdivision of Erf 815, Lüderitz into Erf A, B and Remainder;**
- **Permanent closure of Erf A/815, Lüderitz as a Public Open Space;**
- **Consolidation of Erf A/815 and Erf 809, Lüderitz into Consolidated Erf X.**

The proponent intends to subdivide Erf 815 into three erven namely Erf A/815, B/815 and the RE/815 as can be observed in **Figure 9** below. This will allow the permanent closure of a portion of the public open space, Erf A/815, to be consolidated with adjacent Erf 809 as indicated in **Figure 10 and 11** below. Erven B/815 and RE/815 will remain public open spaces.



**Figure 9:** Subdivision of Erf 815, Lüderitz into Erf A, B and Remainder

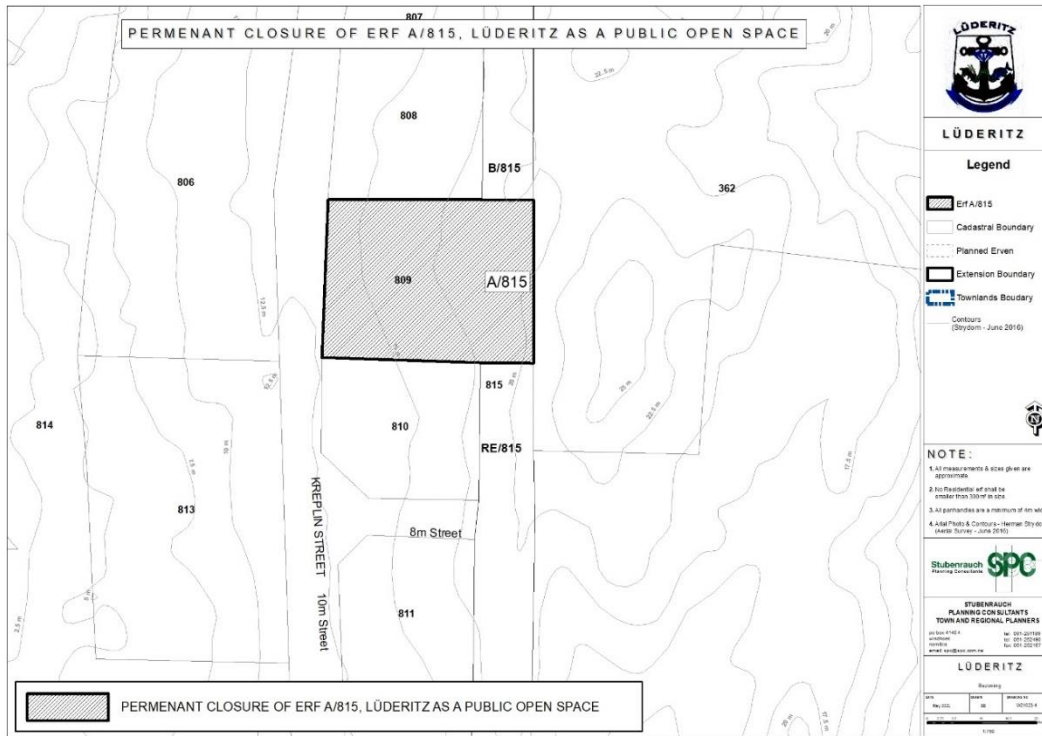


Figure 10: Permanent Closure of Erf A/815, Lüderitz as Public Open Space

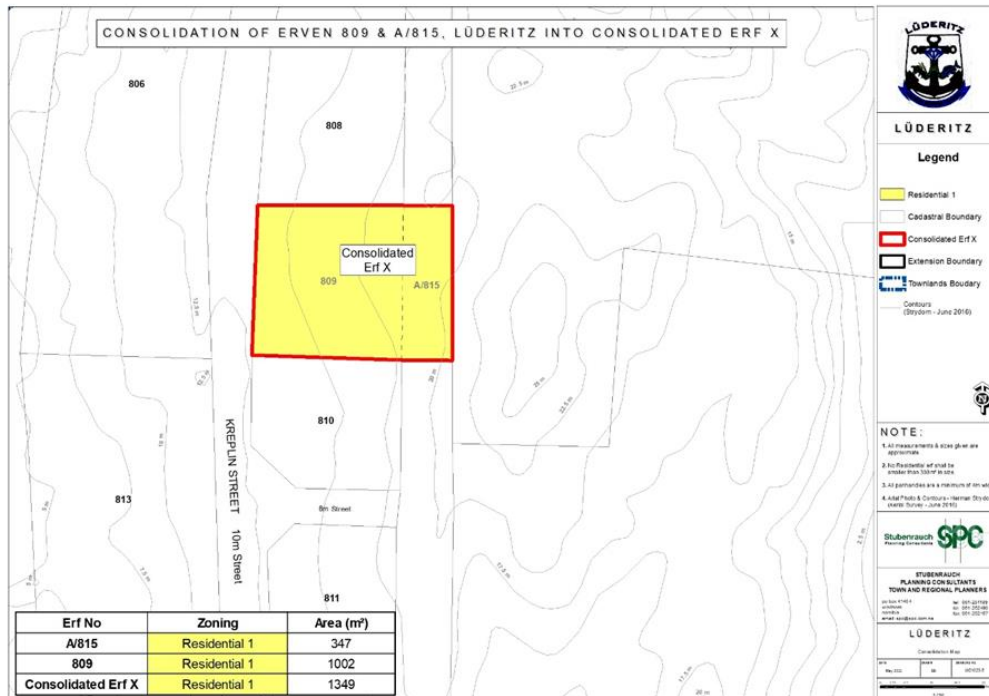


Figure 11: Consolidation of Erven 809 and A/815 Lüderitz, into Consolidated Erf X

#### ***4.4 ENGINEERING SERVICES AND ACCESS PROVISION***

The subject erven are connected to the municipal reticulation system of the Lüderitz Town Council. These connections are to be maintained as they are sufficient to accommodate the proposed development.

Access to the subject erven is currently gained from Kreplin Street. The to be consolidated erf will continue gaining access from the existing street.



## 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 5** below for the activities undertaken as part of the public participation process. The I&APs were given time to comment from **10 June 2021 to 1 July 2021**.

**Table 5:** Table of Public Participation Activities

ACTIVITY	REMARKS
Placement of site notices/posters in Lüderitz	See <b>Annexure A</b>
Placing advertisements in two newspapers namely the Namibian and the New Era ( <b>10 and 17 June March 2021</b> )	See <b>Annexure B</b>
Written notice to surrounding property owners and Interested and Affected Parties via Email ( <b>10 June 2021</b> )	See <b>Annexure C</b>

#### 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 **12 July 2021**. An Executive Summary of the DESR was included in the letters to the registered I&APs. I&APs had until **26 July 2021** 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 6**.

**Table 6:** Impact Assessment Criteria

CRITERIA	CATEGORY
<b>Impact</b>	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

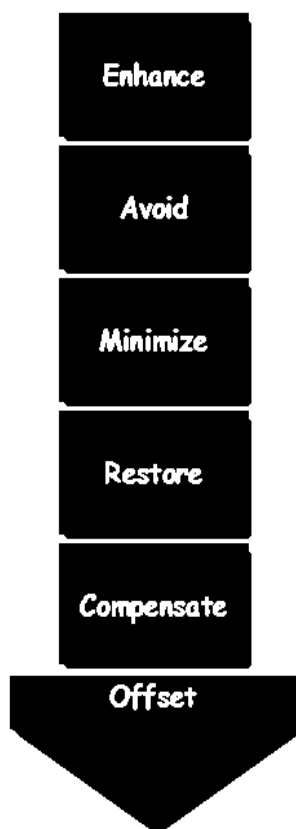
CRITERIA	CATEGORY
	<p><b>Low:</b> Natural and/or social functions/processes are slightly altered</p> <p><b>Medium:</b> Natural and/or social functions/processes are notably altered in a modified way</p> <p><b>High:</b> Natural and/or social functions/processes are severely altered and may temporarily 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 12** 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.

**Figure 12:** Mitigation Hierarchy

**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.

**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 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. No construction is anticipated at this stage of the development, as it is the rectification of an existing situation on the ground. Nevertheless, the construction phase impacts were included should any construction commence on site in future. These impacts are inherently temporary in duration but may have longer lasting effects.

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

The subject sites have been developed already and thus do not accommodate any significant flora or fauna on site. 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.

## **7.2.2 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 minimised by the fact that the construction phase will be a short-term activity.

## **7.2.3 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, the removal of vegetation will render the soil vulnerable to erosion as they also serve the purpose of keeping the soils compacted.

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

#### **7.3.1 Heritage impacts**

No archaeological and heritage resources are expected to be found on the site. 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.

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

Working conditions on site need to ensure that the health and safety of construction workers are ensured at all times. The use of local labour during construction is strongly encouraged so as to reduce the need to migrant workforce. Health and Safety requirements need to comply with the Labour Act No. 11 of 2007, local and international health and safety legislation and standards during construction.

#### **7.3.3 Traffic Impacts**

Traffic is expected to increase slightly 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.

#### **7.3.4 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.

#### **7.3.5 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.

#### **7.3.6 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 should be managed in accordance with the EMP to reduce avoid water wastage; litter; solid and human waste pollution at the site.

#### **7.3.7 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 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.

### **7.4.1 Impacts on the surrounding area**

The proposed development is not expected to have a negative impact on the nature and character of the surrounding area as the development aims to rectify an existing situation on the ground.

### **7.4.2 Visual Impacts**

The subject site currently accommodates a bed and breakfast, with the adjacent public open space being mostly vacant. A change in sense of place is not expected to be significant as the proposed land use for the subject erven is in line with the surrounding land uses of the area.

### **7.4.3 Traffic Impacts**

No additional traffic is expected to be generated as the development is a formalisation of an existing situation on the ground. The 10-meter wide Kreplin street is anticipated to be wide enough to continue catering for the traffic generated by Kairos Cottage. Traffic is thus not expected to increase significantly as the subject erf will retain its current land use.

### **7.4.4 Loss of Public Open Space**

The Public Open Space is not currently being utilised by the public as a walkway, therefore it is not expected to affect public use. Additionally, Erf B/815 and RE/815 will still remain zoned as Public Open Space.

## **7.5 CUMULATIVE IMPACTS**

The cumulative impacts of the proposed developments in regard to 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.

## **7.1 ENVIRONMENTAL MANAGEMENT PLAN**

An Environmental Management Plan (EMP) is contained in **Annexure E** 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 and decommissioning phases of the project to ensure that negative impacts associated with the development are avoided or mitigated.

## ***7.2 SUMMARY OF POTENTIAL IMPACTS***

A summary of all the potential impacts from the proposed project assessed above is included in **Table 7**. The **Tables 8 and 9** 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 7:** 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>CONSTRUCTION PHASE</b>										
<b>1. Biodiversity (Fauna and Flora)</b>	Kairos Cottage Lüderitz	No mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Very	Short term	Very Low	Probable	Certain	Reversible	Very Low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
<b>2. Surface &amp; ground water</b>	Kairos Cottage Lüderitz	No mitigation	Local	Medium	Short term	Medium	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Low	Short term	Medium - low	Probable	Certain	Reversible	Medium - Low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
<b>3. Soil erosion</b>	Kairos Cottage Lüderitz	No mitigation	Local	Medium	Short term	Medium - low	Probable	Certain	Reversible	Medium - low (-ve)
		Mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
<b>4. Heritage</b>	Kairos Cottage Lüderitz	No mitigation	Local	Very low	Short term	Very low	Probable	Certain	Irreversible	Very low(-ve)
		Mitigation	Local	Negligible	Short term	Negligible	Probable	Certain	Irreversible	Negligible (-ve)

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	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
<b>5. Health, safety and security</b>	Kairos Cottage Lüderitz	No mitigation	Local	Medium-Low	Short term	Medium-Low	Probable	Certain	Reversible	Medium-Low (-ve)
		Mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
<b>6. Traffic impacts</b>	Kairos Cottage Lüderitz	No mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Very low	Short term	Very low	Probable	Certain	Reversible	Very low
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
<b>7. Noise impacts</b>	Kairos Cottage Lüderitz	No mitigation	Local	Medium - Low	Short term	Medium - low	Probable	Certain	Reversible	Medium - Low (-ve)
		Mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
<b>8. Emissions impacts</b>	Kairos Cottage Lüderitz	No mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Very Low	Short term	Very Low	Probable	Certain	Reversible	Very Low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	Significance	Probability	Confidence	Reversibility	Cumulative impact
<b>9. Municipal services</b>	Kairos Cottage Lüderitz	No mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Very low	Short term	Very low	Probable	Certain	Reversible	Very low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
<b>10. Waste</b>	Kairos Cottage Lüderitz	No mitigation	Local	Low	Short term	Medium	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Very low	Short term	Very Low	Probable	Certain	Reversible	low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
<b>11. Hazardous Substances</b>	Kairos Cottage Lüderitz	No mitigation	Local	Medium	Short term	Medium	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
<b>OPERATIONAL PHASE</b>										
<b>1. Impacts on the surrounding area</b>	Kairos Cottage Lüderitz	No mitigation	Local	Low	Medium term	Low	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Very low	Medium term	Very low	Probable	Certain	Reversible	Very low (-ve)
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	Significance	Probability	Confidence	Reversibility	Cumulative impact
<b>2. Visual Impacts</b>	Kairos Cottage Lüderitz	No mitigation	Local	Medium	Medium term	Medium	Probable	Certain	Reversible	Medium-Low (-ve)
		Mitigation	Local	Medium - Low	Medium term	Medium - Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
<b>3. Traffic Impacts</b>	Kairos Cottage Lüderitz	No mitigation	Local	Low	Medium term	Low	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Very low	Medium term	Very low	Probable	Certain	Reversible	Very low (-ve)
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
<b>4. Loss of Public Open Space</b>	Kairos Cottage Lüderitz	No mitigation	Local	Medium	Medium term	Medium	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Medium-Low	Medium term	Medium - Low	Probable	Certain	Reversible	Medium-Low (-ve)
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral

**Table 8:** 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>• 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>• 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> <li>• Protected trees and plants are not to be removed without a valid permit from the Ministry of Agriculture, Water and Forestry.</li> </ul>
<b>Surface and Ground Water Impacts</b>	<ul style="list-style-type: none"> <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> </ul>

<b>CONSTRUCTION PHASE IMPACTS</b>	
<b>Impact</b>	<b>Mitigation Measures</b>
	<ul style="list-style-type: none"> <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> <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.</li> </ul>



<b>CONSTRUCTION PHASE IMPACTS</b>	
<b>Impact</b>	<b>Mitigation Measures</b>
	<ul style="list-style-type: none"> <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>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 prior to commencing and provide for continuous communication between the neighbours and contractor.</li> <li>• Limit construction times to acceptable daylight hours.</li> <li>• Install technology such as silencers on construction machinery.</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 Dustex 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>• Cover any stockpiles with plastic to minimise windblown dust.</li> <li>• Provide workers with dust masks where necessary.</li> </ul>

<b>CONSTRUCTION PHASE IMPACTS</b>	
<b>Impact</b>	<b>Mitigation Measures</b>
<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 soft refuse.</li> <li>• A sufficient number of skip containers for the heavy waste and rubble should be provided for around the site.</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> </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 9:** 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 minimizing large advertising billboards).</li> </ul>

## 8 CONCLUSION

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

### 8.1 CONSTRUCTION PHASE IMPACTS

With reference to **Table 7**, 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)**.

### 8.2 OPERATIONAL PHASE

With reference to **Table 7**, 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)**.

### 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 **Medium - 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 existing structure will continue to encroach on the adjacent erf. None of the positive or negative impacts from the proposed development would be realized.

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.

### **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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