

# *Environmental Assessment Scoping Report for:*

November 2020

*Proposed development on  
Portion 16 of the Farm  
Oranjemund Town and  
Townlands No.165, creation of  
road and installation of bulk  
services, //Karas Region*

**APP002095**

Prepared for: Oranjemund Town Council  
PO Box: 178, Oranjemund, Namibia  
Contact Person: Jason Ndipwashimwe  
Contact Number: +264 (63) 233 500  
Email: [property@ormdtc.com.na](mailto:property@ormdtc.com.na)



Prepared by: Stubenrauch Planning Consultants  
P.O. Box 41404, Windhoek  
Contact Person: Bronwyn Basson  
Contact Number: +264 (61) 25 11 89  
Fax Number: +264 (61) 25 11 89  
Email: [bronwyn@spc.com.na](mailto:bronwyn@spc.com.na)



## PROJECT DETAILS

<b>Title</b>	Environmental Scoping Report for the: <ul style="list-style-type: none"> <li>Proposed development on Portion 16 of the Farm Oranjemund Town and Townlands No.165, creation of road and installation of bulk services, //Karas Region</li> </ul>		
<b>Report Status</b>	Final		
<b>SPC Reference</b>	W/20017		
<b>Proponent</b>	Oranjemund Town Council PO Box: 178, Oranjemund, Namibia Contact Person: Jason Ndipwashimwe Contact Number: +264 (63) 233 500 Email: property@ormdtc.com. na		
<b>Environmental Assessment Practitioner</b>	Stubenrauch Planning Consultants P.O. Box 41404, Windhoek Contact Person: Bronwynn Basson Contact Number: +264 (61) 25 11 89 Fax Number: +264 (61) 25 11 89 Email: <a href="mailto:bronwynn@spc.com.na">bronwynn@spc.com.na</a>		
<b>Report date</b>	November 2020		
	<b>Name</b>	<b>Signature</b>	<b>Date</b>
<b>Authors</b>	Stephanie Strauss		November 2020

### LEGAL NOTICE

This report or any portion thereof and any associated documentation remain the property of SPC until the mandator effects payment of all fees and disbursements due to SPC in terms of the SPC Conditions of Contract and Project Acceptance Form. Notwithstanding the aforesaid, any reproduction, duplication, copying, adaptation, editing, change, disclosure, publication, distribution, incorporation, modification, lending, transfer, sending, delivering, serving or broadcasting must be authorised in writing by SPC.

## EXECUTIVE SUMMARY

### Introduction

The Oranjemund Town Council, hereinafter referred to as the proponent intends to undertake the following activities:

- **Subdivision of Portion 16 of the Farm Oranjemund Town and Townlands No.165 into Portion A and the Remainder;**
- **Rezoning of Portion A (a Portion of Portion 16) from "Private Open Space" to "Undetermined" for township establishment purposes;**
- **Need and desirability for township establishments on proposed Portion A (a Portion of Portion 16) of the Farm Oranjemund Town and Townlands No.165;**
- **Registration of a 15 meter right of way servitude over Portion A/16 of the Farm Oranjemund Townlands No 165 in favour of Portion 5;**
- **Registration of a 15 meter right of way servitude over Portion 6 of the Farm Oranjemund Townlands No 165 in favour of the Remainder of Portion 16.**

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).

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 (MEFT: DEA).

### Project Description

The Proponent intends to subdivide Portion 16 of the Farm Oranjemund Town and Townlands No. 165 into Portion A and Remainder (**Figure 6**). Portion A will be rezoned from Private Open Space to Undetermined. The proposed subdivision and rezoning will enable the Town Council to develop a township on the subject site. The Proponent aims to undertake the above-mentioned statutory procedures to avail land for a marina development (to be made available for private investment).

### Public Participation

Communication with 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 September 2020 (Annexure C);
- Notices were placed in The New Era and The Sun newspapers dated 10 September 2020 and 17 September 2020, briefly explaining the activity and its locality, inviting members of the public to register as I&APs (**Annexure B**); and
- A notice was fixed at the project site (see **Annexure 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 October 2020).

The Draft Scoping Report was circulated from the **19<sup>th</sup> October 2020 until the 2<sup>nd</sup> November 2020** so that the public could review and comment on it. The overall commentary received from the public on the draft report is documented in the comments and responses report document. 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 operational 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).

It is recommended that this project be authorised as 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.

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.

## 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, SIZE AND OWNERSHIP</b> .....	<b>2</b>
1.3	<b>TERMS OF REFERENCE AND SCOPE OF PROJECT</b> .....	<b>4</b>
1.4	<b>ASSUMPTIONS AND LIMITATIONS</b> .....	<b>4</b>
1.5	<b>CONTENT OF ENVIRONMENTAL ASSESSMENT REPORT</b> .....	<b>4</b>
<b>2</b>	<b>LEGAL FRAMEWORK</b> .....	<b>7</b>
2.1	<b>LEGISLATION RELEVANT TO THE PROPOSED DEVELOPMENT</b> .....	<b>7</b>
<b>3</b>	<b>ENVIRONMENTAL BASELINE DESCRIPTION</b> .....	<b>13</b>
3.1	<b>SOCIAL ENVIRONMENT</b> .....	<b>13</b>
3.1.1	Socio-Economic Context .....	13
3.1.2	Archaeological and Heritage Context .....	14
3.2	<b>BIO-PHYSICAL ENVIRONMENT</b> .....	<b>14</b>
3.2.1	Climate .....	14
3.2.2	Topography, Geology and Hydrogeology .....	15
3.3	<b>TERRESTRIAL ECOLOGY</b> .....	<b>16</b>
3.3.1	Flora and Fauna .....	16
3.4	<b>ENVIRONMENTAL CONSIDERATIONS</b> .....	<b>16</b>
<b>4</b>	<b>PROJECT DESCRIPTION</b> .....	<b>18</b>
4.1	<b>PROJECT COMPONENTS</b> .....	<b>18</b>
4.2	<b>ALTERNATIVES</b> .....	<b>18</b>
4.2.1	No – Go Alternative .....	18
4.3	<b>THE PROPOSED DEVELOPMENT</b> .....	<b>18</b>
4.3.1	Engineering Services and Access Provision .....	21
<b>5</b>	<b>PUBLIC PARTICIPATION PROCESS</b> .....	<b>23</b>
5.1	<b>PUBLIC PARTICIPATION REQUIREMENTS</b> .....	<b>23</b>
5.1.1	Environmental Assessment Phase 2 .....	23
<b>6</b>	<b>ASSESSMENT METHODOLOGY</b> .....	<b>24</b>
6.1	<b>MITIGATION MEASURES</b> .....	<b>26</b>
<b>7</b>	<b>ASSESSMENT OF POTENTIAL IMPACTS AND POSSIBLE MITIGATION MEASURES</b> .....	<b>28</b>
7.1	<b>INTRODUCTION</b> .....	<b>28</b>
7.1	<b>PLANNING AND DESIGN PHASE IMPACTS</b> .....	<b>28</b>
7.1.1	Existing Service Infrastructure Impacts .....	28
7.1.2	Flooding .....	28
7.2	<b>CONSTRUCTION PHASE IMPACTS ON THE BIOPHYSICAL ENVIRONMENT</b> .....	<b>29</b>
7.2.1	Flora and Fauna Impacts (Biodiversity) .....	29
7.2.2	Waste Generation .....	29

7.2.3	Surface and Ground Water Impacts.....	29
<b>7.3</b>	<b>CONSTRUCTION PHASE IMPACTS ON THE SOCIO-ECONOMIC ENVIRONMENT.....</b>	<b>29</b>
7.3.1	Heritage impacts .....	29
7.3.2	Health, Safety and Security Impacts .....	30
7.3.3	Traffic Impacts.....	30
7.3.4	Noise Impacts.....	30
7.3.5	Dust and Emission Impacts.....	30
7.3.6	Municipal Services .....	30
7.3.7	Storage and Utilisation of Hazardous Substances.....	31
<b>7.4</b>	<b>CUMULATIVE IMPACTS .....</b>	<b>31</b>
<b>7.1</b>	<b>ENVIRONMENTAL MANAGEMENT PLAN.....</b>	<b>31</b>
<b>7.2</b>	<b>SUMMARY OF POTENTIAL IMPACTS .....</b>	<b>31</b>
<b>8</b>	<b>CONCLUSION.....</b>	<b>41</b>
<b>8.1</b>	<b>CONSTRUCTION PHASE IMPACTS .....</b>	<b>41</b>
<b>8.2</b>	<b>LEVEL OF CONFIDENCE IN ASSESSMENT.....</b>	<b>41</b>
<b>8.3</b>	<b>MITIGATION MEASURES .....</b>	<b>41</b>
<b>8.4</b>	<b>OPINION WITH RESPECT TO THE ENVIRONMENTAL AUTHORISATION .....</b>	<b>42</b>
<b>8.5</b>	<b>WAY FORWARD .....</b>	<b>42</b>
<b>9</b>	<b>REFERENCES.....</b>	<b>43</b>

## LIST OF FIGURES

Figure 1:	Locality of Portion 16 of the Farm Oranjemund Townlands No 165, Oranjemund .....	3
Figure 2:	EIA flow Diagram.....	12
Figure 3:	Average monthly temperature for Oranjemund (World Weather Online, 2016) .....	14
Figure 4:	Average monthly Rainfall for Oranjemund (World Weather Online, 2016).....	15
Figure 5:	Environmental Considerations.....	17
Figure 6:	Subdivision of Portion 16 of the Farm Oranjemund Townlands No 165 into Portion A and Remainder.....	19
Figure 7:	Aerial Map of the Subdivision of Portion 16 of the Farm Oranjemund Townlands No 165 into Portion A and Remainder.....	20
Figure 8:	Proposed Beach Precinct .....	21
Figure 9:	Mitigation Hierarchy .....	26

## 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.....	4
Table 3: Legislation applicable to the proposed development.....	7
Table 4: Statistics of the Oranjemund Constituency and //Karas Region (Namibia Statistics Agency, 2011).....	13
Table 5: Table of Public Participation Activities.....	23
Table 6: Impact Assessment Criteria.....	24
Table 7: Summary of the significance of the potential impacts .....	32
Table 8: Proposed mitigation measures for the planning and design phase .....	37
Table 9: Proposed mitigation measures for the construction phase .....	37

## LIST OF ANNEXURES

<b>Annexure A:</b>	Proof of Site Notices/ Posters
<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 Comments Received (if any)
<b>Annexure D:</b>	Curriculum Vitae and ID of Environmental Assessment Practitioner
<b>Annexure E:</b>	Environmental Management Plan

## 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>GG</b>	Government Gazette
<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>MET</b>	Ministry of Environment and Tourism
<b>MEFT: DEA</b>	Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs
<b>M</b>	Meter
<b>Mm</b>	Millimeter
<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>NHC</b>	National Heritage Council
<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

---

## 1.1 PROJECT BACKGROUND

The Oranjemund Town Council, hereinafter referred to as the proponent intends to undertake the following activities:

- **Subdivision of Portion 16 of the Farm Oranjemund Town and Townlands No.165 into Portion A and the Remainder;**
- **Rezoning of Portion A (a Portion of Portion 16) from "Private Open Space" to "Undetermined" for township establishment purposes;**
- **Need and desirability for township establishments on proposed Portion A (a Portion of Portion 16) of the Farm Oranjemund Town and Townlands No.165;**
- **Registration of a 15 meter right of way servitude over Portion A/16 of the Farm Oranjemund Townlands No 165 in favour of Portion 5;**
- **Registration of a 15 meter right of way servitude over Portion 6 of the Farm Oranjemund Townlands No 165 in favour of the Remainder of Portion 16.**

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 includes the rezoning of land from Public Open Space to Business
Activity 8.8 Water Resource Developments	Construction and other activities in water courses within flood lines.	The proposed project involves the creation of land portions within flood lines.

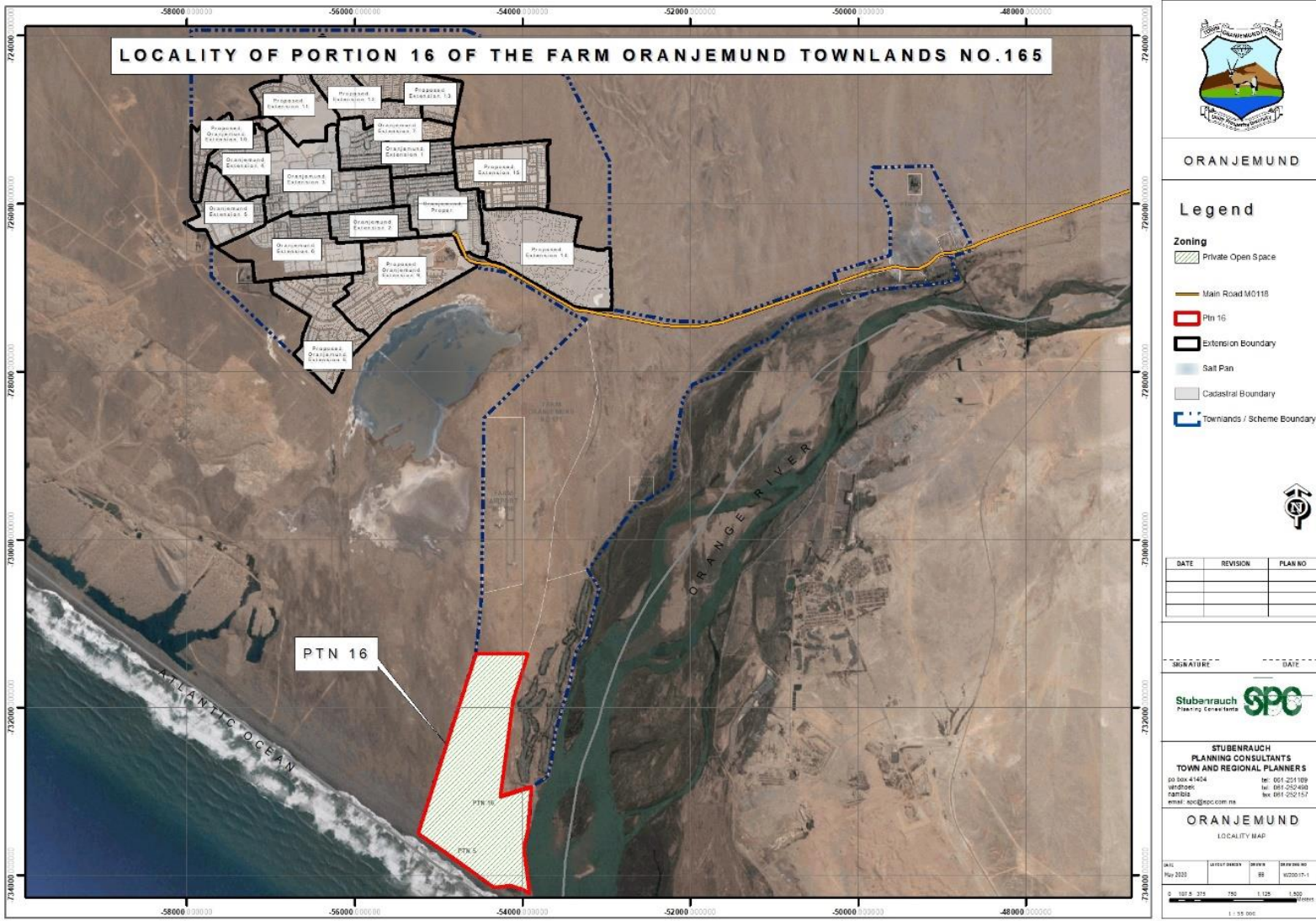
Activity description and No(s):	Description of relevant activity	The portion of the development as per the project description that relates to the applicable listed activity
Activity 8.9 Water Resource Developments	Construction and other activities within a catchment area.	The proposed project involves the creation of land portions within a catchment area.
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 (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, SIZE AND OWNERSHIP**

Portion 16 of the Farm Oranjemund Town and Townlands No.165 is situated along the southern border of the Oranjemund local authority/scheme boundary. The subject portion is situated south of the Oranjemund Airport, across the subject portion is the Atlantic Ocean. Please refer to below locality map (**Figure 1**).



**Figure 1:** Locality of Portion 16 of the Farm Oranjemund Townlands No 165, Oranjemund

### 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 Portion 16 of the Farm Oranjemund Town and Townlands No.165 into Portion A and the Remainder;**
- **Rezoning of Portion A (a Portion of Portion 16) from "Private Open Space" to "Undetermined" for township establishment purposes;**
- **Need and desirability for township establishments on proposed Portion A (a Portion of Portion 16) of the Farm Oranjemund Town and Townlands No.165;**
- **Registration of a 15 meter right of way servitude over Portion A/16 of the Farm Oranjemund Townlands No 165 in favour of Portion 5;**
- **Registration of a 15 meter right of way servitude over Portion 6 of the Farm Oranjemund Townlands No 165 in favour of the Remainder of Portion 16.**

### 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 Oranjemund 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.

### 1.5 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

<b>Section</b>	<b>Description</b>	<b>Section of FESR/ Annexure</b>
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 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 project: <b>Activity 5.1 (d) Land Use and Development Activities</b> <b>Activity 8.8 Water Resource Developments</b> <b>Activity 8.9 Water Resource Developments</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.

<b>LEGISLATION/POLICIES</b>	<b>RELEVANT PROVISIONS</b>	<b>RELEVANCE TO PROJECT</b>
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.
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.
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



LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
		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 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).	Contractors and users of the proposed development are to comply with these legal requirements.
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	These guidelines are to be applied when dealing with water and waste treatment

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
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 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,	The development should consider the provisions outlined in the act. The proponent should apply for an Air Emissions permit from the

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	Part III - atmospheric pollution by smoke, Part IV - dust control, and Part V - air pollution by fumes emitted by vehicles.	Ministry of Health and Social Services (if needed).
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.

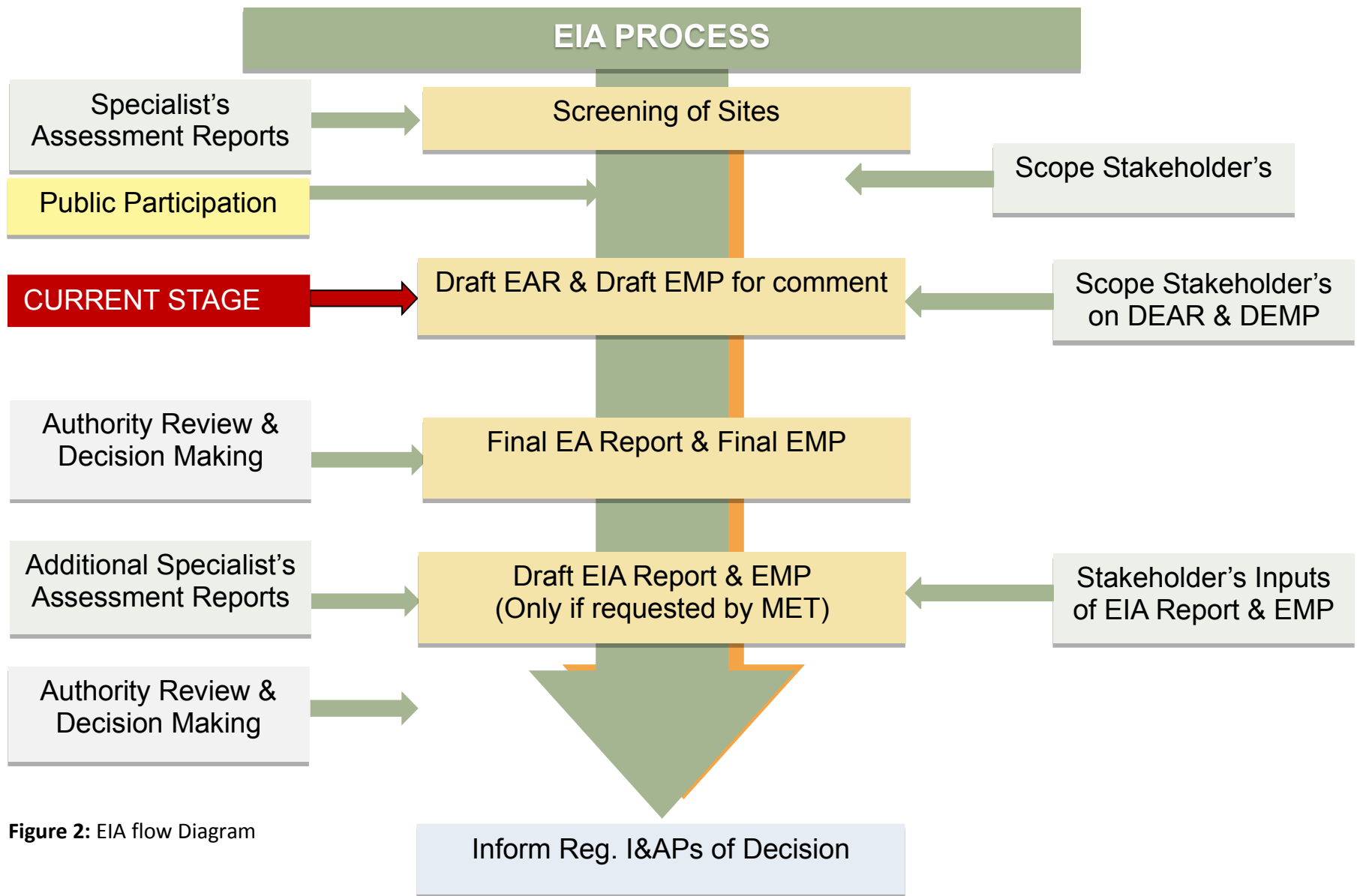


Figure 2: EIA flow Diagram

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

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

ORANJEMUND CONSTITUENCY	
ATTRIBUTE	INDICATOR
Population	9, 837
Females	4, 460
Males	5, 377
Population under 5 years	11%
Population aged 5 to 14 years	15%
Population aged 15 to 59 years	73%
Population aged 60 years and above	1%
Female: male ratio	100:121
Literacy rate of 15 years old and above	98%
People above 15 years who have never attended school	2%
People above 15 years who are currently attending school	7%
People above 15 years who have left school	90%
People aged 15 years and above who belong to the labour force	88%
Population employed	76%
Homemakers	19%
Students	66%
Retired or old age income recipients	14%
Income from pension	1%
Income from business and non-farming activities	5%
Income from farming	1%
Income from cash remittance	4%
Wages and salaries	87%
Main Language	Afrikaans-36.1%
//KARAS REGION	
ATTRIBUTE	INDICATOR
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

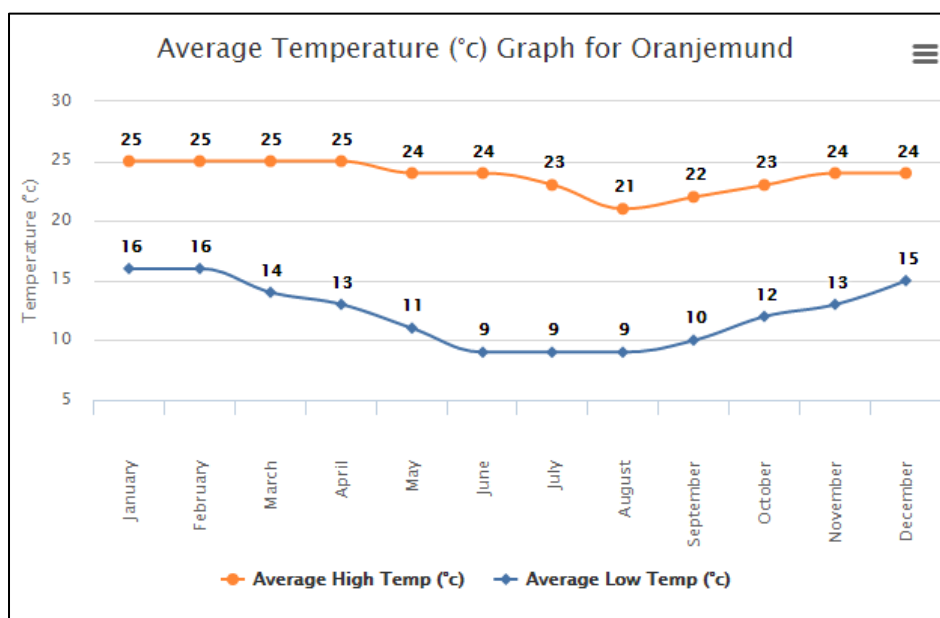
The Oranjemund Shipwreck is the archaeological remains of an early 17<sup>th</sup> century Portuguese trading ship. The ship was discovered by miners working on the Atlantic coast of Africa near the mouth of the Orange River on Namibia's border. In 2008 miners discovered two cannons, several copper ingots and pieces of wood, anchors, lead sheeting and other artifacts (Oranjemund Shipwreck (Namibia), 2016). Mining in the area was halted and an archaeological excavation proceeded with the site designated by government to be managed and protected as part of national heritage. The Oranjemund Shipwreck has since been identified as a heritage site in Namibia.

No archaeological and heritage sites are however known to be located within the proposed development area.

## 3.2 BIO-PHYSICAL ENVIRONMENT

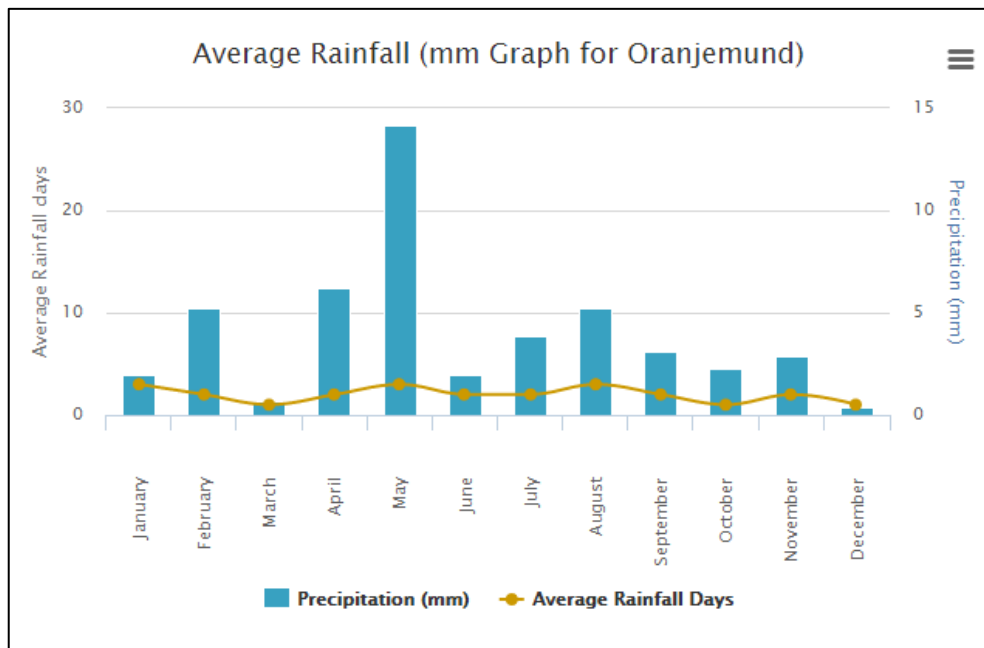
### 3.2.1 Climate

Oranjemund is considered to have a desert climate. Oranjemund's temperatures does not fluctuate, similar to many of the coastal towns in the country, but rather remain relatively average throughout the year. Fog occurs, on average, on more than 100 days per year at Oranjemund. It forms a moist cold air from the ocean and meets the hot dry air of the desert. The fog supplies fauna and flora with much of their water requirements (The Southern African Institute for Environmental Assessment, 2006). The average maximum temperature as indicated in **Figure 3** below varies between 21 and 25°C with the average minimum temperature between 9 and 16°C.



**Figure 3:** Average monthly temperature for Oranjemund (*World Weather Online, 2016*)

The climate of Oranjemund is strongly influenced by the cold Benguela current which runs in a northerly direction along the coast, which in turn is driven by the South Atlantic anticyclonic climate system (Stubenrauch Planning Consultants, 2016) . Although the area is a desert, cool and foggy conditions occur most mornings and strong southerly winds are common in the afternoons. Rainfall is mostly experienced during the winter months as indicated in **Figure 4** below and on average most of this rainfall is experienced from April to August. Oranjemund receives annual rainfall of approximately 55 mm (<http://en.climate-data.org/location/169818/> ).



**Figure 4:** Average monthly Rainfall for Oranjemund (*World Weather Online, 2016*)

### 3.2.2 Topography, Geology and Hydrogeology

The Oranjemund area, located within the Karas Region, can be described as relatively flat with sparse vegetation. The town is located merely 20 meters above sea level on a virtually flat piece of terrain (Stubenrauch Planning Consultants, 2016). The Oranjemund area belongs to the Kalahari Group Geological Division. The dominant rock type found in the area is the Kalahari and Namib Sands which is largely dominated by sands.

### **3.3 TERRESTRIAL ECOLOGY**

#### **3.3.1 Flora and Fauna**

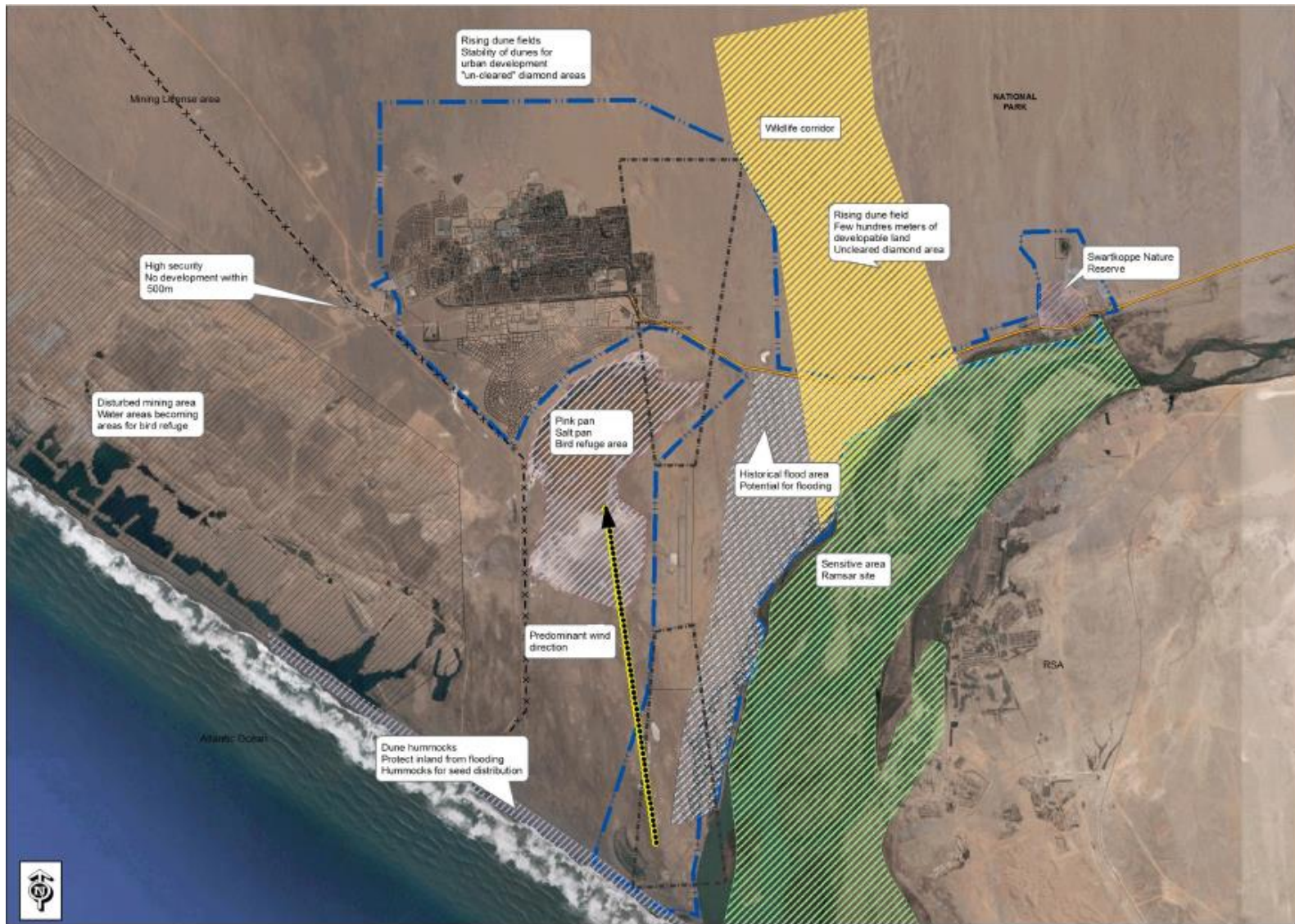
Oranjemund forms part of the Succulent Karoo Biome and the Succulent Steppe vegetation type. Succulent shrubs are the dominant structure found within this vegetation type with sand, gravel and calcrete being the dominant soils in the area. Thus, the number of protected species within this biome is very large thus making it a very important area in terms of biodiversity in the country.

In Oranjemund the population of wildlife such as the Oryx, jackals, etc. occasionally occurs in the area surrounding Oranjemund. Due to the vegetation type which is not too ideal for grazing, livestock farming is not possible. The area also has high numbers of endemic plants, reptiles and frogs as well as a variety of mammals and other animals.

### **3.4 ENVIRONMENTAL CONSIDERATIONS**

In terms of the Oranjemund Structure Plan there are several environmental considerations which need to be considered prior to development commencing within the town. The subject site does not fall within any of the identified environmentally sensitive areas as depicted in **Figure 5** below. Of note however is the potential for flooding from the Orange River which should be considered in the proposed development. As such it is recommended that an engineer should be appointed to investigate the likelihood of flooding within the subject site and to provide mitigation measures prior to the area being developed.





**Figure 5: Environmental Considerations**

## 4 PROJECT DESCRIPTION

---

### 4.1 PROJECT COMPONENTS

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

- **Subdivision of Portion 16 of the Farm Oranjemund Town and Townlands No.165 into Portion A and the Remainder;**
- **Rezoning of Portion A (a Portion of Portion 16) from "Private Open Space" to "Undetermined" for township establishment purposes;**
- **Need and desirability for township establishments on proposed Portion A (a Portion of Portion 16) of the Farm Oranjemund Town and Townlands No.165;**
- **Registration of a 15 meter right of way servitude over Portion A/16 of the Farm Oranjemund Townlands No 165 in favour of Portion 5;**
- **Registration of a 15 meter right of way servitude over Portion 6 of the Farm Oranjemund Townlands No 165 in favour of the Remainder of Portion 16.**

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

### 4.2 ALTERNATIVES

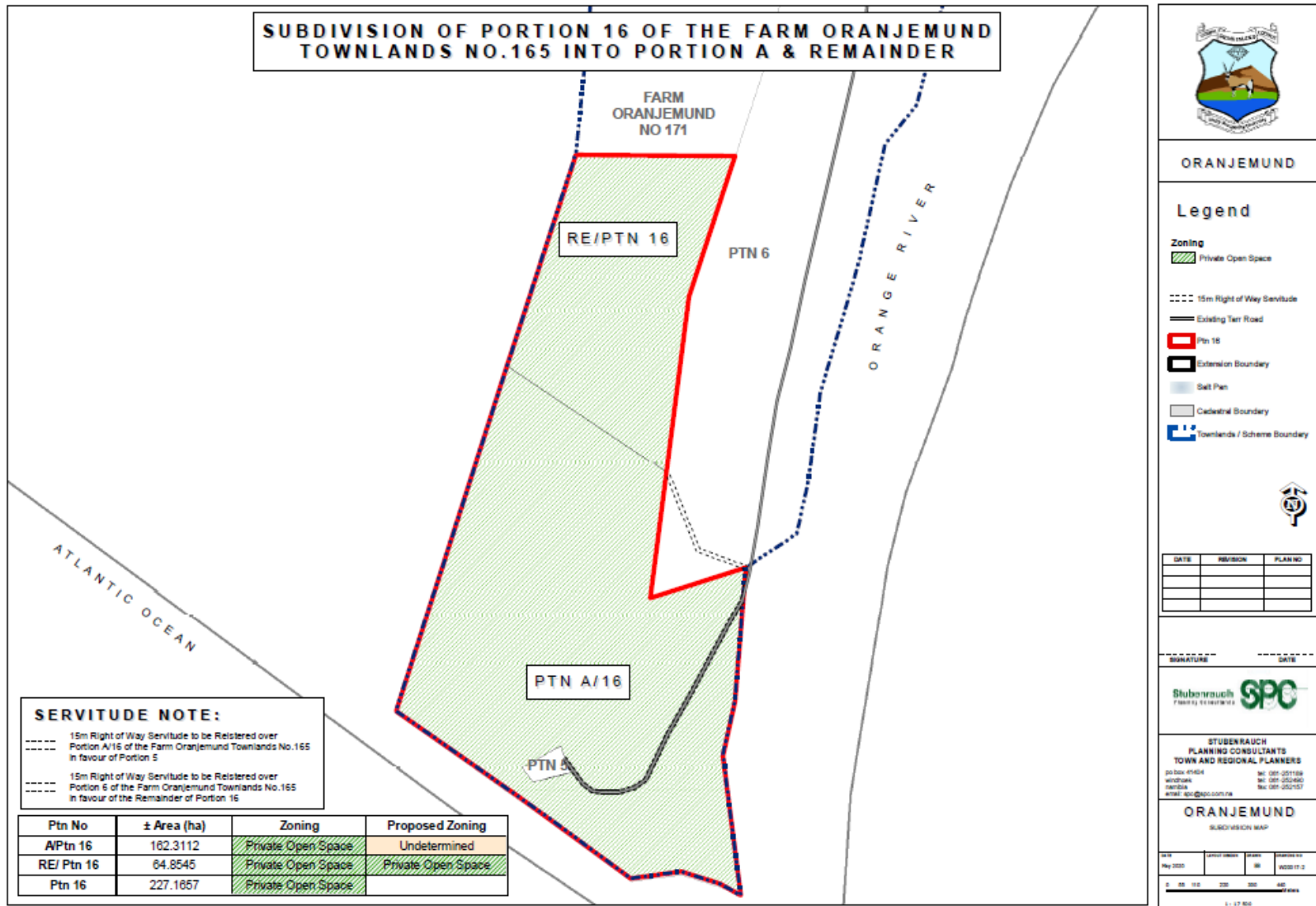
As pointed out in Section 1.4 above various layout alternatives were initially considered by the proponent, ultimately resulting in the final layouts.

#### 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 site would remain as one portion. As such the proposed site would not have portions of land available to be sold and the benefits and impacts from the proposed development would not realize.

### 4.3 THE PROPOSED DEVELOPMENT

The Proponent intends to subdivide Portion 16 of the Farm Oranjemund Town and Townlands No. 165 into Portion A and Remainder (**Figure 6**). Portion A will be rezoned from Private Open Space to Undetermined. The proposed subdivision and rezoning will enable the Town Council to develop a township on the subject site. The Proponent aims to undertake the above-mentioned statutory procedures to avail land for a marina development (to be made available for private investment).



**Figure 6:** Subdivision of Portion 16 of the Farm Oranjemund Townlands No 165 into Portion A and Remainder



**Figure 7:** Aerial Map of the Subdivision of Portion 16 of the Farm Oranjemund Townlands No 165 into Portion A and Remainder

The layout for the proposed Township development is not completed yet. Within the Structure Plan the subject area is earmarked for the development of a beach precinct which is proposed to provide recreational activities for visitors and the public to benefit from the subject area. Proposed activities include accommodation, bird watching, river kayaking, demarcated camping and hiking. It should be noted that this proposed Beach Area/Marina development will need to be assessed in a separate EIA prior to it being developed and does not form part of this assessment.



**Figure 8: Proposed Beach Precinct**

#### 4.3.1 Engineering Services and Access Provision

Portion 16 of the Farm Oranjemund Town and Townlands No.165 falls within Oranjemund's scheme boundary and is therefore connected to the municipal reticulation system of the Town Council. It will however be the responsibility of a developer to provide services to developments that will take place on Proposed Portion A.

It was initially anticipated that access to Portion 16 of the Farm Oranjemund Town and Townlands No.165 would be obtained from the existing tar road and the newly created portions will be

connected to this existing road network (as outlined in the background information document initially circulated).

After further investigation it was concluded that the following 15 meter right of way servitudes would need to be registered in order to provide access to the newly created portions:

- **Registration of a 15 meter right of way servitude over Portion A/16 of the Farm Oranjemund Townlands No 165 in favour of Portion 5;**
- **Registration of a 15 meter right of way servitude over Portion 6 of the Farm Oranjemund Townlands No 165 in favour of the Remainder of Portion 16.**

## 5 PUBLIC PARTICIPATION PROCESS

---

### 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 September 2020 to 1 October 2020**.

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

ACTIVITY	REMARKS
Placement of site notice in Oranjemund	See <b>Annexure A</b>
Placing advertisements in two newspapers namely the New Era and The Sun ( <b>10 September and 17 September 2020</b> )	See <b>Annexure B</b>
Written notice to surrounding property owners and Interested and Affected Parties via Email ( <b>1 October 2020</b> )	See <b>Annexure C</b>

The proposed project was initially advertised from 26 June 2020 until 17 July 2020. Due to additional activities (the creation of street) which needed to be added to the application, the proposed project was re-advertised as per the above dates. The comments received during the initial comment period (26 June 2020 until 17 July 2020) are still valid and are considered in the assessment, these are attached (**Annexure C**).

#### 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 **19 October 2020**. An Executive Summary of the DESR was also included in the letters to the registered I&APs. I&APs have until **2 November 2020** 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



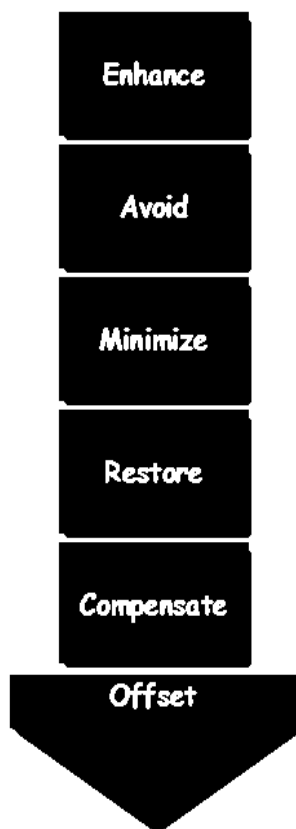
CRITERIA	CATEGORY
	<p><b>Low:</b> Natural and/or social functions/processes are slightly altered</p> <p><b>Medium:</b> Natural and/or social functions/processes are notably altered in a modified way</p> <p><b>High:</b> Natural and/or social functions/processes are severely altered and may temporarily 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 9** 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 9:** 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**

---

### ***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: DEA for consideration. In turn, MEFT: DEA'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.

The proposed project is anticipated to only consist of the construction of roads to allow access to the newly created portions. As such only the construction phase impacts are assessed in this report. Any further development on the proposed portions would require a separate EIA to be conducted.

### ***7.1 PLANNING AND DESIGN PHASE IMPACTS***

#### ***7.1.1 Existing Service Infrastructure Impacts***

The subject erven are located within the townlands of Oranjemund and can thus be connected to the existing municipal reticulation network of the town. It will however be the responsibility of a developer to provide services to developments that will take place on Proposed Portion A.

#### ***7.1.2 Flooding***

The proposed site may be subject to flooding from the Orange River. As such it is essential that an engineer be appointed to investigate the possibility of flooding on site and provide appropriate mitigation measures to minimise this impact prior to development on site.

## ***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. These impacts are inherently temporary in duration but may have longer lasting effects.

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

The proposed site and general area are mostly undeveloped. The subject site is in close proximity to the Orange River which has been declared a Wetland of International Importance in 1995 under the Ramsar Convention. As such it is essential that prior to any development taking place on site that a biodiversity assessment be undertaken to determine the significance and impacts on biodiversity at the proposed site.

### **7.2.2 Waste Generation**

During construction, waste may be generated on site which would have to be managed appropriately in accordance with the provisions for waste management in the EMP.

### **7.2.3 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.

## ***7.3 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.

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

### 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 CUMULATIVE IMPACTS

The cumulative impact 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 – 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>PLANNING AND DESIGN PHASE</b>										
<b>1. Existing services</b>	Ptn 16 Oranjemund	No mitigation	Local	Medium	Medium term	Medium	Probable	Certain	Reversible	Medium-Low (-ve)
		Mitigation	Local	Low	Medium term	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>2. Flooding</b>	Ptn 16 Oranjemund	No mitigation	Local	Medium	Medium term	Medium	Probable	Certain	Reversible	Medium-Low (-ve)
		Mitigation	Local	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
<b>CONSTRUCTION PHASE</b>										
<b>3. Biodiversity (Fauna and Flora)</b>	Ptn 16 Oranjemund	No mitigation	Local	Low	Short term	Low	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



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	Neutral
<b>4. Surface &amp; ground water</b>	Ptn 16 Oranjemund	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>5. Waste Generation</b>	Ptn 16 Oranjemund	No mitigation	Local	Medium	Short term	Medium	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. Heritage</b>	Ptn 16 Oranjemund	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)
	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>7. Health, safety and security</b>	Ptn 16 Oranjemund	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. Traffic impacts</b>	Ptn 16 Oranjemund	No mitigation	Local	Medium	Short term	Medium	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Medium-Low	Short term	Medium-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>9. Noise impacts</b>	Ptn 16 Oranjemund	No mitigation	Local	Medium	Short term	Medium - low	Probable	Certain	Reversible	Medium - Low (-ve)
		Mitigation	Local	Low	Short term	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. Dust &amp; emissions impacts</b>	Ptn 16 Oranjemund	No mitigation	Local	Medium	Short term	Medium - low	Probable	Certain	Reversible	Medium - Low (-ve)

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	SIGNIFICANCE	Probability	Confidence	Reversibility	Cumulative impact
	No go	Mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Low (-ve)
		No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
<b>11. Municipal services</b>	Ptn 16 Oranjemund	No mitigation	Local	Low	Short term	Medium - Low	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Very low	Short term	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>12. Disturbance to surrounding residents</b>	Ptn 16 Oranjemund	No mitigation	Local	Low	Short term	Medium	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Very 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>13. Hazardous Substances</b>	Ptn 16 Oranjemund	No mitigation	Local	Low	Short term	Medium	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Very low	Short term	Medium-Low	Probable	Certain	Reversible	Medium-low (-ve)

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	SIGNIFICANCE	Probability	Confidence	Reversibility	Cumulative impact
<b>14. Waste</b>	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
	Ptn 16 Oranjemund	No mitigation	Local	Low	Short term	Medium	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Very 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

**Table 8:** Proposed mitigation measures for the planning and design phase

<b>PLANNING AND DESIGN PHASE IMPACTS</b>	
<b>Impact</b>	<b>Mitigation Measures</b>
Existing Service Infrastructure	<ul style="list-style-type: none"> <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>
Flooding	<ul style="list-style-type: none"> <li>• Do not construct structures within the flood prone areas which blocks off the natural flow of water.</li> <li>• Appoint professional engineers to investigate the possibility of flooding on site and provide appropriate mitigation measures to minimise this impact prior to development on site.</li> </ul>

**Table 9:** 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>• Prevent the destruction of protected and endemic plant species.</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> <li>• Regular inspection of the marking tool should be carried out.</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> </ul>

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

<b>CONSTRUCTION PHASE IMPACTS</b>	
<b>Impact</b>	<b>Mitigation Measures</b>
	<ul style="list-style-type: none"> <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> <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 and provide for continuous communication between the neighbours and contractor.</li> <li>• Limit construction times to acceptable daylight hours.</li> </ul>

<b>CONSTRUCTION PHASE IMPACTS</b>	
<b>Impact</b>	<b>Mitigation Measures</b>
	<ul style="list-style-type: none"> <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>• Dust abatement techniques should be implemented if dust levels are found to be significant.</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 if dust levels are significant.</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 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 must be collected and disposed of at an appropriate local landfill 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>



## 8 CONCLUSION

---

*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 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 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: DEA 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.

### **8.3 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: DEA could be enforced as Conditions of Approval in the Environmental Authorisation, should MEFT: DEA issue a positive Environmental Authorisation.

#### **8.4 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 as 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.

#### **8.5 WAY FORWARD**

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

## 9 REFERENCES

---

- Acacia Project E1*. n.d. Digital Atlas of Namibia. [Online], Available: [http://www.uni-koeln.de/sfb389/e/e1/download/atlas\\_namibia/main\\_namibia\\_atlas.html](http://www.uni-koeln.de/sfb389/e/e1/download/atlas_namibia/main_namibia_atlas.html).
- Mendelsohn, J., Jarvis, A., Roberts, C. & Roberston, T.* 2002. Atlas of Namibia.
- Ministry of Agriculture Water and Rural Development.* 2011. Groundwater in Namibia an explanation to the Hydrogeological Map.
- Namibia Statistics Agency.* 2011. Karas Census Regional Profile.
- Namibia Statistics Agency.* 2013. *Namibia 2011 Population & Housing Census - Main Report. 214.* [Online], Available: [http://www.nsa.org.na/files/downloads/Namibia\\_2011\\_Population\\_and\\_Housing\\_Census\\_Main\\_Report.pdf](http://www.nsa.org.na/files/downloads/Namibia_2011_Population_and_Housing_Census_Main_Report.pdf).
- About Oranjemund. (n.d.). Retrieved July 21, 2016, from Oranjemund Online: <http://www.oranjemundonline.com/about.html>
- About Oranjemund. (2015). Retrieved July 2016, 2016, from Oranjemund Town Council: [http://www.oranjemund-tc.com/?page\\_id=19](http://www.oranjemund-tc.com/?page_id=19)
- Oranjemund Shipwreck (Namibia). (2016). Retrieved July 21, 2016, from About Education: <http://archaeology.about.com/od/oterms/qt/Oranjemund-Shipwreck.htm>
- Robertson, J., Jarvis, A., Mendelsohn, J., & Swart, R.* (2012). Namibias Coast. *Ministry of Environment and Tourism.*
- Stubenrauch Planning Consultants.* (2016). Oranjemund Strutcure Plan.
- The Southern African Institute for Environmental Assessment.* (2006). Kudu Gas to Power Project: Integrated Impact and Mitigation Report.
- World Weather Online. (2016). Retrieved July 21, 2016, from <http://www.worldweatheronline.com/oranjemund>