

2024

ENVIRONMENTAL SCOPING REPORT

The construction, operation, maintenance and decommissioning of the proposed Walvis Bay Independence Beach Promenade, Walvis Bay, Erongo Region



Co-funded by
the European Union

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LIST OF ACRONYMS

AIDS	Acquired immune deficiency syndrome
CRR	Comments and response report
dB	Decibels
DESR	Draft Environmental Scoping Report
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
EAR	Environmental Assessment Report
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act

EMP	Environmental Management Plan
FESR	Final Environmental Scoping Report
ESR	Environmental Scoping Report
GTZ	Gesellschaft für Technische Zusammenarbeit
HIV	Human immunodeficiency virus
I&AP	Interested and Affected Party
IUCN	International Union for Conservation of Nature
MEFT	Ministry of Environment, Forestry and Tourism
MEFT: DEA	Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs
MURD	Ministry of Urban and Rural Development
MWTC	Ministry of Works Transport and Communication
PPP	Public participation process
p/km ²	People per square kilometre
SADC	Southern African Development Community
USAID	United States Agency for International Development

1. INTRODUCTION

1.1 Project Background

The development of a promenade at the beachfront is a significant urban planning initiative that holds the potential to transform the coastal areas into vibrant and sustainable spaces for both residents and tourists. A promenade is a pedestrian-friendly pathway along the beachfront, offering a range of recreational, social, and economic benefits to the community.

The Municipality of Walvis Bay in collaboration with the Municipality of Czerwonak, Poland is implementing a project termed “Erongo Sustainable Governance LAB” under the EU program: “Local Authorities Partnership for Sustainable Cities 2021”. The Municipality of Czerwonak is delighted to participate in this prestigious European Union project and is willing to share the experience of managing public services and building civic society with the Walvis Bay local government in Namibia.

The Municipality of Walvis Bay, Namibia, with the support of EU funds, will revitalize and refurbish the Independence Beach infrastructure in order to make it more accessible, attractive, sustainable and aligned with the citizens’ needs. The challenge in this project is engaging the residents in the decision-making process to build social responsibility and social interest in the town-planning initiatives.

A multifunction walkway measuring approximately 1.3km long and 3 to 4 meters wide will be included in the planned promenade. A variety of greenery will complement the walkway, including lawn, grass, palm trees, succulents, and canopy trees. In addition to the promenade, there will be two functional nodes to enhance it. Associated infrastructure will also be featured along the promenade, including an open-air gym, trading areas, restrooms, and beach sport facilities.

As part of this project, the construction of Walvis Bay Independence Beach Promenade will be realized as a model of promoting “Participatory urban Governance for resilient, safe, and inclusive multi-functional public spaces in Namibia”.

The above activity is discussed in more detail in Chapter 5. The proponent appointed Environam Consultants Trading cc (ECT) to undertake the Environmental Impact Assessment (EIA) in order to obtain an Environmental Clearance Certificate (ECC) for the activity from the Office of the Environmental Commissioner in the Ministry of Environment, Forestry and Tourism (MEFT).

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) of 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 proposed development and related infrastructure and services.

The EIA process would also provide an opportunity for the public and key stakeholders to provide comments and participate in the process. It will also serve the purpose of informing the proponent’s decision-making, and that of MEFT.

1.2 Project Location

The site is located along Independence Beachfront, Walvis Bay. It is situated on the coordinates lat: -22.918735° ; long: 14.527068° . Refer to **Figure 1** below for the locality map of Walvis Bay, and **Figure 2** for the locality map of the proposed development.



Figure 1: Locality map of Walvis Bay

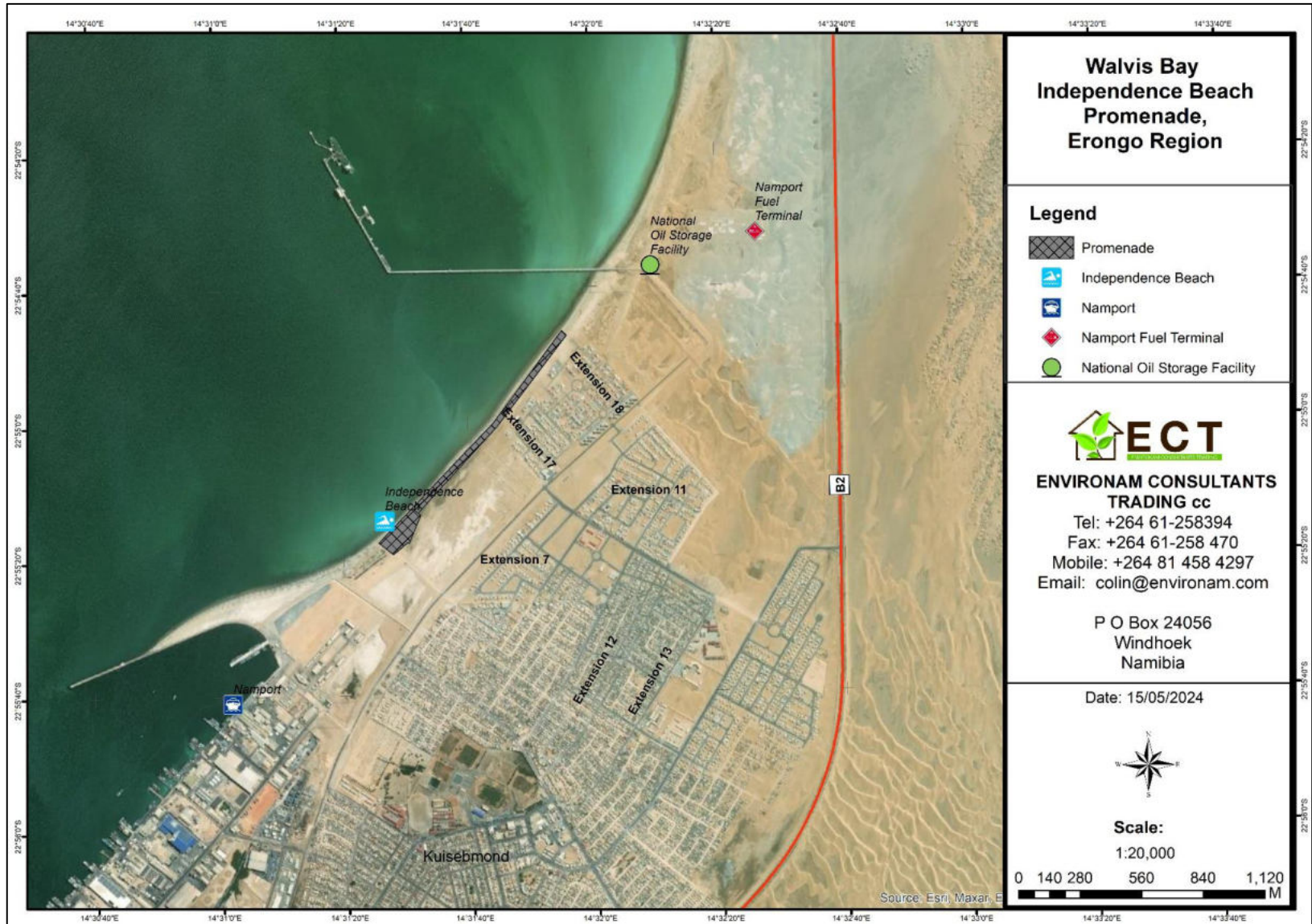


Figure 2: Locality map of the proposed development

1.3 Terms of Reference and Scope of Project

The scope of this project is limited to conducting an Environmental Impact Assessment, compilation of an Environmental Management Plan and applying for an Environmental Clearance Certificate for the construction, operation, maintenance and decommissioning of the proposed Walvis Bay Independence Beach Promenade and associated infrastructure as indicated in section 1.1 above. This includes consultations with client; site investigations and analysis; stakeholder consultations; impact analysis; mitigation formulation; report writing; and draft Environmental Management Plan.

1.4 Assumptions and Limitations

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

- Assumes the information provided by the proponent is accurate and discloses all information available.
- Various layout alternatives were initially considered by the proponent, having taken due regard of the natural and environmental constraints, and the unique character and appeal of Walvis Bay. The current designs thus present the most feasible results.

1.5 Content of Environmental Scoping Report

In terms of Section 8 of the gazetted EIA Regulations certain aspects must be included in a Scoping Report. **Table 1** below delineate, for ease reference, where this content is found in the Environmental Scoping Report.

Table 1: Contents of the Scoping / Environmental Assessment Report

Section	Description	Section of ESR/ Annexure
8 (a)	The curriculum vitae of the EAPs who prepared the report;	Refer to Annexure E
8 (b)	A description of the proposed activity;	Refer to Chapter 5
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 4
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 4
8 (e)	An identification of laws and guidelines that have been considered in the preparation of the scoping report;	Refer to Chapter 2

Section	Description	Section of ESR/ Annexure
8 (f)	Details of the public consultation process conducted in terms of regulation 7(1) in connection with the application, including	Refer to Chapter 6
	(i) the steps that were taken to notify potentially interested and affected parties of the proposed application	Refer to Chapter 6
	(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 Annexures A and 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 Annexure D
	(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 Annexure D
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 5
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 8
8 (i)	terms of reference for the detailed assessment;	Refer to Chapter 1
8 (j)	An environmental management plan	Refer to Annexure F

2. LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK

The principle environmental regulatory agency in Namibia is the Office of the Environmental Commissioner within the Directorate of Environmental Affairs of the Ministry of Environment,

Forestry and Tourism. Most of the policies and legislative instruments have their basis in two clauses of the Namibian Constitution, i.e. Article 91 (c) and Article 95 (l); however, good environmental management finds recourse in multiple legal instruments. The tables below provide a summary of the legal frameworks considered to be relevant to this development and the environmental assessment process.

Table 2: EMA Legislation applicable to the proposed development

Environmental Impact Assessment Regulation 2012 GRN Gazette No. 4878	
Activity	Applicability to the project
8.8 Construction and other activities in water courses within flood lines.	The development takes place along the shoreline.
8.9 Construction and other activities within a catchment area.	The activity takes place in a catchment.
10.1(a) The construction of- oil, water, gas and petrochemical and other bulk supply pipelines.	Pipelines will be constructed for water supply.
11.2 Construction of cemeteries, camping, leisure and recreation sites.	The project involves provision of leisure and recreation amenities.

Table 3: National Policy and Legal framework governing the project

Policy/Legislation	Provisions	Applicability to the Project
<p>The Namibian Constitution</p>	<p>The Namibian constitution is the supreme law of the country which is committed to sustainable development. Article 95(1) of the Constitution of Namibia states that: - “The State shall actively promote and maintain the welfare of the people by adopting policies aimed at ... The maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future”.</p>	<p>Undertake an Environmental Assessment to protect the environment and maintain the marine and terrestrial ecological systems.</p>
<p>The Environmental Management Act (No. 7 of 2007)</p>	<p>The Environmental Management Act (No. 7. of 2007) aims to promote the sustainable management of the environment and the use of natural resources and to provide for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters. The act provides a list of activities that may not be undertake without an environmental clearance certificate.</p>	<p>The project must abide by the statutory requirement of EMA the EIA regulation. Carry out an EIA and develop an EMP for the project.</p>
<p>Draft Pollution Control and Waste Management Bill</p>	<p>This Bill serves to regulate and prevent the discharge of pollutants to air and water as well as providing for general waste management. The Bill will repeal the Atmospheric Pollution Prevention Ordinance (11 of 1976) when it comes into force. The Bill also provides for noise, dust or odour control that may be considered a nuisance. Further, the Bill advocates for duty of care with respect to waste management</p>	<p>Management of waste, and any pollutant or chemicals that may have effect on humans etc.</p>

Policy/Legislation	Provisions	Applicability to the Project
	affecting humans and the environment and calls for a waste management licence for any activity relating to waste or hazardous waste management.	
The Occupational Safety and Health Act No. 11 of 2007;	<p>Safety:</p> <p>A safety risk is a statistical concept representing the potential of an accident occurring, owing to unsafe operation and/or environment. In the working context “SAFETY” is regarded as “free from danger” to the health injury and to properties.</p> <p>Health:</p> <p>Occupational Health is aimed at the promotion and maintenance of the highest degree of physical, mental and social wellbeing of workers in all occupations. This is done by ensuring that all work-related hazards are prevented and where they occur, managed.</p>	<p>During construction, accidents are bound to happen if the working environmental is not safe.</p> <p>The project should maintain good and healthy standards, at the work place, cleanliness, adequate sanitary facilities, protection against dangerous substances.</p>
Public and Environmental Health Act of 2015	<p>The Act serves to protect the public from nuisance and states that person may not cause a health nuisance or may not permit to exist on a land or premises owned or occupied by him or her, or of which he or she is in charge, a health nuisance or other condition liable to be injurious or dangerous to health.</p>	<p>The construction of infrastructure will take place across public places along the sea.</p> <p>The proponent should ensure that the site is off limits from public during construction to avoid incidences.</p>

Policy/Legislation	Provisions	Applicability to the Project
Water Resources Management Act (2004)	This Act provides a framework for managing water resources based on the principles of integrated water resources management. It provides for the management, development, protection, conservation, and use of water resources. Furthermore, any watercourse on/or in close proximity to the site and associated ecosystems should be protected in alignment with the listed principles.	The ocean should be protected from any harmful activities.
Petroleum Product and Energy Act No, 13 of 1990	This Act provides a framework for handling and distribution of petroleum products which may include purchase, sale, supply, acquisition, possession, disposal, storage or transportation thereof.	During construction, there would be handling of fuel and hydrocarbons for heavy vehicles. Hence the act compels the proponent to handle hydrocarbons safely.
Labour Act No. 6 of 1992	This Act aims to regulate labour in general and includes the protection of the health, safety and welfare of employees. The 1997 Regulations relating to the Health and Safety of employees at work sets out the duties of the employer, welfare and facilities at the workplace, safety of machinery, hazardous substances, physical hazards, medical provisions, construction safety and electrical safety.	Ensure that labour laws are followed.
Regional Council Act, 1992 (Act No. 22 of 1992)	The Regional Councils Act legislates the establishment of Regional Councils that are responsible for the planning and coordination of regional policies and development. The main objective of this Act is to	The area is in the jurisdiction of Erongo Regional Council. All relevant laws must be abided to.

Policy/Legislation	Provisions	Applicability to the Project
	initiate, supervise, manage and evaluate development at regional level.	
Soil Conservation Act No. 76 of 1969	This act promotes the conservation of soil, prevention of soil erosion.	Improper planning of construction can cause soil degradation and erosion through earth works.
National Heritage Act No. 27 of 2004	The Act makes provision for the protection and conservation of places and objects of heritage significance and the registration of such places and objects. Part V Section 46 of the Act prohibits removal, damage, alteration or excavation of heritage sites or remains, while Section 48 sets out the procedure for application and granting of permits such as	Scrapping and excavation may unearth archaeological material.
International Best Practises	<p>Precautionary Approach Principle</p> <p>This principle is worldwide accepted when there is a lack of sufficient knowledge and information about the possible threats to the environment.</p> <p>Polluter Pays Principle</p> <p>This principle ensures that proponents take responsibility for their actions. Hence, in cases of pollution, the proponent bears the full responsibility to clean up the environment.</p>	<p>Although not envisioned, the proponent is urged to apply great precaution in an event of uncertainty.</p> <p>In the event of pollution, the proponent shall incur the clean-up cost.</p>

Table 4. The World Bank Environmental and Social Standards (ESS)

No	ESS	Description	Requirements
1.	Assessment and Management of Environmental and Social Risks and Impacts	<p>This ESS sets out the borrower’s responsibility to identify, assess, manage and monitor environmental and social risks and impacts associated with each stage of the project. Three important annexes form part of this standard and set out specific requirements in more details:</p> <ul style="list-style-type: none"> - Annex 1: Environmental and Social Assessment - Annex 2: Environmental and Social Commitment Plan (ESCP) - Annex 3: Management of Contractors 	<ul style="list-style-type: none"> a) Use the WB ESF b) Conduct an environmental and social assessment process, including stakeholder engagement c) Undertake stakeholder engagement and disclose appropriate information d) Develop an ESCP and implement all measures and actions set out in the ESCP e) Conduct monitoring and reporting on environmental and social performance of project against ESS
2.	Labour and Working Conditions	<p>a) This ESS recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. Borrowers can promote sound worker-management relationships and enhance the development benefits of a project by treating workers in the project fairly and providing safe and healthy working conditions</p>	<p>Requirements prescribed for:</p> <ul style="list-style-type: none"> a) Working conditions and management of worker relationships b) Protecting the work force c) Grievance mechanism d) Occupational Health and Safety e) Contracted Workers f) Community Workers g) Primary Supply workers
3.	Resource Efficiency and Pollution	<p>b) This ESS recognizes that economic activity and urbanization often generate pollution to air, water, and land, and consume finite</p>	<p>Requirements prescribed for:</p>

No	ESS	Description	Requirements
	Prevention and Management	resources that may threaten people, eco- system services and the environment at the local, regional, and global levels. c) It sets out the requirements to address resource efficiency and pollution prevention and management throughout the project life cycle.	a) Resource efficiency (Energy use, Water use, Raw materials use) b) Pollution prevention and management
4.	Community Health and Safety	This ESS recognises that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. Communities that are already subjected to impacts of climate change may experience intensification of impacts due to project activities. d) It addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of Borrowers to avoid or minimize such risks and impacts, with particular attention to vulnerable people	Requirements prescribed for: a) Community health and Safety - Infrastructure and equipment design and safety - Safety of Services - Traffic and road safety - Ecosystem services - Community exposure to health issues - Emergency preparedness and response - Management and safety of hazardous materials b) Security personnel
5.	Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	This ESS applies to permanent or temporary physical and economic displacement resulting from land acquisition or restrictions on land use undertaken or imposed in connection with project implementation. Objectives: - To avoid or minimise involuntary resettlement - To avoid forced evictions	a) General requirements: - Eligibility classification - Project design - Compensation and benefits for affected persons - Community Engagement - Grievance mechanism - Planning and implementation

No	ESS	Description	Requirements
		<ul style="list-style-type: none"> - To mitigate unavoidable adverse social and economic impacts from land acquisition or restrictions on land use 	b) Displacement <ul style="list-style-type: none"> - Physical displacement - Economic displacement
6.	Biodiversity Conservation and Sustainable Management of Living Natural Resources	e) The requirements of this ESS are applied to all projects that potentially affect biodiversity or habitats, either positively or negatively, directly or indirectly, or that depend upon biodiversity for their success. f) Objectives: <ul style="list-style-type: none"> - To protect and conserve biodiversity and habitats - To apply the mitigation hierarchy and precautionary approach in the design and implementation - To promote the sustainable management of living natural resources - To support livelihoods of local communities and adoption of practices that integrate conservation needs and development priorities 	a) Assessment of risks and impacts b) Conservation of biodiversity and habitats c) Legally protected and internationally recognised areas of high biodiversity value d) Invasive alien species e) Sustainable management of living natural resources
7.	Indigenous Peoples/Sub-Saharan African Historically Underserved	g) This ESS contributes to poverty reduction and sustainable development by ensuring that projects supported by the Bank enhance opportunities for Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities ¹ to participate in, and	a) Avoidance of adverse impacts b) Mitigation and development benefits

No	ESS	Description	Requirements
	Traditional Local Communities	benefit from, the development process in ways that do not threaten their unique cultural identities and well-being	<p>c) Meaningful consultation tailored to indigenous peoples/Sub-Saharan African historically underserved traditional local communities</p> <p>d) Obtain Free Prior and Informed Consent (FPIC)</p> <p>e) Establish grievance mechanism</p>
8.	Cultural Heritage	<p>h) This ESS sets out general provisions on risks and impacts to cultural heritage from project activities. The term ‘cultural heritage’ encompasses tangible and intangible heritage, which may be recognized and valued at a local, regional, national or global level, as:</p> <ul style="list-style-type: none"> - Tangible cultural heritage (includes immovable objects, sites, structures, natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic or other cultural significance - Intangible cultural heritage (includes practices, representations, expressions, knowledge, skills and cultural spaces associated with that community. 	<p>i) Stakeholder consultation and identification of cultural heritage</p> <p>j) Legally protected cultural heritage areas</p> <p>k) Provisions for specific types of cultural heritage</p> <p>l) Commercial use of cultural heritage</p>
9.	Financial Intermediaries (FIs)	<p>m) FIs are required to monitor and manage the environmental and social risks and impacts of their portfolio and FI subprojects, and monitor portfolio risk, as appropriate to the nature of intermediated financing.</p> <p>Objectives:</p>	<p>a) Environmental and social procedures</p> <p>b) Environmental and social policy</p> <p>c) Organisational capacity and competency</p> <p>d) Monitoring and reporting</p> <p>e) Stakeholder engagement</p>

No	ESS	Description	Requirements
		<ul style="list-style-type: none"> - To set out how the FI will assess and manage environmental and social risks and impacts associated with the subprojects it finances - To promote good environmental and social management practices in the subprojects the FI finances - To promote good environmental and sound human resources management within the FI 	
10	Stakeholder Engagement and Information Disclosure	<p>n) This ESS recognizes the importance of open and transparent engagement between the Borrower and project stakeholders as an essential element of international best practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation</p>	<ul style="list-style-type: none"> a) Stakeholder identification and analysis b) Establish a Stakeholder Engagement Plan c) Provide Information disclosure d) Undertake meaningful consultations e) Continue engagements during project implementation and external reporting f) Establish and implement a grievance mechanism g) Organisational capacity and commitment

Table 5. The Equator Principles

Equator Principle	Description
1. Review and Categorisation	<p>A project proposed for financing is categorised based on the magnitude of potential environmental and social risks and impacts, including those related to Human Rights, climate change, and biodiversity. The Categories are based on the International Finance Corporation (IFC)’s environmental and social categorisation process”</p> <ul style="list-style-type: none"> - Category A- Projects with significant adverse environmental and social risks that are irreversible or unprecedented - Category B- Projects with potential limited adverse environmental and social risks that are largely reversible and can be addressed through mitigation measures - Category C- Project with minimal or no adverse environmental risks or impacts
2. Environmental and Social Assessment	<p>Clients are required to conduct appropriate assessments to address environmental and social risks and the scale of impacts of the proposed project. The assessment should include measures to minimise, mitigate, compensate/offset for risks and impacts to those affected.</p>
3. Applicable Environmental and Social Standards	<p>The Environmental and Social Assessments should first address compliance with the relevant laws, regulations and permits pertaining to environmental and social issues of the host country.</p>
4. Environmental and Social Management System and Equator Principles Action Plan	<p>For all Category A and Category B projects, clients are required to develop and maintain an Environmental and Social Management System (ESMS) to address issues raised in the assessment process.</p>
5. Stakeholder Engagement	<p>For all Category A and Category B projects, clients are required to demonstrate effective stakeholder engagement as an ongoing process, in a structures and culturally appropriate manner with all affected parties.</p>

Equator Principle	Description
6. Grievance Mechanism	As part of the ESMS, for all Category A and B projects, clients are required to establish effective grievance mechanisms that are designed for use by all affected parties
7. Independent Review	For all Category A and B projects, an independent Environmental and Social Consultant will carry out an independent review of the assessment including the ESMPs, ESMS and stakeholder engagement process to assess due diligence and compliance to the EP.
8. Covenants	<p>o) For all Projects, where a client is not in compliance with its environmental and social covenants, the EPFI will work with the client on remedial actions to bring the Project back into compliance.</p> <p>p) If the client fails to re-establish compliance within an agreed grace period, the EPFI reserves the right to exercise remedies, including calling an event of default, as considered appropriate.</p>
9. Independent Monitoring and Reporting	q) To assess Project compliance with the Equator Principles after Financial Close and over the life of the loan, the EPFI will require independent monitoring and reporting
10. Reporting and Transparency	r) The EPFI will, at least annually, report publicly on transactions that have reached Financial Close and on its Equator Principles implementation processes and experience

2.1. EUROPEAN BANK FOR RECONSTRUCTION AND DEVELOPMENT (EBRD)

The EBRD is an international financial institution providing project financing for banks, industries and businesses, for both new and existing companies. The EBRD funds come mainly from bilateral donors such as Climate Investment Funds, European Union, Global Environment Facility and Green Climate Fund. The bank provides direct financial instruments such as loans, equity investments and guarantees.

- The EBRD was the first multi-lateral development bank to have an explicit environmental mandate in its charter and has pledged to dedicate 40% of its financing into the Green Economy Transition.
- The EBRD has an Environmental and Social Policy with 10 requirements. All projects financed by the EBRD should be structured to meet the requirements of the policy. The 10 performance requirements of the EBRD are based on the 10 World bank Environmental and Social standards and will hence not be repeated.

2.3.INTERNATIONAL FINANCE CORPORATION (IFC)

The IFC is a member of the World Bank Group and is the largest global development institution focused exclusively on the private sector in developing countries.

s) The performance standards of the IFC are designed to provide guidance on how to identify risks and impacts, and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable way, including stakeholder engagement and disclosure obligations of the client in relation to project-level activities. For direct investments, IFC requires its clients to apply the Performance Standards to manage environmental and social risks and impacts so that development opportunities are enhanced.

t) The IFC has eight (8) Performance Standards that should be met throughout the life cycle of the project financed. All the eight (8) performance standards are derived from the on the World Bank's 10 ESS with the exception of ESS9 (Financial Intermediaries) and ESS10 (Stakeholder Engagement and Information Disclosure).

3. THE EIA PROCESS

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.

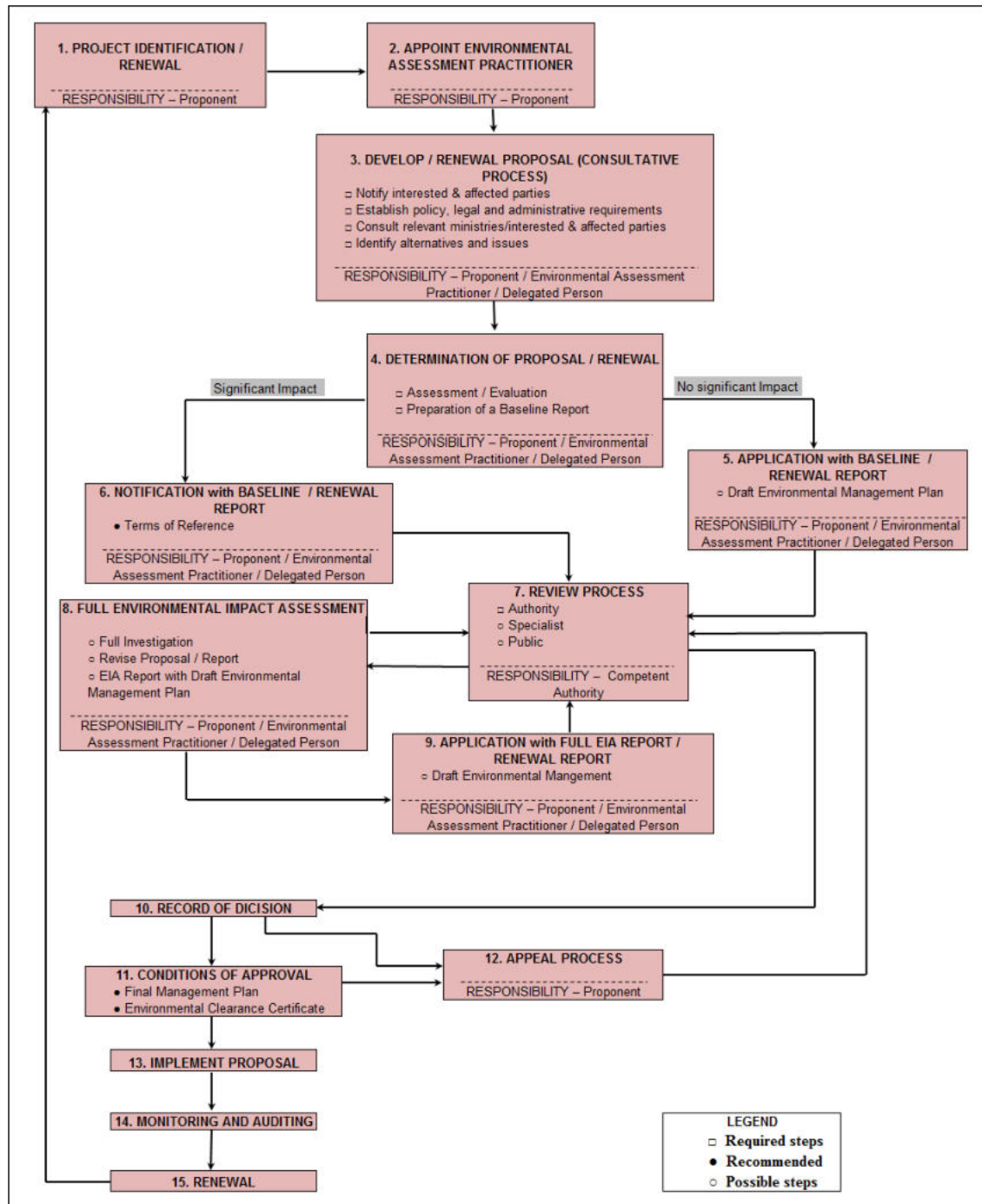


Figure 3: Environmental Assessment Procedure for Namibia (Environmental Assessment Policy of 1995)

4. ENVIRONMENTAL BASELINE DESCRIPTION

4.1. Social Environment

4.1.1. Socio-Economic Context

The statistics shown in **Table 6** below are derived from the preliminary results of the 2023 Namibia Population and Housing Census (NSA, 2023):

Table 6: Statistics of Walvis Bay Urban Constituency

WALVIS BAY URBAN CONSTITUENCY	
Population	51,618
Females	26,212
Males	25,406
Population density	2730.8 persons per km ²
Average household size	3.1

4.1.2. Archaeological and Heritage Context

The discovery of Walvis Bay by Europeans dates back to the exploration of Bartholomeus Diaz in 1487, although indigenous peoples traversed the coast including Walvis Bay for thousands of years before this (Kinahan 2011). The British claimed Walvis Bay in the 1800s, centuries after Diaz claimed it. At this time, Walvis Bay mainly served as a harbour and trading post for seafarers. The harbour was frequented by fishing ships for its rich offshore resources. In the whaling season, which lasted almost two years, American whalers often surrounded the bay and harvested whale oil, exchanging European goods for livestock. Hence, this assessment takes into consideration potential sightings of whale bones from the precolonial era within the surveyed coastal area (Mowa, 2022). If any heritage or culturally significant artefacts are found during the construction, construction must stop and the chance find procedure must be implemented.

4.2. Bio-Physical Environment

4.2.1. Climate

Walvis Bay is considered to have a desert climate. During the year, there is virtually no rainfall. The Köppen-Geiger climate classification is BWk. In Walvis Bay, the average annual temperature is 16.6 °C. In a year, the average rainfall is 11 mm. The least amount of rainfall occurs in May. Most precipitation falls in March, with an average of 5 mm. The temperatures are highest on average in February, at around 19.2 °C. In September, the average temperature is 13.7 °C. It is the lowest average temperature of the whole year (Climate-data, 2024). See **Figure 4** for an average temperature graph and **Figure 5** for an average rainfall data for Walvis Bay.

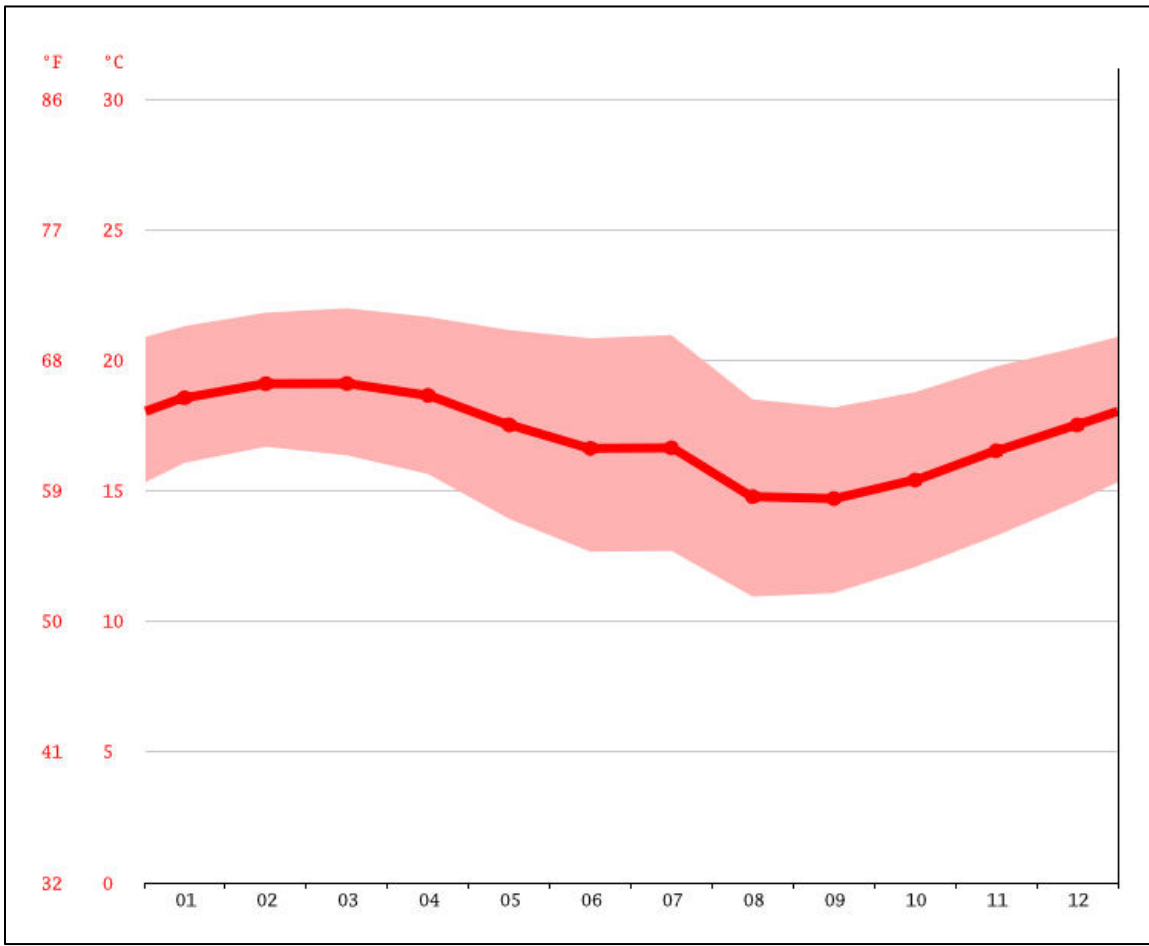


Figure 4: Average temperature graph for Walvis Bay (Climate-data, 2024a)

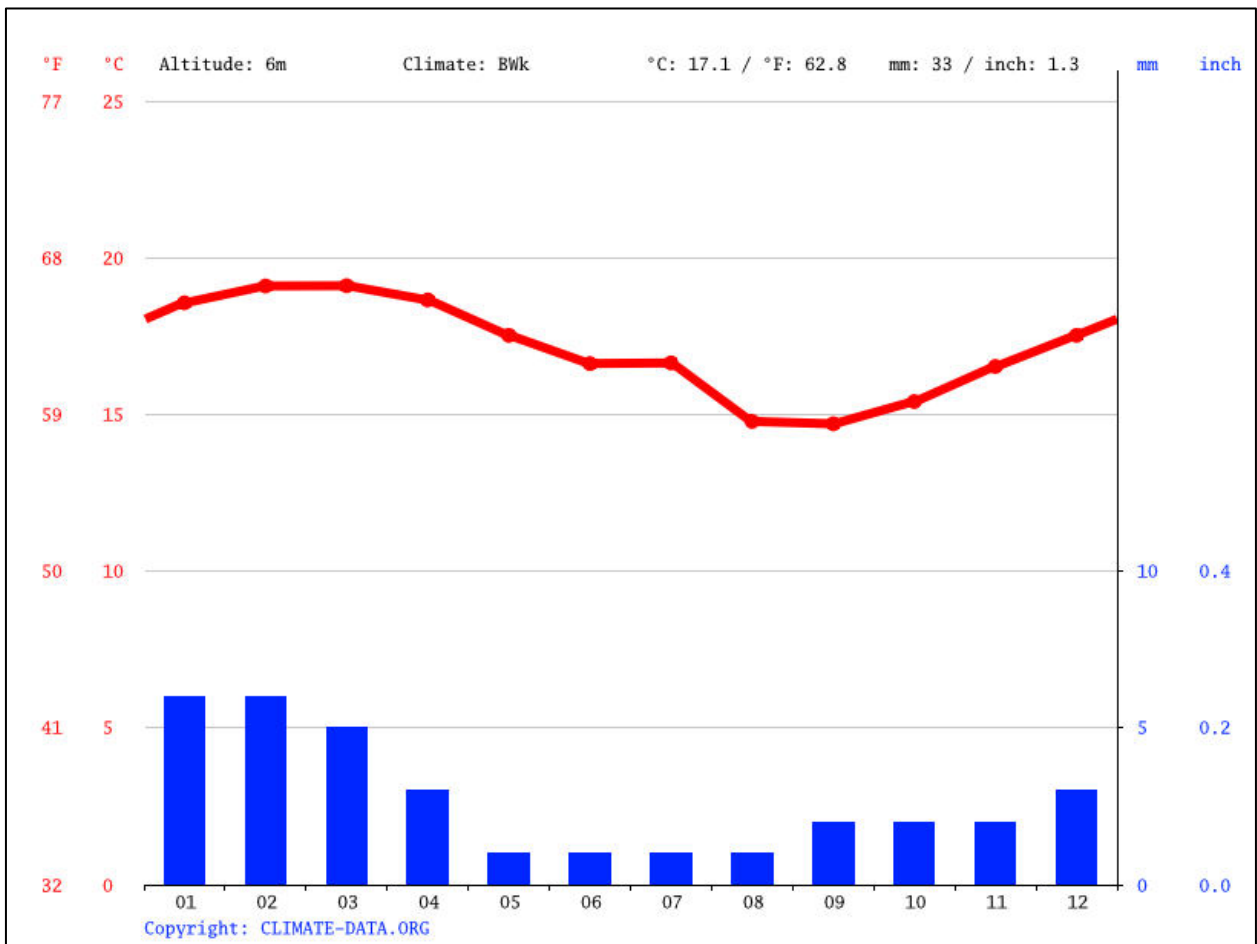


Figure 5: Average monthly rainfall graph for Walvis Bay (Climate-data, 2024b)

4.2.2. Topography, Geology and Hydrogeology

The Erongo Region, stretches from the Central Plateau westwards across the Central-Western Plains and Escarpment to the Central Namibian coast roughly over a distance between 200 and 350 km, and Northwards from the Ugab River in the north to the Kuiseb river in the south over a distance of up to 300 km, covers an area of 63,586 km², which is 7.7 per cent of Namibia’s total area of about 823,680 km². On the Western side it is flanked by the Atlantic Ocean. Erosion cutting eastwards into the higher ground led to the formation of the Central-Western Plains, leading to the formation of the catchment area of several major ephemeral rivers such as the Khan, Omaruru, Swakop and Ugab, the waters of these rivers reach the sea when in full flood during a good rainy season (ERC, 2024).

The Southern boundary of the Kuiseb River distinctively divides the gravel plains to the North and the large sea of dunes to the South, however this river does not reach the sea during times of flood but the water instead disappears into the sand at the Kuiseb Delta, from which the town of Walvis Bay extracts underground water for its supplies.

In the Erongo Region, the land rises steadily from sea level to about 1,000 m across the breadth of the Namib. The Namib land surface is mostly flat to undulating gravel plains, punctuated

with occasional ridges and isolated ‘inselberg’ hills and mountains. The eastern edge of the Namib is marked by the base of the escarpment in the southern part of the region. In the northern part, the escarpment is mostly absent and there is a gradual rise in altitude to over 1,500 m (SAIEA, 2011). The proposed site on which the development will be undertaken can be described as relatively flat.

The desert geology consists of sand seas near the coast, while further inland there is an occurrence of gravel plains and scattered mountain outcrops. Some of the highest sand dunes, up to around 300 m high, can be found here (ERC, 2024). Water for domestic and industrial use in Walvis Bay comes mainly from the Kuiseb aquifer in the lower Kuiseb River. These aquifers are recharged by runoff from the central highlands in central Namibia where rainfall is more reliable and more significant than at the coast (Nacoma, 2010).

4.2.3. Terrestrial Ecology

The central coastal region, and the Swakopmund/Walvis Bay area in particular, is regarded as “relatively low” in overall (all terrestrial species) diversity. Overall terrestrial endemism in the area on the other hand is “moderate to high”. The overall diversity and abundance of large herbivorous mammals (big game) is viewed as “low to medium” with 1-2 species while overall diversity of large carnivorous mammals (large predators) is determined at 4 species with brown hyena being the most important with “medium” densities expected in the area (Cunningham, 2024).

Some endemic coastal invertebrates and reptiles inhabit a narrow belt of dune hummocks within the Namibian coastal strip. This zone also supports marine life and surf zone species. Damara terns, which are near endemic to Namibia and near threatened, are found in concentrated numbers along the coastline stretching from south of Walvis Bay to about the Ugab river, where they nest on gravel plains within 3 - 5 km of the shore and forage over the shallow Bay water, over reefs or in salt ponds (Nacoma, 2010). There are artificially high densities of jackals and gulls due to the increase in numbers of seal colonies and line fishermen which apply heavy predator pressure on the nesting terns. The central Namib coast is also home to the two vulnerable flamingo species, the greater and the lesser (Nacoma, 2010).

The overall plant diversity (all species) in the general Walvis Bay/Swakopmund area is estimated as <50 species. These estimates are limited to “higher” plants as information regarding “lower” plants is sparse. It is estimated that over 400 species - 10% of the flora of Namibia - occur in the central Namib and although it has not been identified as a centre of endemism, it is dominated by endemics such as *Arthroerua leubnitziae*. The greatest variants affecting the diversity of plants are habitat and climate with the highest plant diversity generally associated with high rainfall areas (Cunningham, 2024).

The bare gravel plains within an area of about 40 km of the coast, receive frequent fog moisture providing an ideal home to rich growths of lichens, many of which are endemic to Namibia. Lichen helps to bind the soil rendering it less vulnerable to wind erosion, they do this by forming a “carpet” on the surface pavement of small stones and gravel, or by creating a surface crust on the soil (Nacoma, 2010).

4.3. Surrounding Land Use

4.3.1. The Terrestrial Environment

The surrounding land use in the project area is predominantly residential various Kuisedmond extensions in the immediate vicinity such as Extension 7, Extension 17, and Extension 18 found to the south, east and south-east respectively. Adjacently south-west is the existing recreational facilities of Independence Beach. The National Oil Storage and Namport Fuel Terminal as well as the Jetty and Namport North Port are further north and north-east, see Figure 6 for pictures of the general area.



Figure 6: General surrounding land use

4.3.2. The Sea Environment

The sea environment is globally known as one of the Large marine Ecosystem (LME) commonly known as the Benguela Current Large Marine Ecosystem. Due to high mixing (upwelling) the system is also one of the most productive LME that is characterized by an equatorward flow and high levels of wind-driven coastal upwelling, which brings nutrients from the deep to the surface. However, the system is prone to frequent Harmful Algal Blooms (HABs) and devastating anomalously warm water commonly known as Benguela Nino. These events affect dissolved oxygen, salinity, thermocline, temperature which negatively impact fisheries resources.

The shoreline / intertidal area where the inlet and outlet pipeline will be constructed falls within the Namib Flyway Ecological Biological Significant Area (EBSA). This area is zoned Strict

Biodiversity Conservation Areas (SBA) where development priority is given to the strict protection of biodiversity features. Key biodiversity features are maintained in a natural or semi-natural state, or as near to this state as possible, through strict place-based protection measures in regulating human activities. In this area, new wastewater or desalination brine outfalls are prohibited (Mundjulu, 2024). See Figure 7 for pictures of the general beachfront area.



Figure 7: General beachfront area

4.4. Physical Environment

The infrastructure needs of the proposed project can be categorised into two broad classifications namely:

- Basic infrastructure that includes electricity and roads.
- Environmental infrastructure that consists of water supply, sewage and drainage systems, solid waste management and landscaping.

Bulk infrastructure services such as water and sewer will be extended from the existing services in the vicinity. Electricity will be provided to the site in consultation with the regional electricity distributor, ErongoRED. Ingress will be obtained from various access points from Kuisebmond and Independence Road.

5. PROJECT DESCRIPTION

The design of a beachfront promenade plays a crucial role in creating an attractive and functional space for the community. It should be well-integrated with the natural landscape, featuring elements such as seating areas, green spaces, public art installations, and facilities for recreational activities. The promenade should also be accessible to people of all ages and abilities, with adequate lighting, signage, and amenities to ensure a safe and enjoyable experience for visitors.

The Independence Beach Promenade development will have a multitude of functions besides providing a communal gathering place and becoming the sea barrier that ensures the safety of existing and new buildings being constructed on the adjoining Municipal erven.

- It will create the interconnection between the public, the desert and the sea.
- This unique biotope will be a desirable tourist destination and a vibrant hub of entertainment, information, sport, leisure and interactive activities.
- The interconnection to the city and the influence that this development will have on Walvis Bay will be significant.

A multitude of functions and design criteria had been identified prior to the public procurement process for the development of this project. These criteria were further confirmed, elaborated on and expanded during the public Charrette organized at the Walvis Bay Independence Waterfront. This consultative citizen participation and joint decision-making process will encourage public ownership of the facility and an understanding of the value of this investment in the community.

5.1. Essential Design Criteria

5.1.1. Paving and ground surfacing

Surface paved elements such as sidewalks, pedestrian walkways, bicycle lanes, wheelchair lane, parking lots, access roads and disabled access will be provided for everywhere. Paving is planned using different textures so that cyclist or skate-boarders know when they are transitioning and encroaching on pedestrian or wheelchair areas. Bollards of recycled material will be removable to allow only emergency vehicles such as fire engines, ambulances, Municipal removal or security vehicles to temporarily access the parts of the promenade

Recycling Mining Waste: Offcuts from a local Granite and Marble cutting factory have been dumped on a fenced site just outside Walvis Bay and the company has indicated that this material is available at an extremely reduced price. The sorting of this material could create jobs in the preparations for construction on site. Labour cost components may be high for sorting and laying but the quantity and variety of this Namibian material is copious. Many different patterns could be created on ground and wall surfaces using these offcuts. In amongst the waste are large slabs of granite and marble that can be used as retaining structures or walkway demarcation, and support blocks.

Recycled Plastic Waste: A supplier in Windhoek, associated with a large-scale plastic waste collection industry in South Africa provides many different products suitable for use externally. These include thick planks that can be used as board-walks or roped temporary walkways all the way down to the beach. Solid beams provide structural members for pedestrian bridges and posts.

Turf Pavers: In recent years, sustainable landscaping has gained considerable popularity, with a growing emphasis on environmentally friendly and aesthetically pleasing outdoor spaces. One key element of this trend is the use of grass pavers, an innovative solution that combines the beauty of a lush lawn with the strength of traditional paving. These turf, or grass block pavers, stabilize the surface of any landscaping that is prone to weathering and movement due to high wind loads, shifting sands and possible sea storm surges.

Walkways and jogging, bicycle lanes and wheelchair friendly Promenade access: During the Charrette event it was repeatedly stated that accessible well-constructed paved walkways should be provided along the Independence Beach Promenade. Designated lanes will be provided to allow for the local population to frequent the Promenade on properly stabilised and hazard-free paving.

5.1.2. Greening and shadowing

Wind screening: Strategically placed clusters of planting in elongated SE-NW patches will screen allocated positions for picnics and gathering from the prevailing cold South West Wind. This predominant wind blows across the cold Benguela current and brings very low temperatures with wind chill onto the beach. Placing the planting clusters in this direction will allow open views of the sea throughout the park area, but will give respite from the wind.

Trees and shrubs: Both trees and shrubs will form part of the planting clusters to maximise the wind shadow.

Lawns and Grasses: Some smaller sections of the undulating park will be stabilised with turf pavers that have hardy grasses growing in them. Lawned picnic areas will be strategically placed.

Biodiversity: Information boards will be placed on raised mounds that include rockeries and local plants. Information on sea life, birds and endemic plant life will be displayed.

5.1.3. Sanitation

To establish an efficient and inclusive sanitation system for the beach, accommodating the needs of various users including disabled individuals, small children, and babies, the following measures can be implemented:

Inclusive Facilities for Disabled, Small Children, and Babies: Design and construction of accessible toilets equipped with handrails, spacious interiors, and features such as changing tables for babies and lockers. Installation of ramps and pathways to facilitate easy access for

wheelchair users and caregivers with strollers.

Equipped Toilets with Cleaners: All toilets will be equipped with cleaning supplies such as brushes, disinfectants, and trash bins to maintain hygiene standards throughout the day. Kiosk owners are responsible for regular maintenance and cleanliness of the toilets, including restocking supplies and addressing any issues promptly.

Open Showers and Changing Rooms: Provide open-air showers for beachgoers to rinse off sand and saltwater. The rinse water will discharge directly into surrounding vegetation.

Placement of Multiple Public Toilets at Intervals: Distribute public toilets strategically along the beachfront at regular intervals to minimize overcrowding and ensure equitable access for all visitors. Consider placing toilets near popular amenities such as picnic areas, playgrounds, and parking lots to accommodate diverse needs and preferences.

Intensive Maintenance: Implement periodic deep cleaning and disinfection procedures to uphold sanitation standards and prevent the spread of infectious diseases.

Management by Kiosk Owners with Payment for Use: Partner with kiosk owners or local businesses to manage and maintain the public toilets, with responsibilities including cleanliness, restocking supplies, and collecting payment for toilet use. Implement a user-pay system where visitors can access the toilets by paying a nominal fee, which helps cover maintenance costs and incentivizes proper upkeep. By implementing these measures, the beach can establish a comprehensive sanitation system that prioritizes inclusivity, cleanliness, and sustainability, enhancing the overall experience for all beachgoers while preserving the natural beauty of the environment.

5.1.4. Safety and security

To ensure comprehensive safety and security on the beach, the following measures can be implemented, taking into account the specified requests:

Development of a Full Security System: Design and implementation of a comprehensive security system tailored to the beach environment, including physical infrastructure, technology, and personnel.

Increased Deployment of 24/7 Security Guards and CCTV: Augment the number of security guards stationed at the beach to provide round-the-clock surveillance and response capabilities. Install a network of CCTV cameras strategically positioned to monitor key areas of the beach, including entrances, high-traffic zones, and secluded spots.

Installation of 24/7 Monitoring and Intervention Patrols: Implement continuous monitoring of CCTV feeds by trained personnel, ensuring immediate detection of any suspicious activities or potential threats. Utilize technology such as GPS tracking and communication devices to enable rapid coordination and deployment of intervention teams as needed.

Integration of Alarm Systems and Emergency Response Protocols:

Integrate alarm systems capable of alerting security personnel and emergency services in case of security breaches, medical emergencies, or natural disasters. Develop standardized emergency response protocols outlining procedures for evacuations, first aid, and coordination with relevant authorities.

Collaboration with Law Enforcement and Community Engagement: Forge partnerships with local law enforcement agencies to enhance coordination and mutual support in maintaining beach security. Foster community engagement initiatives to promote awareness of beach safety guidelines, encourage reporting of suspicious activities, and cultivate a sense of shared responsibility among beachgoers.

Regular Training and Drills: Conduct regular training sessions and drills for security personnel to ensure proficiency in handling various scenarios, including crowd control, water rescues, and first aid. Review and update security protocols and procedures based on lessons learned from real-world incidents and evolving security threats. By implementing these measures, the beach can establish a robust safety and security framework that addresses the need for constant vigilance, timely intervention, and effective response to ensure the wellbeing of visitors and the integrity of the beach environment.

Manage Drowning Risks: A Topographical Survey conducted west of Walvis Bay Extensions 20,16,17,18 indicates a possible danger zone north of Extension 20. There is concern that this is the place where most drownings are taking place along the development area. The area has however not been properly mapped out in terms of the bathymetry. It is, however, important to designate this area as a no-swimming zone pending further detailed studies.

5.1.5. Ecological infrastructure design

To create an ecological infrastructure design for the promenade that raises awareness and respects the natural beach environment, while also addressing the specified factors, the following features can be incorporated:

Swell Protection During Spring Tides: Utilize eco-friendly measures such as natural dune restoration and vegetative buffers to provide swell protection during spring tides. Incorporate sand dunes and native vegetation along the shoreline to act as natural barriers, helping to absorb wave energy and reduce erosion without compromising the ecological integrity of the beach. Where storm surge structures are required, these will be incorporated without exposing too much of the structures.

Respect for Natural Beach Quality: Design infrastructure elements, such as seating areas, walkways, and amenities, to blend harmoniously with the natural beach environment. Use sustainable materials and low-impact construction techniques to minimize disruption to the beach ecosystem and preserve its aesthetic value. Incorporate interpretive signage and educational displays to raise awareness about the importance of preserving the natural beach habitat and promoting responsible stewardship among visitors.

Windproof Infrastructure: Instead of traditional windproof infrastructure such as transparent fences, prioritize the use of vegetation as natural windbreaks and buffers. Plant native trees, shrubs, and grasses along the promenade to provide shelter from strong winds while enhancing biodiversity and habitat connectivity. Design pathways and seating areas with curved or sheltered layouts to minimize exposure to wind without obstructing views of the coastline or compromising airflow. By integrating these ecological design principles into the promenade infrastructure, it becomes possible to create a sustainable and resilient coastal environment that not only provides protection and amenities for visitors but also fosters awareness and appreciation of the natural beauty and ecological significance of the beach ecosystem. This approach aligns with public expectations for facilities that respect and enhance the current quality of the beach while promoting environmental conservation and ecological stewardship.

5.1.6. Playground

Jungle Gyms: A series of climbing gyms are provided in the form of natural coloured gum-pole structures paired with ropes and nets. The children and parents of the Walvis Bay public however asked for more slides and merry-go-rounds for the children, at various places along the promenade. These have to be made of suitable material to avoid injury and should additionally be provided in the Park area. Alternative jungle gyms and swings of recycled plastic in natural colours also form part of the climbing equipment.

Climbing mounds: Natural undulating climbing mounds with varying surfacing such as coastal plants, lawns, turf pavers and rockeries will provide an environment of interesting and varied textures for children to play on.

Natural beach sand areas: Beach sand will form the natural ground that the jungle gyms are placed in and will provide soft surfaces for the children to play in. These are dispersed throughout the park and surrounded by the undulating landscape.

Musical Playground: Unique to Namibia especially near the coast are “Singing Rocks”. A naturally occurring rock that sounds a particular note pitch when struck. A rockery mound packed with singing rocks can form a very interesting musical playground for the children. Imagine the Marimba Band dispersed all over the rockery playing a tune on these rocks at the opening.

5.1.7. Waste Management

Recycled Plastic Bins: The intention is to separate waste and to have clearly marked batteries if bins at road access nodes along the Promenade. This will allow regular collection of waste by the Municipality. Glass, plastic, tins and paper will be separated and organic waste will be collected in separate lined bins.

Recycled Plastic framed and supported signage: Simplified educational boards will be erected at the waste collection stations indicating the types of waste to be separated.

5.1.8. Sports Facilities and other Youth Groups

Pedestrian, Wheelchair and Bicycle Lanes: Starting at the Park area in the south, the entire 1.3km Promenade will have a paved pedestrian and wheelchair lane, as well as a paved cycling lane. Joggers will be able to use the entire promenade for safe jogging and will be able to exercise on equipment in the park.

Beach volleyball: Equipment for Beach volleyball will be available from the responsible kiosk owner running the public toilets.

Swimming: Swimming safe sections of the beach will be demarcated with flags, and warning signs will be permanently placed at the dangerous beach sections.

Angling: Angling will be allowed at the sections of beach that drop off too steeply for swimming. Signage for angling will be installed.

Boat launching & fish cleaning: At the northern extremity of the promenade, a boat launching ramp is planned, with a parking area with fish-cleaning stations. The fish cleaning stations will be open to the sun to ensure UV exposure.

Life-size-chess: At the Promenade nodes, life size chess checkers can be very simply included in the surfacing, especially near the open markets to encourage the public to bring chess pieces and allow the children to play. This can be done using waste mining material for paving. It is suggested to have chess pieces made from recycled plastic, to be stored in site storage.

5.1.9. Accessibility

To ensure accessibility to all infrastructure provided on the beach, including pavements, designated parking areas, wheelchair lanes etc. the following measures can be implemented:

Pavements/Walkways: Construct smooth walkways throughout the beach area to accommodate pedestrians, wheelchair users, and strollers. Ensure that pavements are free of obstacles and have tactile paving for visually impaired individuals to navigate safely. A connection to the existing park walkway will be created to ensure the future use of existing Municipal infrastructure in the old park.

Access to water by wheelchair users: Install a recycled plastic planked pathway from the promenade edge down to the water's edge for wheelchair access.

Designated Parking Area with Markings: Designate a parking area with clearly marked spaces for different types of visitors, including disabled parking spots located close to beach access points. It is also considered to provide allocated parking for mobile food trucks at the park.

Wheelchair and walking Lane: Designate a dedicated lane or pathway wide enough to accommodate wheelchairs and pedestrians, allowing individuals with mobility impairments to navigate independently. Ensure that the wheelchair lane is connected to key amenities such as restrooms, picnic areas, and recreational facilities.

Free of Charge to Use: Offer all infrastructure on the beach free of charge to promote inclusivity and ensure equal access for all visitors, regardless of their financial means.

Beautiful Welcoming Signboard with Logos: Install a visually appealing and informative signboard at the entrance of the beach, featuring welcoming messages, logos of sponsors such as the EU and Czerwonack, and relevant information about facilities and services available. It is also envisaged that pamphlets on the sculptures along the promenade be available to create visitor interest in the local artwork. By implementing these accessibility measures, the beach can create an inclusive and welcoming environment that caters to the needs of all visitors, while promoting sustainability, diversity, and social inclusion.

5.1.10. Shop Facilities

To cater to the diverse needs of beachgoers, a variety of very small-scale shop facilities, including informal and semi-formal kiosks, can be established along the beachfront.

Tuck Shops: Tuck shops will offer a selection of sweets, ice cream, snacks, and coffee to satisfy cravings and provide refreshments for visitors enjoying the beach. These small-scale kiosks can be set up in strategic locations along the promenade for easy access.

Permanent Namibian Kiosk: A permanent Namibian kiosk, excluding kapana braai due to fire hazards and hygiene concerns, will provide an array of Namibian delicacies and snacks. This kiosk can showcase local flavours and cultural specialties, offering visitors a taste of authentic Namibian cuisine.

Beach Bar/Pub Restrictions: In compliance with regulations prohibiting alcohol sales on the beach, beach bars or pubs will not be allowed. However, non-alcoholic beverages and refreshments can be available to quench thirst and provide enjoyment for beach enthusiasts.

Trade Area or Market: A designated trade area or market will feature stalls selling soft drinks specifically catering to children. These stalls can offer a variety of non-alcoholic beverages, fruit juices, and refreshing drinks in kid-friendly packaging.

Proper Food Stalls and Caravans: Proper food stalls and caravans will provide a diverse selection of freshly prepared meals, snacks, and light bites for beach visitors seeking more substantial fare. These stalls can offer a range of options, including sandwiches, salads, grilled items, and local specialties.

Fish Kiosk: A dedicated fish kiosk will sell fresh fish caught on the line (rod) directly from local fishermen. Visitors can enjoy the taste of freshly caught seafood, including fish fillets and seafood snacks, prepared on-site or available for purchase to cook at home. By establishing a mix of informal and semi-formal kiosks along the beachfront, visitors can enjoy a wide range of culinary delights, from sweet treats and snacks to authentic local cuisine and fresh seafood. These small-scale shop facilities contribute to the vibrant atmosphere of the beach while providing convenient informal dining options for beachgoers of all ages.

5.1.11. Outdoor Social Spaces

To create inviting outdoor social spaces at the promenade and park, accommodating a range of activities and preferences, the following features can be incorporated:

Picnic Spots with Grass: Designate green areas with maintained grass as picnic spots, providing families and groups with ample space to spread out blankets and enjoy dining amidst natural surroundings. Install picnic tables and benches in some areas for added convenience, allowing visitors to comfortably enjoy meals outdoors.

Leisure Braai Facilities: Incorporate leisure braai facilities equipped with picnic tables but without braai grids, and seating areas, where visitors can gather and enjoy outdoor barbecues and picnics with friends and family. Braai grids should be brought by the visitors themselves. Ensure that braai areas are located in designated zones with appropriate safety measures and waste disposal facilities to promote responsible use and cleanliness.

Benches, Small Infrastructure, and Outdoor Furniture: Scatter benches, tables, and outdoor furniture throughout the promenade and park, providing resting spots and gathering areas for individuals and small groups. Install additional amenities such as bike racks, drinking fountains, and waste bins to enhance functionality and user comfort.

Shelters for Relaxing - Shade Creation: Install shaded shelters or pergolas equipped with seating and lounging areas, providing refuge from the sun and elements for visitors seeking relaxation and respite. Incorporate natural shade elements such as trees and foliage, strategically positioned to provide cooling shade, wind protection and enhance the aesthetic appeal of the outdoor spaces.

Rod Fishing Separated Section: Allocate a designated section along the promenade or waterfront for rod fishing enthusiasts, offering a tranquil environment for fishing activities away from pedestrian traffic and recreational areas. This designated area can be demarcated at the section of the beach known as the “cliff” where swimming is dangerous. A designated boat launch concrete slipway at the northern extremity of the promenade can be included. By integrating these outdoor social spaces into the promenade and park design, visitors can engage in a variety of leisure activities, from picnics and barbecues to relaxation and fishing, fostering a sense of community and enjoyment of the natural environment. These thoughtfully designed spaces contribute to the overall appeal and functionality of the waterfront destination, attracting visitors of all ages and interests.

5.1.12. Supplementary Infrastructure

To ensure adequate infrastructure for electricity, water supply, and other amenities at the park and promenade, while considering various factors such as prepaid power for kiosks, smart lighting, walkways, parking, and phone charging places, the following measures can be implemented:

Electricity Supply: Install prepaid electricity meters at kiosks and other facilities to allow vendors to manage their energy consumption efficiently and prevent billing discrepancies. Implement a centralized power distribution system with designated outlets and connections for lighting fixtures, and other electrical appliances to ensure reliable and safe access to electricity.

Smart Lighting: Install smart solar lighting systems along walkways, seating areas, and other key locations to enhance visibility, safety, and aesthetics. Utilize energy-efficient LED fixtures with programmable controls and motion sensors to adjust lighting levels based on ambient conditions and user activity, minimizing energy consumption and light pollution.

Accessible Walkways: Designate accessible walkways with smooth surfaces and gradual slopes to accommodate pedestrians of all ages and mobility levels, including wheelchair users, strollers, and cyclists. Ensure proper signage and wayfinding elements to guide visitors and promote inclusive access to all areas of the park and promenade.

Parking Management: Designate designated parking areas with clearly marked spaces and directional signage to prevent haphazard parking and improve traffic flow.

Water Supply: Provide access to clean drinking water through strategically located water fountains or hydration stations. Supply outdoor showers with clean rinsing water. Use the existing greywater recycling infrastructure for use in irrigation systems, reducing freshwater consumption and promoting water conservation.

Phone Charging Stations: Install phone charging stations equipped with charging ports to allow visitors to recharge their devices while enjoying the park and promenade. Incorporate solar-powered charging stations to harness renewable energy and reduce dependence on the grid, offering environmentally friendly charging options for ecoconscious visitors. By incorporating these supplementary infrastructure elements into the park and promenade design, it becomes possible to create a sustainable and user-friendly environment that meets the diverse needs and expectations of visitors, while also promoting energy efficiency, water conservation, and environmental stewardship. This infrastructure must be installed in trenches before walkway surfaces are finished to avoid having to hack up already finished surfaces.

5.1.13. Ownership and Stewardship

To ensure public ownership and stewardship of the promenade, while also creating job opportunities for the youth and local community members, the following strategies can be employed.

Youth and Local Employment Opportunities: Establish programs and initiatives aimed at hiring youth and local residents for various roles related to the maintenance, management, and operation of the promenade. This can already begin prior to construction by sorting the mining waste material into usable and similar material. Offer training and skill development workshops to equip young people with the necessary skills and knowledge to contribute effectively to

promenade activities. Partner with local organizations, schools, and vocational training centres to facilitate recruitment and placement of candidates from the community.

Co-Creation and Community Involvement: Foster a sense of ownership and community pride by involving residents in the co-creation and decision-making processes related to the management of the promenade. Encourage active participation and engagement through volunteer opportunities, community clean-up events, and collaborative projects that empower residents to contribute to the enhancement and preservation of the promenade.

Competitions for Sculpture Designs and Sponsorship: Organize competitions inviting local artists to submit designs for sculptures and public art installations to be featured along the promenade. Partner with large companies and sponsors to provide funding and support for the realization of winning designs, fostering collaboration between artists, businesses, and the community. Showcase the selected sculptures as focal points of cultural expression and community identity, enhancing the aesthetic appeal and cultural richness of the promenade while celebrating local talent.

Responsibility of Kiosk Owners for Sanitary Upkeep: Hold kiosk owners accountable for the cleanliness and maintenance of public ablution facilities located near their establishments. Incorporate contractual agreements or lease terms stipulating the responsibilities of kiosk owners regarding regular cleaning, restocking of supplies, and upkeep of restroom facilities. Provide training and support to kiosk owners to ensure compliance with hygiene standards and sanitation protocols, emphasizing the importance of their role in preserving the cleanliness and reputation of the promenade. By implementing these strategies, public ownership and stewardship of the promenade can be fostered, creating a sense of community engagement, pride, and responsibility among residents while also generating meaningful job opportunities and supporting local talent and entrepreneurship.

5.1.14. Artistic Facilities

Artistic facilities at the promenade can enrich the cultural experience of visitors and foster creativity and expression within the community. Here's a discussion on each facility considering the specified points:

Stage for Performances: A dedicated stage provides a platform for various performances, including music concerts, dance recitals, theatre productions, and spoken word events. The stage can be equipped with lighting, electricity for sound systems, and casual seating arrangements to accommodate different types of performances and audience sizes.

Art Station: An art station offers interactive and hands-on artistic activities for visitors of all ages, such as painting, drawing, sculpting, and craft workshops. Professional artists and educators can lead workshops and demonstrations, providing opportunities for skill development and artistic exploration.

Small-Scale Amphitheatre: A small-scale amphitheatre provides an open-air space for intimate performances, storytelling sessions, poetry readings, and informal gatherings. The

amphitheatre can be designed with tiered seating or grassy terraces to create a natural amphitheatre effect, allowing for unobstructed views of the stage or performance area.

Arts and Crafts Stalls: Arts and crafts stalls showcase the work of local artists, artisans, and craftsmen, offering handmade jewellery, textiles, ceramics, paintings, and other unique creations for sale. Visitors can interact with artists, learn about their creative processes, and purchase one-of-a-kind artworks and souvenirs to support local talent and entrepreneurship.

Rubber Flooring for Dancing: Rubber flooring provides a safe and resilient surface for outdoor dancing activities. A designated dance area equipped with rubber flooring and appropriate lighting encourages spontaneous dancing and social interaction, adding vibrancy and energy to the promenade.

Graffiti Wall: A graffiti wall can be considered in the future, which serves as a designated space for street artists and graffiti enthusiasts to showcase their artistic skills and creative expression. Visitors can watch artists at work, participate in graffiti workshops, or even contribute their own designs to the evolving mural, fostering a sense of community ownership and collaboration.

Namibian Singing Rocks: These rocks can be played by children or by the Marimba Band by striking them creating tones of varying pitch. These artistic facilities at the promenade create dynamic and inclusive spaces for cultural exchange, artistic expression, and community engagement. By incorporating these elements, the promenade becomes not only a recreational destination but also a vibrant hub of creativity and cultural enrichment for residents and visitors alike.

5.2.No - Go Alternative

The no-go alternative would essentially entail maintaining the current situation, whereby the transformation of the beachfront to offer recreational, social and economic benefits will not be realised. This will inhibit added growth, life of the town and empowerment of the residents and small local businesses. In addition, the potential job opportunities both during the construction and operational phases of the proposed development will not be realised. While the no-go alternative will not result in any negative impacts the potential positive impacts will be lost.

6. PUBLIC PARTICIPATION PROCESS

6.1. Public Consultation Process Phase 1

In terms of Section 21 of the EIA Regulations a call for public consultation with all I&APs during the EIA process is required. This entails consultation with members of the public and providing them an opportunity to comment on the proposed project. The Public Consultation Process does not only incorporate the requirements of Namibia's legislation, but also takes account of national and international best practises. Please see Table 7 below for the activities undertaken as part of the public participation process.

Table 7: Table of Public Consultation Activities

ACTIVITY	REMARKS
Placement of Notices/ posters on site and notice boards	See Annexure A
Placing advertisements in three newspapers for two consecutive weeks, namely Namib Times, Confidante and Windhoek Observer	See Annexure B
Written notice to Interested and Affected Parties via Email	See Annexure D
Use of Municipality of Walvis Bay platforms	
Public consultation meeting	Independence Beach

The comment period of the initial public participation process commenced on 1 March 2024 and ended on 22 March 2024.

6.2. Public Consultation Process Phase 2

The second phase of the Public Consultation Process involved the lodging of the Draft Environmental Scoping Report (DESR) to all registered I&AP for comment. Registered and potential I&APs were informed of the availability of the DESR for public comment. I&APs were given time until **02 August 2024** to submit comments or raise any issues or concerns they may have with regard to the proposed project.

7. ASSESSMENT METHODOLOGY

Impact assessments depend on the nature and magnitude of the proposed activity, as well as the type of environmental control envisaged for the particular project. Given the nature of the proposed activity, i.e., a construction project, the identification and assessment of the potential impacts will be based on the type and scale of the various activities associated with the project.

Assessment of the predicted significance of impacts for a proposed development is by its nature, inherently uncertain. To deal with such uncertainty in a uniform manner, standardised and internationally recognised methodologies have been developed. One 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 8**.

Table 8: Impact Assessment Criteria

CRITERIA	CATEGORY
Impact	Description of the expected impact
Nature Describe type of effect	Positive: The activity will have a social / economical / environmental benefit. Neutral: The activity will have no effect Negative: The activity will have a social / economical / environmental harmful effect
Extent	Site Specific: Expanding only as far as the activity itself (onsite)

CRITERIA	CATEGORY
Describe the scale of the impact	<p>Small: restricted to the site’s immediate environment within 1 km of the site (limited)</p> <p>Medium: Within 5 km of the site (local)</p> <p>Large: Beyond 5 km of the site (regional)</p>
<p>Duration Predicts the lifetime of the impact.</p>	<p>Temporary: < 1 year (not including construction)</p> <p>Short-term: 1 - 5 years</p> <p>Medium term: 5 - 15 years</p> <p>Long-term: >15 years (Impact will stop after the operational or running life of the activity, either due to natural course or by human interference)</p> <p>Permanent: 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</p>
<p>Intensity Describe the magnitude (scale/size) of the Impact</p>	<p>Zero: Social and/or natural functions and/ or processes remain unaltered</p> <p>Very low: Affects the environment in such a way that natural and/or social functions/processes are not affected</p> <p>Low: Natural and/or social functions/processes are slightly altered</p> <p>Medium: Natural and/or social functions/processes are notably altered in a modified way</p> <p>High: Natural and/or social functions/processes are severely altered and may temporarily or permanently cease</p>
<p>Probability of occurrence Describe the probability of the Impact <u>actually</u> occurring</p>	<p>Improbable: Not at all likely</p> <p>Probable: Distinctive possibility</p> <p>Highly probable: Most likely to happen</p> <p>Definite: Impact will occur regardless of any prevention measures</p>
<p>Degree of Confidence in predictions State the degree of confidence in predictions based on availability of information and specialist knowledge</p>	<p>Unsure/Low: Little confidence regarding information available (<40%)</p> <p>Probable/Med: Moderate confidence regarding information available (40-80%)</p> <p>Definite/High: Great confidence regarding information available (>80%)</p>
<p>Significance Rating The impact on each component is determined by a combination of the above criteria.</p>	<p>Neutral: A potential concern which was found to have no impact when evaluated</p> <p>Very low: Impacts will be site specific and temporary with no mitigation necessary.</p> <p>Low: 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>Medium: 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>

CRITERIA	CATEGORY
	<p>High: 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.

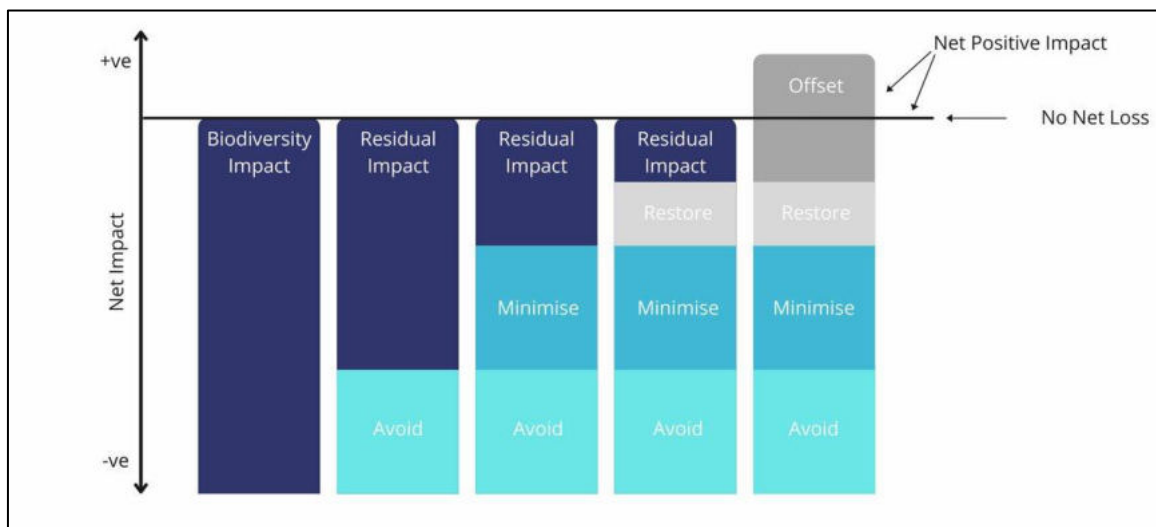
For each impact, the EXTENT (spatial scale), MAGNITUDE (size or degree scale) and DURATION (time scale) are described. These criteria are used to ascertain the SIGNIFICANCE of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The decision 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.

8. MITIGATION HIERACHY

The mitigation hierarchy is a widely used tool that guides users towards limiting as far as possible the negative impacts on biodiversity from development projects. It emphasises best-practice of avoiding and minimising any negative impacts, and then restoring sites no longer used by a project, before finally considering offsetting residual impacts.

Following the hierarchy is crucial for all development projects aiming to achieve no overall negative impact on biodiversity or on balance, a net gain - also referred to as no net loss and the net positive approach, respectively. It is based on a series of essential, sequential - but iterative - steps taken throughout the project's life cycle in order to limit any negative impacts on biodiversity.



Sequential steps of the mitigation hierarchy

Avoidance: the first step of the mitigation hierarchy comprises measures taken to avoid creating impacts from the outset, such as careful spatial placement of infrastructure, or timing construction sensitively to avoid or disturbance. Examples include the placement of roads outside of rare habitats or key species' breeding grounds, or timing of seismic operations when aggregations of whales are not present. Avoidance is often the easiest, cheapest and most effective way of reducing potential negative impacts, but it requires biodiversity to be considered in the early stages of a project.

Minimisation: these are measures taken to reduce the duration, intensity and/or extent of impacts that cannot be completely avoided. Effective minimisation can eliminate some negative impacts, such as measures to reduce noise and pollution, designing powerlines *to* reduce the likelihood of bird electrocutions, or building wildlife crossings on roads.

Rehabilitation/restoration: The aim of this step is 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 was present before impacts, whereas rehabilitation only aims to restore basic ecological functions and/or ecosystem services - such as through planting trees to stabilise bare soil. Rehabilitation and restoration are frequently needed towards the end of a project's life cycle but may be possible in some areas during operation.

Collectively, avoidance, minimisation and rehabilitation/restoration serve to reduce, as far as possible, the residual impacts that a project has on biodiversity. Typically, however, even after their effective application, additional steps will be required to achieve no overall negative impact or a net gain for biodiversity.

Offset: offsetting aims to compensate for any residual, adverse impacts after full implementation of the previous three steps of the mitigation hierarchy. Biodiversity offsets are of two main types: 'restoration offsets' which aim to rehabilitate or restore degraded habitat, and 'averted loss offsets' which aim to reduce or stop biodiversity loss in areas where this is predicted. Offsets are often complex and expensive, so attention to earlier steps in the mitigation hierarchy is usually preferable.

Supporting Conservation Actions: measures taken which have positive - but difficult to quantify - effects on biodiversity. These qualitative outcomes do not fit easily into the mitigation hierarchy, but may provide crucial support to mitigation actions. For example, awareness activities may encourage changes in government policy that are necessary for implementation of novel mitigation, research on threatened species may be essential to designing effective minimisation measures, or capacity building might be necessary for local stakeholders to engage with biodiversity offset implementation.

9. POTENTIAL IMPACTS

This Chapter describes the potential impacts on the biophysical and socio-economic environments, which may occur due to the proposed activities. These include potential impacts, which may arise during the planning and design phase, potential construction related impacts (i.e. short to medium term) as well as the operational impacts of the proposed development (i.e. long-term impacts).

The assessment of potential impacts will help to inform and confirm the selection of the preferred project plan and design 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 Report.

The baseline and potential impacts that could result from the proposed development are described and assessed with 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.

9.1. Planning and Design Phase Impacts

During the planning and design phase consideration is given to aspects such as surface and groundwater; fauna and flora; existing infrastructure; traffic; and safety.

9.1.1. Surface and Groundwater

The proposed development site is located adjacent to the shoreline of the Atlantic Ocean, this puts the surface and ground water resources in the area at risk of pollution. Subsurface sediments to the shallow groundwater is permeable and can therefore transport contaminants to the groundwater. Groundwater can, in turn, serve as a pathway for contaminants to reach the ocean where fauna and flora can be impacted. While groundwater in the vicinity will not be the source of potable water, it should nevertheless be protected (Botha et al., 2016). Pollution is likely to happen in the absence of well designed and constructed water, wastewater and storm water drainage infrastructure. The storage and handling of products from future business activities on unpaved surfaces may lead to contamination of underground water resources through seepage.

Poorly constructed and maintained service infrastructure in general may also lead to seepage of waste water into the water bodies. Surface and ground water contamination may result from nonpoint source runoff from nearby activities; urban runoff conveyed to the sea by storm sewer system; and occurrences of bank erosion (Sosiak and Dixon, 2006). Uncontrolled solid waste management is another potential pollutant of the surface water. Ensure that storage areas are paved with impermeable material to guarantee containment and prevent seepage into the underground. A baseline sampling and testing of the underlying soil and groundwater should be conducted to understand the character of the soil and water table. Due to the extreme corrosive coastal environment, chemical weathering of metal and concrete structures is a concern, therefore the choice of building materials is important and regular maintenance is essential to maintain the integrity of all infrastructure (Botha et al., 2016).

9.1.2. Fauna and Flora (Biodiversity)

Walvis Bay falls within an Important Bird Area (IBA) NA014 and NA013, with IBA NA014 renowned as the most important coastal wetland area in Southern Africa. It serves as an over-wintering area for important birds such as Greater and Lesser Flamingos, Great White Pelican, and Chestnut-Banded Plovers (Faul, A., Botha, P. Coetzer, W. 2019).

IBA NA013, consisting of the coastal area between Walvis Bay and Swakopmund is known to host approximately 13 000 shorebirds of approximately 31 species. It also supports the densest colony of breeding Damara Terns known. There is also a bird island (guano platform), that

provides roosting and breeding sites to large numbers of birds. Pollution events, such as oil spills, in the areas surrounding the port can have serious negative impacts on the bird breeding and feeding grounds and for species such as the Bank Cormorant (Faul, A., Botha, P. Coetzer, W. 2019).

The marine animals found in the Walvis Bay area are mainly cetaceans such as the Common Bottlenose Dolphins, the Namibian endemic Heaveside’s Dolphins, Dusky Dolphins, Humpback Whales, Southern Right Whales and Pigmy Right Whales. Cape Fur Seals are also a common occurrence. Five species of turtles are found in the Namibian coastal waters generally, the most common in the area of interest being the Leatherback, and the Green Sea Turtles and to a lesser extent, the Hawksbill Sea Turtle (Faul, A., Botha, P. Coetzer, W. 2019).

These marine animals serve as an important tourist attraction, contributing a great deal to this million-dollar industry. Therefore, pollution of the marine environment will have a damaging effect on the populations of these mammals (Faul, A., Botha, P. Coetzer, W. 2019).

The area does not have much in terms of existing vegetation, however for the beautification and landscaping of the development the proponent can introduce suitable plants. A list of plant species recommended is provided in the table below.

List of recommended plant species for site landscape works. The selected plants also have a strong scenic and aesthetic quality characteristic to the local landscape context.

<i>Species name</i>	<i>Conservation status</i>	<i>Tree</i>	<i>Shrub</i>	<i>Grass</i>
<i>Tamarix usneoides</i>		✓		
<i>Zygophyllum stapfii</i> .	<i>Endemic</i>		✓	
<i>Salvadora persica</i>			✓	
<i>Stipagrostis sabulicola</i>	<i>Endemic</i>			✓
<i>Phoenix dactylifera</i>	<i>Naturalised alien</i>	✓		
<i>Eragrostis spinosa</i>				✓
<i>Searsia lancea</i> (<i>Rhus lancea</i>)		✓		
<i>Lycium tetrandrum</i>			✓	
<i>Trianthea hereroensis</i>	<i>Endemic</i>		✓	
<i>Arthroerua leubnitziae</i>			✓	
Various <i>Stipagrostis</i> species				✓
<i>Enneapogon brachystachyus</i>				✓
<i>Zygophyllum cylindrifolium</i>			✓	
<i>Malephora crocea</i>			✓	

9.1.3. Existing Service Infrastructure Impacts

The project will lead to increased pressure on existing infrastructure such as roads, service lines etc. due to the increased number of people who will be using these facilities which will directly translate into an increase in volumes of the relevant parameter. Bulk water and sewerage services will be supplied by the Municipality of Walvis Bay from the existing network in the area. Electricity will be supplied by the regional electricity distributor, Erongo RED.

It is important to note that the country in general is constrained and faced with a crisis in terms of water and electricity availability; and an increased demand for these amenities will further add to the predicament. This additional demand is expected to be fairly Medium-Low.

Once the development has been completed, it is the responsibility of each new property owner/lessee, to apply for the appropriate services such as electricity and water. The proposed development will make use of added infrastructure specifically electricity, sewer and water. This additional demand is expected to be fairly medium to low considering the type of activities envisaged. It is recommended that alternative and renewable source of energy be explored and introduced into the proposed development to reduce dependency on the grid. Solar geysers and panels should be considered to provide for general lighting and heating of water and buildings. Designs and building materials should be as such to reduce dependency on artificial heating and cooling in order to limit the overall energy consumption. Water saving mechanisms should be incorporated within the proposed development's design and plans in order to further reduce water demand

By applying a series of the mitigation measures as proposed for the development it is believed that any potential impacts can be significantly reduced. The water volumes and electrical demands for the project is not expected to have a significant negative impact on the infrastructure. It is critical that any service infrastructure should be designed and construction supervised by qualified and registered engineering professionals.

9.1.4. Traffic Impacts

Traffic is expected to increase during the operational phase of the project. Due to the nature of the development and the land use, vehicles will frequent the area. These would mostly consist of vehicles used by clients, workforce and business owners.

9.1.5. Safety

Beach promenades provide a picturesque location for leisurely walks and relaxation, but they also come with certain risks. Accidents and injuries are among the primary risks associated with a beach promenade.

Swimming on a beach promenade can be a delightful and refreshing activity for people of all ages. Nevertheless, it is crucial to recognize the risks associated with swimming in open waters,

especially on beach promenades where there may be strong currents, unpredictable waves, and other hazards.

Among the risks to consider are submerged hazards, like rocks and reefs, which are dangerous to swimmers. These hazards may not always be visible from the surface and can cause injuries or entrapment. A Topographical Survey conducted west of Walvis Bay Extensions 20,16,17 and 18 indicates a possible danger zone north of Extension 20. There is concern that this is the place where most drownings are taking place along the development area. However, the bathymetry of the area has not been properly mapped. It is, however, important to designate this area as a no-swimming zone pending any detailed studies.

9.2. Construction Phase Impacts

During the construction phase the following potential impacts have been identified: fauna and flora; pressure on the existing infrastructure; surface and ground water; health, safety and security impacts; air quality; noise, traffic; solid waste management; hazardous substances; social; and archaeological impacts.

9.2.1. Flora and Fauna

There are no protected or red data listed plants or animal species found on the site however care should be taken that no risk is posed to the adjacent marine ecosystem, including seabirds, that may be found in the area during the construction phase.

9.2.2. Pressure on existing infrastructure

During the construction phase there will be an additional demand for basic municipal services such as water, electricity and sewer. The services will be used for both human consumption and for construction purposes. These impacts will however only be limited to the construction phase and will thus have minimal short-term impact. The risk of wastage and pollution may occur if no proper management actions are implemented.

9.2.3. Surface and Ground Water Impacts

Surface and ground water impacts may be encountered during the construction phase. The risk of contaminating such water sources can be increased by accidental spillage of oils and fuels and any other equipment used during construction; chemical contamination from construction materials such as cement, paint and mechanical fluids.

Storm water runoff may run into the site thereby causing interference to the construction operations. Construction of offices and paved roads could result in additional runoff through creation of impervious areas and compaction of soils. Impervious areas and compacted soils generally have higher runoff coefficients than natural area, and increased flood peaks are a common occurrence in developed areas. This risk is minimised by the fact that the construction period will be a short-term activity.

9.2.4. Health, Safety and Security Impacts

The potential health and safety impacts of the proposed project include the occupational health and safety risks related to the project activities. A number of activities undertaken during development of the proposed project have potential risks to the health and safety of the workers. During the construction phase, the potential health and safety risks the workers are likely to be exposed to include: Injuries resulting from operation of machinery, equipment, tools and construction vehicle, and road accidents.

During construction of the proposed project, it is expected that construction workers are at risk of injuries and hazards as a result of accidents, handling hazardous waste, lack or neglect of the use of protective wear etc. All necessary health and safety guidelines should be adhered to so as to avoid such occurrences. It is recommended that before construction activities commence, the materials and equipment are well inspected and that they conform to the relevant occupational health and safety standards.

The construction workers will also generate faecal waste during their day-to-day operations. The generated waste needs proper handling to prevent diseases, for example cholera, typhoid and diarrhoea outbreak on the site. Unless this is addressed, it can prove to be an environmental/health disaster. Mobile toilets should be established on site to avoid such health risks.

9.2.5. Air Quality

During the construction phase fugitive dust and exhaust gases generated have a potential impact on the air quality of the area and its surroundings. Dust is a major component of air pollution and could negatively affect the health of nearby communities if not mitigated. Due to the proximity of the development site to the Independence Avenue, traffic on this road is also at risk of being impacted by dust. These are however short-term impacts. Dust is generated mainly from the following activities:

- Excavations and stockpiles during site clearance;
- Use of heavy vehicles, machinery and equipment;
- Procurement and transport of construction materials to the site.

9.2.6. Noise Impacts

Noise is perceived as one of the most undesirable consequences of a construction activity. The most common reported impacts are interference in oral communication and sleep disturbance. Construction activities are expected to generate noise levels to a limit of 85 decibels and other safety hazards. During the construction phase the proposed project will utilize machineries such as hydraulic excavator, mobile service crane, dump trucks and tipper trucks which are likely to generate noise. The contractor on site will be expected to provide well planned programs for equipment usage.

The construction works on site will most likely have noise impacts due to the moving machines (mixers, tippers), incoming vehicles to deliver construction materials and workers to site and other normal construction activities. This may prove to be a potential source of disturbance to the surrounding neighbours and a health hazard to the workers themselves. Such noise emissions should be minimised as much as possible from the source point while workers should be provided with appropriate personal protective wear. The construction activities will be limited to daytime.

9.2.7. Traffic Impacts

Traffic is expected to increase during the construction phase of the project. 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 vehicular traffic in the area. The safety of road users need to be considered especially on Independence Avenue.

9.2.8. Solid Waste Management

Large amounts of solid waste will be generated during construction of the project. These will include metal cuttings, rejected materials, surplus materials, surplus spoil, excavated materials, paper bags, empty cartons, empty paint and solvent containers, broken glass among others. Solid wastes, if not well managed, have a potential of causing disease outbreaks due to suitable breeding conditions for vectors of cholera and typhoid.

Enough waste bins and skip containers should be availed to manage the solid waste. All solid waste should be disposed of at the designated landfill site of Walvis Bay as approved by the local authority.

9.2.9. 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 in certain circumstances. It covers manufacture, sale, use, disposal and dumping as well as import and export. 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 impact on the surrounding environment, if these substances spill and enter the environment.

9.2.10. Social Impacts

One of the main positive impacts during projects construction phase is the availability of employment opportunities especially to casual workers and several other specialised workers. Employment opportunities are of benefit both economically and in a social sense. In the economic sense it means abundant unskilled labour will be used in construction, hence economic production. Several workers including casual labourers, electricians and plumbers are

expected to work on the site from start to the end. Apart from casual labour, semi-skilled and unskilled labour and formal employees are also expected to obtain gainful employment during the period of construction.

Through the use of locally available materials during the construction phase of the project including cement, concrete, timber, sand, ballast electrical cables etc. the project will contribute towards growth of the local, regional and national economy by contributing to the gross domestic product. The consumption of these materials, fuel oil and others will attract taxes including VAT which will be payable to the government hence increasing government revenue while the cost of these materials will be payable directly to the suppliers.

There are usually several informal businesses which come up during the construction periods of such projects. These include activities such as food vendors who benefit directly from the construction, staff members who buy food and other commodities from them. This will promote the informal sector in securing some temporary revenue and enhance livelihoods. The local community will benefit through preferential recruitment of local labour and procurement as far as possible.

9.3. Operational Phase Impacts

The operational phase impacts that have been identified are: air quality; noise; waste management; quality of life; and visual impact.

9.3.1. Air Quality

The air quality in the area is considered to be fairly good. Various types of activities within the development area may result in some dust and emission impacts, if not managed correctly. Dust and emissions associated with the proposed development will mostly be generated by vehicle movement.

The entire development needs to be controlled and managed as required by the Public Health Act (Act No. 36 of 1919) and Atmospheric Pollution Prevention Ordinance (No. 11 of 1976). Dust is likely to have a larger impact when the road network and individual properties are not paved.

9.3.2. Noise Impacts

Operational noise associated with the proposed development is likely to be limited to general background noise levels. It is however important that mitigation measures are applied to bring noise levels to acceptable limits, which are generally addressed by applicable municipal by laws.

9.3.3. Waste Management

The operational activities will likely generate a reasonable amount of solid waste. An adequate number of refuse receptacles should be placed on all the properties for the collection of waste,

which should be emptied frequently and taken to the designated landfill site. This should be fitted into the municipal waste collection programme or alternatively assigned to a properly registered and competent contractor.

9.3.4. Quality of Life

The development will serve as an important economic activity that provides jobs. The promenade will create an attractive and functional space for the community. It will be well-integrated with the natural landscape, featuring elements such as seating areas, green spaces, public art installations, and facilities for recreational activities. The promenade will be accessible to people of all ages and abilities, with adequate lighting, signage, and amenities to ensure a safe and enjoyable experience for visitors.

The Independence Beach Promenade development will have a multitude of functions besides providing a communal gathering place and becoming the sea barrier that ensures the safety of existing and new buildings being constructed on the adjoining Municipal erven. In addition:

- It will create the interconnection between the public, the desert and the sea.
- It will be a desirable tourist destination and a vibrant hub of entertainment, information, sport, leisure and interactive activities.
- The interconnection to the city and the influence that this development will have on Walvis Bay will be significant.

9.3.5. Visual and Sense of Place Impacts

The new development, once built up, will be visually prominent from many angles. While there are some existing structures in the surrounding area, the additional buildings and infrastructure to be erected on site will cause a higher visual impact to the natural area. The development will have an impact on the sense of place of the local community. Therefore, the aesthetics quality of the new structures has to be pleasing and designed to blend in with the natural surrounds.

10. SUMMARY OF POTENTIAL IMPACTS

A summary of the significance of the potential impacts from the proposed project assessed above is included in Table 9. The Tables 10 - 12 provide a summary of the mitigation measures proposed for the impacts.

Table 9: Overview of potential impacts

Impacts	Negative		Positive		No Impact
	Short Term	Long Term	Short Term	Long Term	
Planning and Design Phase					
2. Surface and ground water	X				
4. Fauna and flora	X				
5. Existing infrastructure				X	
6. Traffic	X				
Construction Phase					
7. Fauna and flora	X				
8. Pressure on existing infrastructure	X				
9. Surface and groundwater	X				
10. Health, safety and security	X				
11. Air quality	X				
12. Noise	X				
13. Traffic	X				
14. Waste management	X				
15. Hazardous substances		X			
16. Social				X	
17. Archaeological	X				
Operational Phase					
18. Air quality		X			
19. Noise		X			

Impacts	Negative		Positive		No Impact
	Short Term	Long Term	Short Term	Long Term	
20. Waste management		X			
21. Quality of life				X	
22. Visual				X	

Table 10: Proposed mitigation measures for the planning and design phase

PLANNING AND DESIGN PHASE IMPACTS	
Impact	Mitigation Measures
Surface and ground water	<ul style="list-style-type: none"> • Appoint professional engineers to develop a detailed storm water management design as part of the infrastructure service provision of the development. • The service infrastructure should be designed and constructed by suitably qualified engineering professionals. • Develop and implement a preventative maintenance plan for the service infrastructure. • Ensure that storage areas are paved with impermeable material to guarantee containment and prevent seepage into the underground. The paving to be designed by an independent engineer. • Conduct baseline sampling and testing of the underlying soil and groundwater. • No dumping of waste products of any kind in or in close proximity to any water bodies. • Ensure that surface water accumulating on-site are channelled and captured through a proper storm water management system to be treated in an appropriate manner before disposal into the environment. • Wastewater should not be discharged directly into the environment. • Disposal of waste from the development should be properly managed. • Hazardous waste and contaminated water and soil must be disposed of at an appropriately designated facility or by approved contractors. Hazardous waste disposal certificates must be kept on file. • All hazardous substances must be stored in a properly bunded area to prevent any spillages from entering the surrounding environment. • Emergency response plans and spill contingency plans must be in place and include all fuels, chemicals or hazardous substances being handled. • Spill containment equipment such as absorbents must be readily accessible. Training in the use of these are paramount. • Any hazardous substance spill on the site must be cleaned and disposed of to prevent it from entering the ocean either by wind or water runoff. • Effluent must meet standards as per the effluent discharge permits and Water Quality Guidelines. • Use of reputable and well-trained contractors is essential.
Fauna and flora	<ul style="list-style-type: none"> • Report any extraordinary fauna sightings to the Ministry of Environment, Forestry and Tourism and / or Ministry of Fisheries and Marine Resources. • Ensure waste cannot be blown away by wind. • The destruction of habitats and of roosting and nesting sites for birds in the development area must be prevented where possible.

PLANNING AND DESIGN PHASE IMPACTS	
Impact	Mitigation Measures
	<ul style="list-style-type: none"> To prevent bird collisions with structures at night, all lights used at the site should be directed downwards to the working surfaces and only be switched on when and where necessary.
Existing Service Infrastructure	<ul style="list-style-type: none"> Ensure professional design and construction of service infrastructure from qualified and registered engineers. Ensure consultation and compliance with relevant authorities responsible for services, such as the Municipality and Erongo Red. Developers must determine exactly where services amenities and pipelines are situated before construction / maintenance commences. Designs and building materials should be as such to reduce dependency on artificial heating and cooling in order to limit the overall energy demand. Water saving mechanisms should be incorporated within the proposed development's design and plans in order to further reduce water demands. Train employees on the importance of water and energy savings. Adhere to water quality guidelines. Promptly detect and repair water pipe and tank leaks. Users to conserve water e.g. by avoiding unnecessary toilet flushing. Ensure taps are not running when not in use. Install water conserving taps that turn-off automatically when water is not being used. Switch off electrical equipment, appliances and lights when not being used. Install occupation sensing lighting at various locations such as storage areas which are not in use all the time. Install energy saving fluorescent tubes at all lighting points within the facility instead of bulbs which consume higher electric energy. Monitor energy use during the operation of the project and set targets for efficient energy use. Conduct regular inspections for drainage pipe blockages or damages and fix appropriately.
Traffic	<ul style="list-style-type: none"> Ensure that road junctions have good sightlines. Adhere to the speed limit. Implement traffic control measures where necessary. In cooperation with the relevant authority, erect clear signage regarding restricted areas and roads, access and exit points, speed limits etc. Trucks should not be allowed to obstruct any traffic or access points to any other businesses and facilities.

PLANNING AND DESIGN PHASE IMPACTS	
Impact	Mitigation Measures
	<ul style="list-style-type: none"> If any extraordinary traffic impacts are expected, traffic management should be performed in conjunction with the local traffic department.

Table 11: Proposed mitigation measures for the construction phase

CONSTRUCTION PHASE IMPACTS	
Impact	Mitigation Measures
Fauna and flora	<ul style="list-style-type: none"> Prevent contractors from collecting wood, veld food, etc. during the construction phase. Ensure waste cannot be blown away by wind. The destruction of habitats and of roosting and nesting sites for birds in the area must be prevented where possible. To prevent bird collisions with structures at night, all lights used at the site should be directed downwards to the working surfaces and only be switched on when and where necessary.
Pressure on existing infrastructure	<ul style="list-style-type: none"> Educate workforce on water saving measures. Ensure all potable water points are metered and regularly read. Promptly detect and repair water leaks. Ensure taps are not running when not in use. Ensure proper recycling of water from other uses for sprinkling dusty areas. Ensure that the workforce is provided with temporary toilets during the construction phase. Ensure electrical equipment, appliances and lights are switched off when not being used. Install energy saving fluorescent tubes at all lighting points instead of bulbs which consume higher electric energy. Conduct a baseline crack survey to address the potential of cracks in the surrounding structures due to vibrations from roller compactors.
Surface and Ground Water Impacts	<ul style="list-style-type: none"> It is recommended that construction takes place outside of the rainy season in order to limit flooding on site and to limit the risk of ground and surface water pollution. No dumping of waste products of any kind in or in close proximity to water bodies.

CONSTRUCTION PHASE IMPACTS	
Impact	Mitigation Measures
	<ul style="list-style-type: none"> • 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. • Ensure that oil/ fuel spillages from construction vehicles and machinery are minimised and that where these occur, that they are appropriately dealt with. • Drip trays must be placed underneath construction vehicles when not in use to contain all oil spillages that might be leaking from these vehicles. • Contaminated runoff from the construction sites should be prevented from entering the surface and ground water bodies. • All materials on the construction site should be properly stored. • Disposal of waste from the site should be properly managed and taken to the Walvis Bay landfill site. • Construction workers should be given ablution facilities at the construction site, they should be located at least 30 m away from any surface water and should be regularly serviced. • Washing of personnel or any equipment should not be allowed on site. • Should it be necessary to wash construction equipment this should be done at an area properly suited and prepared to receive and contain contaminated waters.
Health, Safety and Security	<ul style="list-style-type: none"> • Construction personnel should not overnight at the site, except for security personnel. • Ensure that all construction personnel are properly trained depending on the nature of their work. • Provide for first aid kit and properly trained personnel to apply first aid when necessary. • Suitable overalls, safety footwear, dust masks, gas masks, respirators, gloves, ear protection equipment etc. should be made available and construction personnel must be trained to use the equipment. • Implement all necessary measures to ensure health and safety of workers and the general public during operation. • Firefighting equipment such as fire extinguishers should be provided at strategic locations such as stores and construction areas. • Regular inspection and servicing of the equipment must be undertaken by a competent service provider and records of such inspections maintained. • Fire escape routes and assembly point to be marked. • A wellness program should be initiated to raise awareness on health issues, especially the impact of sexually transmitted diseases and Covid-19.

CONSTRUCTION PHASE IMPACTS	
Impact	Mitigation Measures
	<ul style="list-style-type: none"> • Provide free condoms in the workplace throughout the construction phase. • Facilitate access to Antiretroviral medication for construction personnel. • Conform to the stipulated protocols related to Covid-19. • Restrict unauthorised access to the site and implement access control measures. • Clearly demarcate the construction site boundaries along with signage of no unauthorised access. • Clearly demarcate dangerous areas and no-go areas on site. • Signs such as “NO SMOKING” must be prominently displayed within the premises, especially in parts where inflammable materials are stored. • Staff and visitors to the site must be fully aware of all health and safety measures and emergency procedures. • The contractor/s must comply with all applicable occupational health and safety requirements. The workforce should be provided with all necessary Personal Protective Equipment where appropriate.
Traffic	<ul style="list-style-type: none"> • Limit and control the number of access points to the site. • Ensure that road junctions have good sightlines. • Construction vehicles need to be in a road worthy condition and maintained throughout the construction phase. • Transport the materials in the least number of trips as possible. • Adhere to the speed limit. • Implement traffic control measures where necessary, especially from and onto Independence Avenue. • Minimise the movement of heavy vehicles during peak time.
Noise	<ul style="list-style-type: none"> • No amplified music should be allowed on site. • Inform neighbouring communities and companies of construction activities to commence and provide for continuous communication between them and contractor. • Sensitise construction vehicle drivers and machinery operators to switch off engines of vehicles or machinery not being used. • Sensitise construction drivers to avoid unnecessary running of vehicle engines or hooting especially when passing through sensitive areas such as residential areas. • Ensure that construction machinery is kept in good condition to reduce noise generation. • Ensure that all generators and heavy-duty equipment are insulated or placed in enclosures to minimize ambient noise levels. • Limit construction times to acceptable daylight hours.

CONSTRUCTION PHASE IMPACTS	
Impact	Mitigation Measures
	<ul style="list-style-type: none"> • Install technology such as silencers on construction machinery. • Do not allow the use of horns/hooters as a general communication tool, but use it only where necessary as a safety measure. • Provide protective equipment such as ear muffs, masks and ear plugs to workers.
Air quality	<ul style="list-style-type: none"> • All loose material should be kept on site for the shortest possible time. • It is recommended that dust suppressants such as Dustex be applied to all the construction clearing activities to minimise dust. • Construction vehicles to only use designated roads. • During high wind conditions the contractor must make the decision to cease works until the wind has calmed down. • Vehicle idling time shall be minimised. • Alternatively fuelled construction equipment shall be used where feasible equipment shall be properly tuned and maintained. • Sensitise truck drivers to avoid unnecessary running of vehicle engines at loading/offloading points and parking areas, and to switch off or keep vehicle engines at these points. • Cover any stockpiles with plastic to minimise windblown dust. • Ensure construction vehicles are well maintained to prevent excessive emission of smoke.
Waste	<ul style="list-style-type: none"> • It is recommended that waste from the temporary toilets be disposed of at the Walvis Bay Wastewater Treatment Works, on a regular basis. • A sufficient number of waste bins should be placed around the site for the soft refuse. • A sufficient number of skip containers for the heavy waste and rubble should be provided for around the site. • The waste containers should be able to be closed to prevent birds and other animals from scavenging. • Adopt the waste management hierarchy i.e. prevention, minimisation, reuse, recycling, energy recovery, and lastly disposal. • If disposal is the only option, it should take place at a designated landfill in Walvis Bay. • Ensure accurate estimation of the sizes and quantities of materials required, order materials in the sizes and quantities they will be needed, rather than cutting them to size, or having large quantities of residual materials.

CONSTRUCTION PHASE IMPACTS	
Impact	Mitigation Measures
	<ul style="list-style-type: none"> • Ensure that construction materials left over at the end of construction will be used in other projects rather than being disposed of. • Ensure that damaged or wasted construction materials including pipes, doors, plumbing and lighting fixtures, marbles will be recovered for refurbishing and use in other projects. • Donate recyclable/reusable or residual materials to local community groups, institutions. • Use of durable, long-lasting materials that will not need to be replaced as often, thereby reducing the amount of construction waste generated over time. • Provide facilities for proper handling and storage of construction materials to reduce the amount of waste caused by damage or exposure to the elements. • Use building materials that have minimal or no packaging to avoid the generation of excessive packaging waste.
Hazardous Substances	<ul style="list-style-type: none"> • All chemicals and other hazardous substances must be stored and maintained in accordance with the Hazardous Substances Ordinance (No. 14 of 1974), with all relevant licences and permits to be obtained where applicable. • Given the potential harm to human health during handling and use of any of hazardous substances it is essential that all staff be trained with regards to the proper handling of these substances as well as First Aid in the case of spillage or intoxication. • Storage areas for all substances should be bunded and capable to hold 120% of the total volume of a given substance stored on site.
Social	<ul style="list-style-type: none"> • Ensure locals enjoy priority in terms of job opportunities, to the extent possible, for skills that are available locally. • Ensure local procurement where commodities are available locally.
Archaeological	<ul style="list-style-type: none"> • Prevent damage to any archaeologically significant sites in the construction area. • In the event of a chance find, implement the following Archaeological Chance Finds Procedure: Action by person (operator) identifying archaeological or heritage material: <ol style="list-style-type: none"> a) If operating machinery or equipment: stop work b) Identify the site with flag tape c) Determine GPS position if possible

CONSTRUCTION PHASE IMPACTS	
Impact	Mitigation Measures
	<p>d) Report findings to foreman</p> <p>Action by foreman:</p> <ul style="list-style-type: none"> a) Report findings, site location and actions taken to superintendent b) Cease any works in immediate vicinity <p>Action by superintendent:</p> <ul style="list-style-type: none"> a) Visit site and determine whether work can proceed without damage to findings b) Determine and mark exclusion boundary c) Site location and details to be added to AH GIS for field confirmation by archaeologist <p>Action by archaeologist:</p> <ul style="list-style-type: none"> a) Inspect site and confirm addition to AH GIS b) Advise NHC and request written permission to remove findings from work area c) Recovery, packaging and labelling of findings for transfer to National Museum <p>In the event of discovering human remains:</p> <ul style="list-style-type: none"> a) Actions as above b) Field inspection by archaeologist to confirm that remains are human c) Advise and liaise with NHC and Police d) Recovery of remains and removal to National Museum or National Forensic Laboratory, as directed.

Table 12: Proposed mitigation measures for the operational phase

OPERATIONAL PHASE IMPACTS	
Impact	Mitigation Measures
Visual and Sense of Place	<ul style="list-style-type: none"> • 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. • Natural colours and building materials such as wood and stone should be incorporated. • Visual pollutants can further be prevented through mitigations such as keeping existing vegetation, introducing indigenous plants; keeping structures unpainted and minimising large advertising billboards.
Noise	<ul style="list-style-type: none"> • Follow Labour Act Regulations - Noise Regulations (Regulation 197), and / or WHO guidelines on maximum noise levels (Guidelines for Community Noise, 1999), to prevent hearing impairment for workers on site and a nuisance for nearby residential areas / neighbours. • Minimize or prevent noise producing activities and plan to restrict these to daytime as far as practically possible. • All machinery must be regularly serviced to ensure minimal noise production. • The use of low frequency white noise or flashing lights should be considered instead of audible high frequency warning signals for moving forklifts or trucks. • Erect temporary or permanent noise barriers / sound baffles, should the need arise. • Placement of noise producing equipment, e.g. compressors, in such a way that noise is directed away from receptors and / or are attenuated. • Where possible, use infrastructure to act as noise barriers to sensitive environments. • Hearing protectors as standard PPE for workers in situations with elevated noise levels.
Air quality	<ul style="list-style-type: none"> • Manage activities that generate emissions or dust. • Minimise the movement of vehicles in the area. • The development needs to be controlled and managed as required by the Public Health Act (Act No. 36 of 1919) and Atmospheric Pollution Prevention Ordinance (No. 11 of 1976). • It is advised to pave the internal roads and individual properties.

OPERATIONAL PHASE IMPACTS	
Impact	Mitigation Measures
Waste management	<ul style="list-style-type: none"> • The area will be kept free of waste, except in designated waste storage areas. • Any wastes distributed by winds will be regularly cleaned up. • A sufficient number of waste bins should be placed around the site for the soft refuse. • A sufficient number of skip containers for the heavy waste should be provided for around the site. • Categorise waste into various types such as hazardous, general and recyclable. • Hazardous waste to be disposed of at the appropriate facilities of the Walvis Bay Municipality. • Adopt the waste management hierarchy i.e. prevention, minimisation, reuse, recycling, energy recovery, and lastly disposal. • If disposal is the only option, it should take place at a designated landfill in Walvis Bay.
Quality of life	<ul style="list-style-type: none"> • The proponent must employ local Namibians where possible. • If the skills exist locally, employees must first be sourced from the town, then the region and then nationally. • Deviations from this practice must be justified. • Procurement should be done locally, then regionally, and nationally in that order where goods and services are available.

11. CONCLUSION AND RECOMMENDATIONS

11.1. Construction Phase Impacts

With reference to Table 10, most of the construction phase impacts were deemed to have a negative impact without mitigation. However, these were mostly short-term and can be significantly reduced with the mitigation measures proposed.

11.2. Operational Phase

During the operational phase the impacts of air quality; noise; and waste management were assessed to have a long-term negative effect without mitigation. The impacts will however be significantly reduced when the recommended mitigation measures in the scoping report and environmental management plan (EMP) are implemented.

The impacts on the quality of life of the residents and on the infrastructure development are deemed to be high positive. This development is not only important to the Walvis Bay community, but it also promotes local economic development.

11.3. Level of Confidence in Assessment

With reference to the information available at this stage, the confidence in the environmental assessment undertaken is regarded as being acceptable for decision-making, in terms of the environmental impacts and risks. The Environmental Assessment Practitioner believes that the information contained within this ESR is adequate to allow MEFT: DEA to determine the environmental viability of the proposed project.

It is acknowledged that the project details may 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 ESR 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.

11.4. Mitigation Measures

With the implementation of the recommended mitigation measures in this report as well as in the EMP, the significance of the planning and design, 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 strongly advised that the proponent appoint a suitably qualified consulting engineer to design and supervise the construction of the service infrastructure, including storm water management.

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.

11.5. 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, as the development will have the following benefits to the residents and investors in addition to promoting local economic development:

- Creating an attractive and functional space for the community.
- Creating an interconnection between the public, the desert and the sea.
- Serving as a desirable tourist destination and a vibrant hub of entertainment, information, sport, leisure and interactive activities.
- Significant interconnection to the city and the influence that this development will have on Walvis Bay.

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

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