


Updated Environmental Management Plan (EMP) for the Township Establishment Omdel Extension 5, Henties Bay, Erongo Region, Namibia.



Prepared for:
Henties Bay Municipality
Postal Address: P.O. Box 61, Henties Bay
Contact Person: Ms. B. Nguaike
Contact number: +264 (64) 502 000
Fax number: +264 (64) 502 2001
Email: Bianca.Nguaike@hbaymun.com.na

PROJECT DETAILS

Title	Updated Environmental Management Plan (EMP) for the Township Establishment Omdel Extension 5, Henties Bay, Erongo Region, Namibia.		
Report Status	Final		
HEEC CC Reference	HEEC/0242020		
Proponent	Henties Bay Municipality Postal Address: P.O. Box 61, Henties Bay Contact Person: Ms. B. Nguaike Contact number: +264 (64) 502 000 Fax number: +264 (64) 502 2001 Email: : Bianca.Nguaike@hbaymun.com.na		
Environmental Practitioner	Healthy Earth Environmental Consultants CC P.O. Box 70513, Khomasdal, Windhoek, Namibia Contact Person: David S. Aiyambo Contact Number: +264 (81) 205 0902 Email: askheec@gmail.com		
Report date	November 2020		
	Name	Signature	Date
Author	David S. Aiyambo		23/11/2020

LEGAL NOTICE

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



PREPARED BY



Our consultancy Portfolio/Specialisation is composed of:

- **STRATEGIC ENVIRONMENTAL IMPACT ASSESSMENTS**
- **ENVIRONMENTAL AUDITING AND MONITORING**
- **WATER QUALITY MONITORING AND MANAGEMENT**
- **WATER PROSPECTING**
- **WASTE MANAGEMENT**
- **ENVIRONMENTAL POLICY REVIEWS**
- **ENVIRONMENTAL AWARENESS AND TRAINING**
- **ENVIRONMENTAL MANAGEMENT SYSTEM (ISO14001) IMPLEMENTATION**
- **ENVIRONMENTAL CONSULTATION**
- **ECOSYSTEM EVALUATION**
- **ENVIRONMENTAL SAFETY, HEALTH AND MANAGEMENT**
- **FLORA IDENTIFICATION**
- **GEOGRAPHICAL INFORMATION SYSTEM (GIS) AND REMOTE SENSING**
- **BIOHAZARD MONITORING (AIR AND RADIATION POLLUTION MONITORING)**
- **GREEN CLAIMS AND CARBON TAX**
- **LANDSCAPING AND GREEN HOUSE IRRIGATION SUPPLIES AND MAINTENANCE**
- **MINING**
- **PROJECT MANAGEMENT**
- **RENEWABLE ENERGY**
- **BUSH ENCROACHMENT CONTROL**
- **DATA COLLECTION AND ANALYSIS**
- **AGRICULTURE EXTENSION SERVICES**



TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	PURPOSE OF THIS EMP	1
1.2	PROJECT INFORMATION	2
1.2.1	Project Description	4
1.3	RESPONSIBLE PARTIES	6
1.3.1	DEVELOPER'S REPRESENTATIVE	6
1.3.2	Environmental Control Officer	7
1.4	APPLICABLE LEGISLATION	8
2	CONSTRUCTION PHASE	16
2.1	INTRODUCTION	16
2.2	SCOPE	16
2.3	GENERAL	16
2.4	PLANNING AND DESIGN	17
2.5	ENVIRONMENTAL AWARENESS	17
2.5.1	Environmental, Health and Safety Induction Course	17
2.5.2	Covid19 Infection Prevention and Control Measures	18
2.5.3	Education of workers should be given on:	18
2.6	SCREENING AND TESTING AT THE DESIGNATED AREAS	21
2.7	CONTINUOUS MEASURES	21
2.8	TOOLBOX TALKS	21
2.8.1	Safety of the Public	22
2.8.2	Human Resource and Opportunities Management	22
2.8.3	Working Times	23
2.8.4	Dust	23
2.8.5	Noise	23
2.9	METHOD STATEMENTS	23
2.10	ENVIRONMENTAL CONSIDERATIONS PERTAINING TO SITE LAYOUT	24
2.10.1	Employee Eating and Recess Areas	24
2.10.2	Ablution Facilities	25
2.10.3	Site Division and Site Demarcation	25
2.10.4	Access, Traffic and Haul Roads	25
2.10.5	Solid Waste Management	26
2.10.6	Fuel and Oil	27
2.10.7	Equipment Maintenance and Storage	27
2.10.8	Stockpiling and Stockpile Areas	28
2.10.9	Materials	28
2.10.10	Cement and Concrete Batching	29
2.10.11	Trenching	29
2.10.12	Fire Control	29
2.10.13	Emergency Procedures	30
2.10.14	Erosion, Water Quality, and Storm Water Control	30
2.11	PROTECTION OF NATURAL FEATURES AND HERITAGE RESOURCES	31
2.11.1	Protection of Freshwater Ecosystems	31
2.11.2	Protection of Natural Systems	31



2.11.3	Protection of Archaeological Sites.....	32
2.12	EXITING AND REHABILITATION	32
2.13	COMPLIANCE AND PENALTIES	34
2.13.1	Compliance.....	34
2.13.2	Penalties.....	34
2.14	MEASUREMENT AND PAYMENT	35
2.14.1	Basic principles.....	35
2.14.2	Scheduled items	35
2.15	SUMMARY OF CONSTRUCTION PHASE MANAGEMENT ACTIONS	36
2.16	SUMMARIZED OPERATIONAL & MAINTENANCE PHASE MANAGEMENT ACTIONS	39
3	DECOMMISSIONING PHASE	42
4	CONCLUSION	42

LIST OF APPENDICES:

APPENDIX A:	GENERIC METHOD STATEMENT EXAMPLE	43
APPENDIX B:	COVID-19 RISK ASSESSMENT FORM (AS AMENDED PERIODICALLY BASED ON DEVELOPING MEDICAL INFORMATION)	47
APPENDIX C:	WATER QUALITY GUIDELINES	51
APPENDIX D:	PROPERTY DEVELOPMENT ENVIRONMENTAL MANAGEMENT PLAN.....	58
APPENDIX E:	PREVIOUSLY ISSUED ENVIRONMENTAL CLEARANCE CERTIFICATE	59

LIST OF TABLES

Table 1:	List of triggered activities identified in the EIA Regulations which apply to the proposed project	1
Table 2:	Proposed zonings of Henties Bay Omdel Extension 5 (SPC, 2014).....	4
Table 3:	Responsibilities of the DR.....	7
Table 4:	Legal provisions relevant to the proposed township establishment project	8
Table 5:	Penalties for the activities detailed below, will be imposed by the Engineer / ECO on the Contractor and / or his Sub-Contractors.	34
Table 6:	Summarized Construction Phase Management Table	36
Table 7:	Operation and maintenance management actions.....	39

LIST OF FIGURES

Figure 1:	Locality map of Henties Bay	3
Figure 2:	Locality map of the proposed development at Omdel Extension 5; GPS: -22.11694444, 14.29194444 (SPC, 2014).....	4
Figure 3:	Henties Bay Omdel Extension 5 subdivision map (SPC, 2014)	5
Figure 4:	Typical COVID-19 information poster to be placed at designated areas at the construction site.	20



ABBREVIATIONS

COA	Conditions of Authorisation
COVID-19	Coronavirus disease is an infectious disease caused by a newly discovered coronavirus i.e. severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).
EAP	Environmental Assessment Practitioner
EC	Environmental Commissioner
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act (No. 7 of 2007)
EMP	Environmental Management Plan
EO	Environmental Officer
GIS	Geographic Information System
HEEC	Healthy Earth Environmental Consultants CC
I&APs	Interested and Affected Parties
IFC	International Finance Corporation
MEFT: DEA	Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs
MSDS	Material Safety Data Sheets
STD	Sexually Transmitted Diseases
TB	Tuberculosis
WTW	Water Treatment Works



1 INTRODUCTION

1.1 PURPOSE OF THIS EMP

Henties Bay Municipality was issued an ECC on 23 April 2015 for a validity period of three years. However, during the validity period of the ECC, Henties Bay Municipality have been preparing and finalizing contracts and agreements in order to commence with the proposed township establishment activities in the Omdel Extension 5. These contracts and agreements have therefore been recently finalized, thus, they wish to commence with the development immediately, hence this ECC Renewal Application. The above-mentioned activities are covered in an Environmental Scoping Study & Associated Environmental Management Plan conducted by APF CC in 2015 and an ECC was issued in 2015 with a validity period until 2018.

This updated Environmental Management Plan (EMP) has been compiled for the management of the construction phase of the proposed Henties Bay Omdel Extension 5 Township Establishment. Best practice is proposed for the generic issues of construction management and supervision. The EMP will also provide specific recommendations and mitigation measures on how to minimise negative impacts and therefore protecting the environment on a social as well as biophysical level during the construction and operational phases of the development.

In terms of the Environmental Assessment Policy of 1994 and the Environmental Management Act No 7 of 2007 (EMA), certain activities have been identified, which could have a substantially detrimental effect on the environment. These listed activities require an Environmental Clearance Certificate (ECC) from the competent environmental authority, i.e. Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs (MEFT:DEA), prior to commencing.

The process will be undertaken in terms of the Namibian Government Notice No. 30 Environmental Impact Assessment Regulations (herein referred to as EIA Regulations) in terms of 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 negative impacts associated with township establishment and associated infrastructure and services. The EA scoping process would also serve to provide an opportunity for the public and key stakeholders to provide comment and participate in the process. Lastly, based on specific nature of the affected environment, specialist input will also be sourced as and when required. The following activities identified in the EIA Regulations (**Table 1**) apply to the proposed project:

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

Activity description and No(s):	Description of relevant Activity	The portion of the development as per the project description that relates to the applicable listed activity
Activity 5.1 (d) Land Use and Development Activities	The rezoning of land from – use for nature conservation or zoned open space to any other land use.	The area will be subdivided and rezoned from undetermined to various zonings such as residential, business, local authority etc.



Activity description and No(s):	Description of relevant Activity	The portion of the development as per the project description that relates to the applicable listed activity
Activity 8.9 Water resource developments	Construction and other activities within a catchment area.	There is a possibility of some construction taking place within catchment areas.
Activity 10.1 (a) (Infrastructure)	The construction of – Oil, water, gas and petrochemical and other bulk supply pipelines.	The proposed project includes the installation and connection of bulk services with the existing town network.
Activity 10.1 (b) (Infrastructure)	The construction of – Public roads.	The proposed project includes the construction of roads.
Activity 10.2 (a) (Infrastructure)	The route determination of roads and design of associated physical infrastructure where – it is a public road;	The proposed project includes the route determination of roads.

1.2 PROJECT INFORMATION

Henties Bay is a coastal town in the Erongo Region of western Namibia. It is located 70 km north of Swakopmund and is an important holiday settlement with approximately 3300 permanent inhabitants, Refer to **Figure 1** below for locality map of Henties Bay and **Figure 2** for the locality map of the proposed development. The town is predominantly a tourist destination for anglers and 4x4 enthusiasts, with its main tourist attraction being a large variety of angling spots and access to the Namib Desert. Its property market has expanded significantly since the late 1990s, particularly for upmarket holiday accommodation, even though the first properties were only proclaimed in 1966, with the hotel being constructed in 1967.

Henties Bay is situated in the National West Coast Recreation Area but there are few restrictions, particularly for driving off-road on the beach and across the plains. This lures tourists into the area but puts a burden on the sensitive environment. Specifically in danger are the lichen fields which take decades to recover from tracks cut through them, and the Damara Tern which is endemic to the Skeleton Coast and threatened by habitat loss.

The Henties Bay environs and the surrounding desert offer an attractive and diversified natural environment with many sites of interest such as outstretched beaches, sensitive lichen fields and a wide variety of desert plants. Interesting geological phenomena and archaeological sites attract more and more visitors every year, which contributes to tourism development in Henties Bay.

In order for the economy of the town to diversify and therefore limit the impact of fluctuating tourist numbers throughout the year, developments are required. These developments will only be possible if the town has a sufficient supply of housing, which is the main driving force behind the:

- **Township Establishment Development of Omdel Extension 5.**

Henties Bay Municipality appointed Healthy Earth Environmental Consultants CC (HEEC) to undertake the Environmental Assessment (EA) in order to obtain an Environmental Clearance



Certificate (ECC) for the above proposed activity in Henties Bay. The competent authority is the Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs (MEFT: DEA).

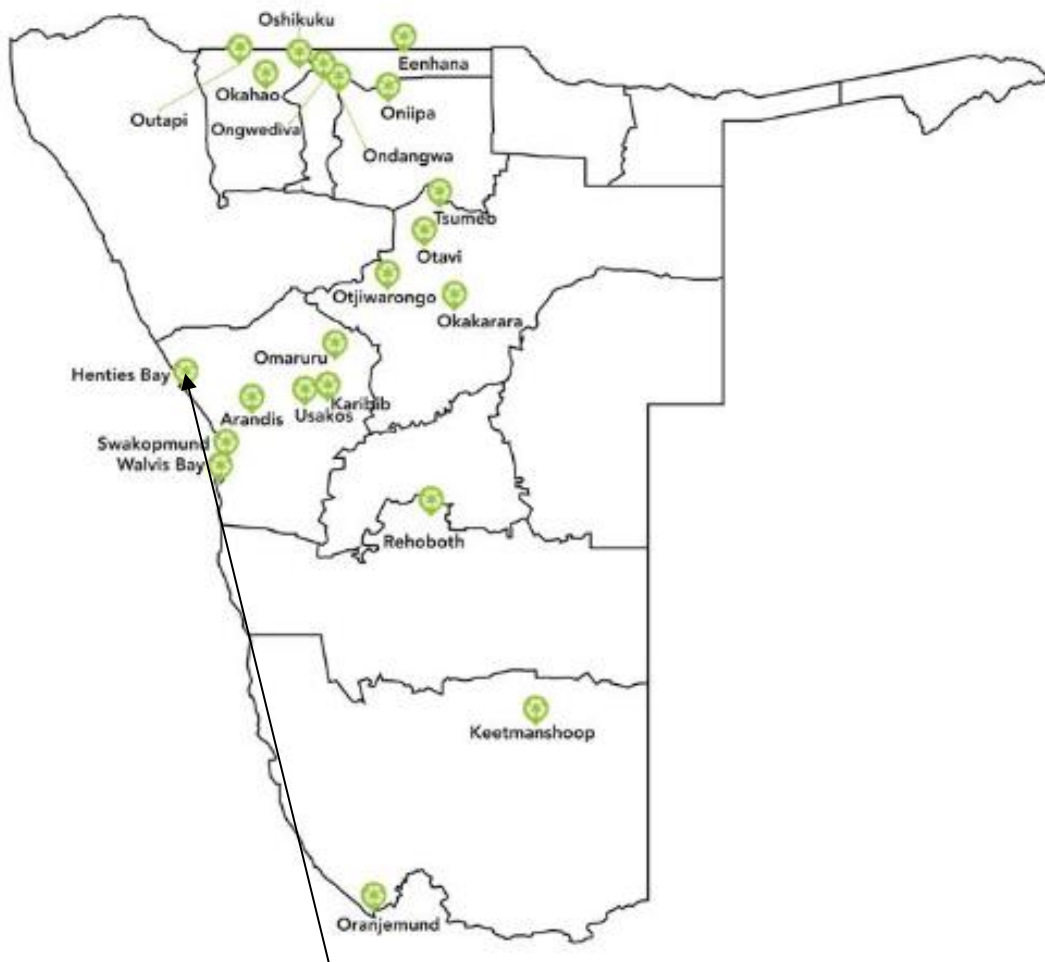


Figure 1: Locality map of Henties Bay

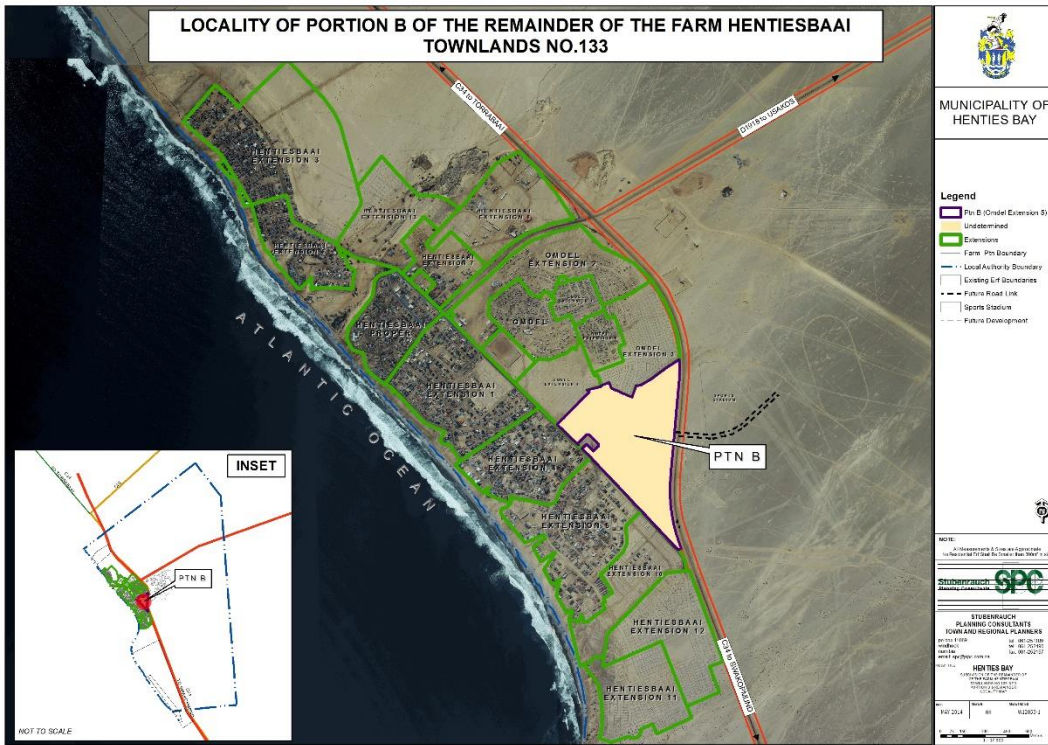


Figure 2: Locality map of the proposed development at Omdel Extension 5; GPS: -22.11694444, 14.29194444 (SPC, 2014)

1.2.1 Project Description

The scope of this project is limited to obtaining an Environmental Clearance Certificate for the following proposed Henties Bay activity (as indicated in section 1.1 above), which includes the Township Establishment to be known as Henties Bay Omdel Extension 5 comprising of 361 erven with associated infrastructure and is situated on approximately 10ha of land (See **Figure 3** for the subdivision map of the development). The township will have the following land uses:

Table 2: Proposed zonings of Henties Bay Omdel Extension 5 (SPC, 2014).

Zoning	No of Erven in Omdel Extension 5
Single Residential	318
General Residential 1	9
Local Business	11
Office	1
Institutional	4
Local Authority	3
Parking	1
Public Open Space (POS)	14
Total	361



1.3 RESPONSIBLE PARTIES

Henties Bay Municipality as the proponent will be responsible for the implementation of this EMP during the construction & operational phases of the project. A designated official is also required during construction in order to implement various environmental management related issues. An EMP is one of the most important outputs of the EA process as it synthesises all of the proposed mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. This updated EMP details the mitigation and monitoring actions to be implemented during the following phases of these developments:

- Planning and Design – the period, prior to construction, during which preliminary legislative and administrative arrangements, necessary for the preparation of erven, are made and engineering designs are carried out. The preparation of construction tender documents forms part of this phase;
- Construction – the period during which the proponent, having dealt with the necessary legislative and administrative arrangements, appoints a contractor for the development of services infrastructure and construction of the road to service the development as well as any other construction process(s) within the development areas;
- Operation and Maintenance – the period during which the services infrastructure will be fully functional and maintained.

It should be noted that to date, no engineering designs have been carried out for the development of the infrastructure associated with this development.

The proponent (the Developer) is ultimately responsible for the implementation of the EMP, from the planning and design phase to the decommissioning phase (if these developments are in future decommissioned) of these developments. The proponent will delegate this responsibility as the project progresses through its life cycle. The delegated responsibility for the effective implementation of this EMP will rest on the following key individuals:

- Developer's Representative;
- Environmental Control Officer; and
- Contractor (Construction and Operations and Maintenance).

1.3.1 DEVELOPER'S REPRESENTATIVE

The Developer should assign the responsibility of managing all aspects of these developments for all development phases (including all contracts for work outsourced) to a designated member of staff, referred to in this EMP as the Developer's Representative (DR). The Developer may decide to assign this role to one person for the full duration of these developments, or may assign a different DR to each of the development phases – i.e. one for the planning and design phase, one for the construction phase and one for the operation and maintenance phase. The DR's responsibilities are as follows:



Table 3: Responsibilities of the DR

Responsibility	Project Phase
Making sure that the necessary approvals and permissions laid out in Table 4 are obtained /adhered to.	Throughout the lifecycle of these developments
Making sure that the relevant provisions detailed in Table 4 are addressed during planning and design phase.	Planning and design phase
Suspending/evicting individuals and/or equipment not complying with the EMP	Construction Operation and maintenance
Issuing fines for contravening EMP provisions	Construction Operation and maintenance

1.3.2 Environmental Control Officer

Prior to the commencement of construction a suitably qualified and experienced Environmental Control Officer (ECO) shall be appointed by the Contractor / Proponent to ensure that the mitigation and rehabilitation measures are implemented and to ensure compliance with the provisions of the EMP.

a) Roles and responsibilities

The role of the ECO is to oversee and monitor compliance with and implementation of the construction phase EMP. The ECO is therefore responsible for the following responsibilities:

- i) Liaison with the community, Contractor, Interested and Affected Parties (I&APs), Henties Bay Town Council, Engineer, Land Surveyor, Architect and Environmental Authorities;
- ii) Monitoring of all the Contractor's activities for compliance with the various environmental requirements contained in this updated EMP;
- iii) Reviewing of the Contractor's Environmental Method Statements as well as ensuring Henties Bay Municipality' approval thereof;
- iv) Ensuring that the requisite remedial action is implemented in the event of non-compliance;
- v) Ensuring the proactive and effective implementation and management of environmental protection measures;
- vi) Ensuring that a register of public complaints is maintained by the Contractor and that any and all public comments or issues are appropriately reported and addressed;
- vii) Routine recording and reporting of environmental activities on a monthly basis;
- viii) Recording and reporting of environmental incidents;
- ix) Notifying the Environmental Authorities immediately of any events or incidents that may cause significant environmental damage or breach the requirements of the EMP; initiating measures to remedy such issues, including the institution of fines against the Contractor; and
- x) Environmental Awareness Training courses to be conducted to the Contractor's entire team of workers.



b) **Site Visits and Reporting:**

The ECO shall visit the site a minimum of once a month. More frequent visits may be required if the situation requires it. Monthly compliance reports shall be submitted to the Engineer and Henties Bay Municipality and distributed as desired. The compliance report shall speak to the requirements of this EMP and the project specifications. It is recommended that HEEC undertakes Environmental Audit Reports to be carried out six months (biannually) during and after construction has been completed and submitted to the Environmental Authorities as per the legislative requirements and to the Henties Bay Town Council.

1.4 APPLICABLE LEGISLATION

Legal provisions that have relevance to various aspects of this construction project are listed in Table 4 below. The legal instrument, applicable corresponding provisions and project relevance details are provided.

Table 4: Legal provisions relevant to the proposed township establishment project

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
The Constitution of the Republic of Namibia as Amended	Article 91 (c) provides for duty to guard against “the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia.” Article 95(l) deals with the “maintenance of ecosystems, essential ecological processes and biological diversity” and sustainable use of the country’s natural resources.	Sustainable development should be at the forefront of this development.
Environmental Management Act No. 7 of 2007 (EMA)	Section 2 outlines the objective of the Act and the means to achieve that. Section 3 details the principle of Environmental Management	The development should be informed by the EMA.
EIA Regulations GN 28, 29, and 30 of EMA (2012)	GN 29 Identifies and lists certain activities that cannot be undertaken without an environmental clearance certificate. GN 30 provides the regulations governing the environmental assessment (EA) process.	Activity 5.1 (d) Land Use and Development Activities The rezoning of land from – use for nature conservation or zoned open space to any other land use. The area will be subdivided and rezoned from undetermined to various zonings such as



LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
		<p>residential, business, local authority etc.</p> <p>Activity 8.9 Water resource developments Construction and other activities within a catchment area. There is a possibility of some construction taking place within catchment areas.</p> <p>Activity 10.1 (a) (Infrastructure)The construction of – Oil, water, gas and petrochemical and other bulk supply pipelines. The proposed project includes the installation and connection of bulk services with the existing town network.</p> <p>Activity 10.1 (b) (Infrastructure)The construction of – Public roads. The proposed project includes the construction of roads.</p> <p>Activity 10.2(a) (Infrastructure)The route determination of roads and design of associated physical infrastructure where – it is a public road; The proposed project includes the route determination of roads.</p>
Convention on Biological Diversity (1992)	Article 1 lists the conservation of biological diversity amongst the objectives of the convention.	The project should consider the impact it will have on the biodiversity of the area.
Draft Procedures and Guidelines for conducting EIAs and compiling EMPs (2008)	Part 1, Stage 8 of the guidelines states that if a proposal is likely to affect people, certain guidelines should be considered by the proponent in the scoping process.	The EA process should incorporate the aspects outlined in the guidelines.



LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Namibia Vision 2030	Vision 2030 states that the solitude, silence and natural beauty that many areas in Namibia provide are becoming sought after commodities and must be regarded as valuable natural assets.	Care should be taken that the development does not lead to the degradation of the natural beauty of the area.
The Ministry of Environment and Tourism (MET) Policy on HIV & AIDS	MET has recently developed a policy on HIV and AIDS. In addition it has also initiated a programme aimed at mainstreaming HIV and gender issues into environmental impact assessments.	The proponent and its contractor have to adhere to the guidelines provided to manage the aspects of HIV/AIDS. Experience with construction projects has shown that a significant risk is created when migrant construction workers interact with local communities.
Henties Bay Municipality By-laws, Regulations and Policies	<p>These regulations control the development of townships in the Municipality. Other instruments include By-laws and Policies:</p> <p>No. 187 Municipality of Henties Bay: Amendment of cemetery regulations.</p> <p>No. 188 Municipality of Henties Bay: Amendment of building regulations</p> <p>No. 189 Municipality of Henties Bay: Amendment of general health regulations</p> <p>No. 190 Municipality of Henties Bay: Amendment of water supply</p> <p>No. 191 Municipality of Henties Bay: Notice of payment of rates and taxes.</p>	The development should be informed by these by-laws, regulations and policies.



LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	No. 192 Municipality of Henties Bay: Amendment of electricity supply regulations.	
Local Authorities Act No. 23 of 1992	The Local Authorities Act prescribes the manner in which a town or municipality should be managed by the Town or Municipal Council.	The development has to comply with provisions of the Local Authorities Act and approved by the Henties Bay Municipality.
Labour Act No. 11 of 2007	Chapter 2 details the fundamental rights and protections. Chapter 3 deals with the basic conditions of employment.	Given the employment opportunities presented by the development, compliance with the labour law is essential.
National Heritage Act No. 27 of 2004	The Act is aimed at protecting, conserving and registering places and objects of heritage significance.	All protected heritage resources (e.g. human remains etc.) discovered, need to be reported immediately to the National Heritage Council (NHC) and require a permit from the NHC before they may be relocated
Forest Act No. 12 of 2001 and its amendments	The purpose of this Act guides the use and management of forestry and related resources. The aims of the forest management as per the Act, is to achieve proper management of forests “for which forest resources are managed and developed, including the planting of trees where necessary, to conserve soil and water resources, maintain biological diversity and to use forest produce in a way which is compatible with the forest's primary role as the protector and enhancer of the natural environment.”	The development should comply with this Act.



LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Pollution Control and Waste Management Bill of 1999	The Bill promotes sustainable development and the establishment of the Pollution Control and Waste Management Unit; to prevent and regulate the discharge of pollutants to the air, water and land; to make provision for the establishment of an appropriate framework for integrated pollution prevention and control; to regulate noise, dust and odour pollution; to establish a system of waste planning and management; and to enable Namibia to comply with its obligations under international law in this regard.	Pollution control and waste management must be a priority in this development.
National Waste Management Policy, 2010	This policy is focusing specifically on Waste Management and use of various technologies waste treatment and disposal to minimize health risks. It is also geared to have a unified waste management system country wide. This policy provides the necessary guidance on the processes related to waste management in the MOHSS, wider Namibia health and social welfare sectors, and other relevant stakeholders. It is taking into consideration the process of integrated waste management from generation to final disposal. This practice also focus on medical, household, mining, agricultural, and construction waste.	Waste management must be a priority in this development.
Wastewater Treatment System, Code of Practice: General	This manual addresses treatment of wastewater by means of pond and trickling	The development should consider the prescribed applicable



LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Guidelines Volume 2, 2008	filter systems. It includes design information and strives to present information that may be helpful to owners and operators of systems, individuals performing compliance inspections, sampling and writing or assessing technical reports on which permit conditions are based.	guidelines depending on the technology of choice.
Hazardous Substances Ordinance No. 14 of 1974	The Ordinance applies to the manufacture, sale, use, disposal and dumping of hazardous substances, as well as their import and export. Its primary purpose is to prevent hazardous substances from causing injury, ill-health or the death of human beings. Hydrocarbons handled during the construction phase may be hazardous thus careful handling and management is vital to prevent spills, explosions, ill-health or death.	Adhere to all applicable provisions of the Hazardous Substance Ordinance.
Roads Ordinance 17 of 1972	<ul style="list-style-type: none"> • Section 3.1 deals with width of proclaimed roads and road reserve boundaries • Section 27.1 is concerned with the control of traffic on urban trunk and main roads • Section 36.1 regulates rails, tracks, bridges, wires, cables, subways or culverts across or under proclaimed roads • Section 37.1 deals with Infringements and obstructions on and interference with proclaimed roads. 	Adhere to all applicable provisions of the Roads Ordinance.
Public and Environmental Health Act of 2015	This Act (GG 5740) provides a framework for a structured uniform public and environmental health system in Namibia. It covers notification,	The sand mining and cement brick making activities are to comply with these legal requirements.



LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	prevention and control of diseases and sexually-transmitted infections; maternal, ante-natal and neo-natal care; water and food supplies; infant nutrition; waste management; health nuisances; public and environmental health planning and reporting. It repeals the Public Health Act 36 of 1919 (SA GG 979).	
Nature Conservation Ordinance no 4 of 1975	Chapter 6 provides for legislation regarding the protection of indigenous plants	Indigenous and protected plants have to be managed within the legal confines.
Draft Wetlands Policy of 2004	This policy strives to complement existing policy instruments regarding sustainable development and sound natural resource management in Namibia. Its implementation provides a platform for the conservation and wise use of wetlands, thus promoting inter- generational equity regarding wetland resource utilisation. Furthermore, it facilitates the Nation's efforts to meet its commitments as a signatory to the International Convention on Wetlands (Ramsar) and other Multinational Environmental Agreements (MEA's).	The development should be informed by this policy.
Environmental Assessment Policy of Namibia (1995)	The Policy seeks to ensure that the environmental consequences of development projects and policies are considered, understood and incorporated into the planning process, and that the term ENVIRONMENT is broadly interpreted to include	This EIA considers this term of Environment.



LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	biophysical, social, economic, cultural, historical and political components.	



2 CONSTRUCTION PHASE

2.1 INTRODUCTION

The construction phase EMP is to be **included into all Tender and Contract documentation to ensure that the Contractor is aware of his obligations and is able to price the implementation of these requirements accordingly**. Failure to comply with these requirements could result in penalties or otherwise hold the Contractor accountable for any damages arising from irresponsible behavior or non-compliance with the requirements. This ensures that identified environmental issues receive adequate attention during the planning and construction phase.

2.2 SCOPE

The general principles contained within the EMP shall apply to all construction activities. All construction activities shall observe any relevant environmental legislation and in so doing shall be undertaken in such a manner as to minimise impacts on the natural and social environment.

2.3 GENERAL

Henties Bay Municipality, as the proponent, is responsible for:

- Ensuring that the objectives of the EMP are given effect;
- Ensuring that all environmental impacts are managed in accordance with the EMP;
- Ensuring that all monitoring and compliance auditing occurs in line with the EMP;
- Ensuring that the environment is rehabilitated as far as practicable to its natural state or existing land use practices;
- Any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradation as a result of activities both in and outside the site boundaries.

With regard to the above, the Contractor shall conduct his activities so as to cause the least possible disturbance to the existing amenities, whether natural or man-made, in accordance with all the current statutory requirements. Special care shall be taken by the Contractor to prevent irreversible damage to the environment. The Contractor shall take adequate steps to educate all members of his workforce as well as his supervisory staff on the relevant environmental laws and protection requirements. The Contractor shall supplement these steps with prominently displayed notices and signs in strategic locations to remind personnel of environmental obligations.

The Contractor shall construct and/or implement all the necessary environmental protection measures in each area before any construction work may proceed. The Engineer / ECO may suspend the Works at any time should the Contractor, in the Engineer / ECO's opinion, fail to implement, operate or maintain any of the environmental protection measures adequately. The costs of such suspension shall be to the Contractor's account.



2.4 PLANNING AND DESIGN

The Design Engineers must take cognisance of the outcomes and recommendations of the EMP. Henties Bay Municipality and the Engineer must ensure that this updated EMP is included in the briefing documentation to the Contractor (to be appointed). The Engineer must advise the Contractor to familiarise himself with the EMP and ensure that adequate resources are made available to implement the requirements of the EMP.

2.5 ENVIRONMENTAL AWARENESS

2.5.1 Environmental, Health and Safety Induction Course

The Contractor is responsible for informing employees and Sub-Contractors of their environmental obligations in terms of the EMP and for ensuring that employees are adequately experienced and properly trained in order to execute the works in a manner that will minimise environmental impacts.

The Contractor shall ensure that all his employees, and those of his Sub-Contractors, attend an Environmental, Health and Safety Induction Course. This course shall be structured to ensure that attendees:

- Acquire a basic understanding of the key environmental features on the site and its immediate environs;
- Become familiar with the environmental controls and mitigation measures contained in the EMP;
- Are informed that natural features (e.g. rock formations) are not defaced or marked for survey or other purposes unless agreed beforehand with the engineer and natural water sources are not allowed to be used for the purposes of swimming, personal washing, and the washing of machinery or clothes;
- Are made aware of the need to conserve water and minimise waste;
- Receive pertinent, written instructions regarding compliance with the relevant environmental management requirements (viz. typical environmental “do’s” and “don’ts”);
- Are made aware of any other environmental matters as deemed necessary by the Engineer / ECO.
- Receive detailed training in site health and safety requirements, emergency responses, Covid-19 regulations and site evacuation procedures in terms of the Contractor’s health and safety plan;
- Are made aware that prostitution shall not be tolerated in the construction camp;
- Are aware that a copy of the EMP is readily available on site and that all site staff are aware of the location and have access to the document;
- Are aware of the requirements of any approved Method Statements that have bearing on their activities, and where necessary, any specialised training required to ensure compliance with the approved Method Statements has been provided; and
- Are informed that employee information posters, outlining the environmental “do’s” and “don’ts” (as per the environmental awareness training course) will be placed at prominent locations throughout the site.

The Contractor shall provide a suitable venue with necessary facilities and ensure that all employees attend the environmental, health and safety induction course. The course shall be held in the morning during normal working hours. No more than 10 people shall attend each course and every individual must wear a face mask (as stipulated by the Covid19 social distancing regulations) and the



Contractor shall allow for sufficient sessions to train all personnel. The Contractor shall provide proof of attendance by all of his employees in the form of a signed attendance register.

The initial Environmental, Health, and Safety Induction Course shall be held within 10 days from the site mobilisation date, and subsequent courses shall be arranged for all new employees arriving after the initial training course.

2.5.2 Covid19 Infection Prevention and Control Measures

Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus i.e. severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The virus that causes COVID-19 is mainly transmitted through droplets generated when an infected person coughs, sneezes, or exhales. These droplets are too heavy to hang in the air, and quickly fall on floors or surfaces. You can be infected by breathing in the virus if you are within close proximity of someone who has COVID-19, or by touching a contaminated surface and then your eyes, nose or mouth.

Employers must implement a code of practice to manage and prevent the spread of COVID-19. This is to ensure that construction employees returning to work and any other persons at the construction site, are protected from transmission of the coronavirus at the workplace, whilst providing guidance to all stakeholders regarding their roles and responsibilities in the management of the virus. The regulations require property developers to supply protective equipment, screen all people entering the construction site, provide standby quarantine facilities before transferring infected persons to the state quarantine centres, identify those with pre-existing conditions and carry out routine disinfection.

They also have to keep construction workers between one and two metres apart. Failure to enforce the rules would constitute a violation of the nationwide Covid19 regulations as stipulated by the Head of State and the relevant arms of government to curb the spread of the corona virus.

After arrival of employees at the construction site, employers should comply with the following:

- Infection prevention and control measures should be applied to all modes of transport for employees, screening areas and active work areas.

2.5.3 Education of workers should be given on:

Maintaining physical distancing. Ensure employees and staff keep a distance of at least 1-2 m when in contact with other people; where this is not possible, issue appropriate facemasks, as per the Guidance on PPE for COVID-19.

- Regular washing of hands with soap.
- Regular sanitising of hands with alcohol-based hand rub (ABHR) or other appropriate sanitisers.
- Avoid touching your face areas (mouth, eyes and nose).
- Avoid physical hand contact such as handshakes.
- Avoid using other people's personal belongings such as stationery, cell phones and sharing food etc.



- When coughing or sneezing do not use your hands, rather use a tissue/toilet paper or the inside of your elbow.
 - Use disposable tissues rather than a handkerchief; immediately dispose of these tissues in a closed bin and wash or sanitise your hands thereafter.
 - Avoid big crowds and travelling.
 - Avoid touching objects before sanitising, like steering wheels on machinery, toilet seats, tables and chairs.
 - Coach and teach family members.
 - Wearing and handling of appropriate PPE.
- a) Posters on Infection Prevention to be visible at designated areas of the construction site (See **Figure 4** for a typical Covid19 information poster).



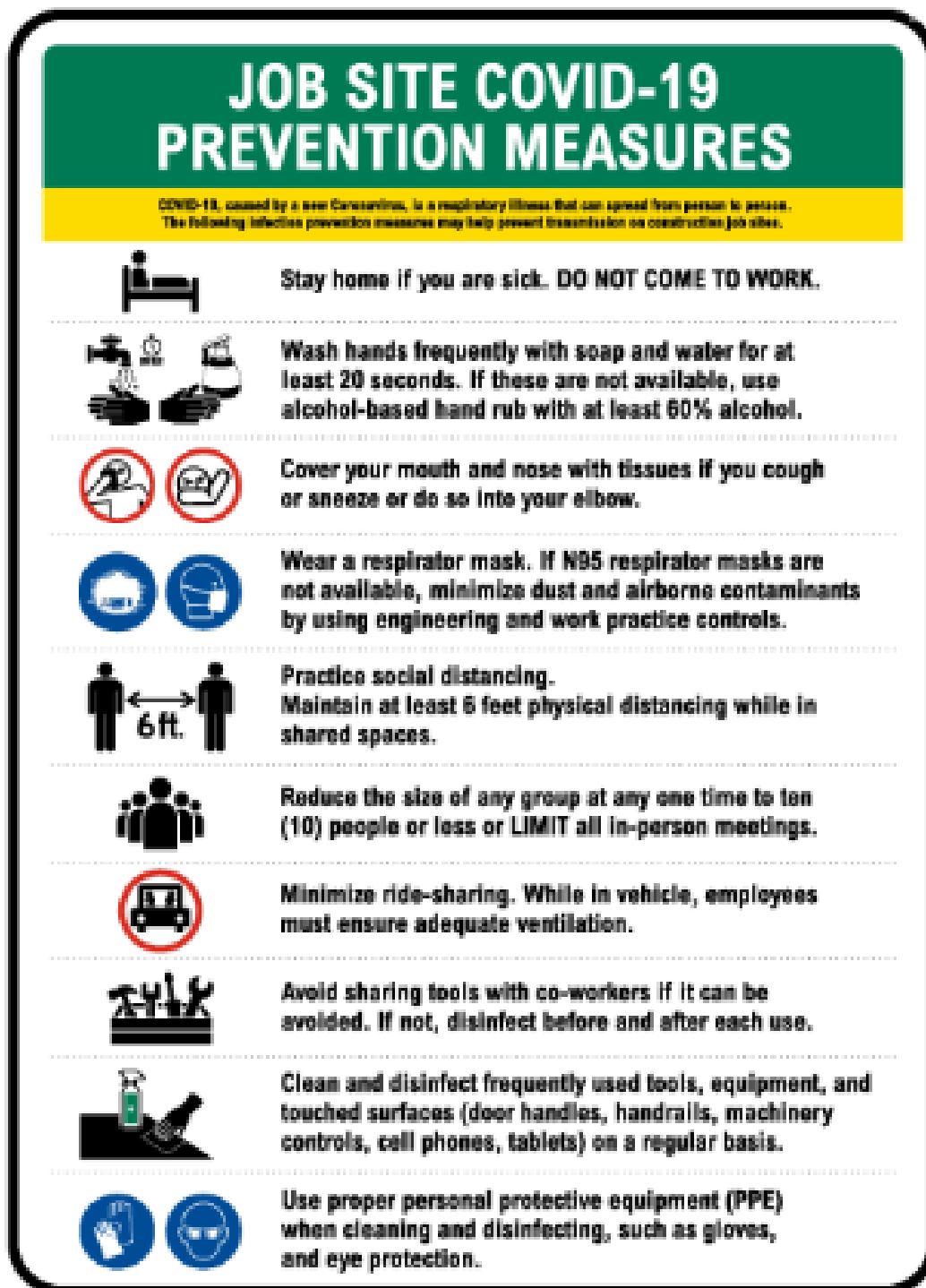


Figure 4: Typical COVID-19 information poster to be placed at designated areas at the construction site.

- b) Sanitisers (as per World Health Organisation guidelines) should be made available at the entrance and exit points of all screening facilities, security entrances and all entrances and exits at the common areas at the construction camp, and at the starting points and end points of all places where close contact among workers is likely to occur, including in accommodation places.
- c) Sanitisers (as per World Health Organisation guidelines) should be available in each consultation room and testing areas at the screening centre, and sanitisation should take place before and after every consultation.

- d) PPE is required for all staff, and PPE management programmes should be in place to ensure that PPE is worn correctly (including fit testing), replaced as necessary, stored correctly and disposed of safely.
- e) Employees not able to socially distance by 1 m should be provided with PPE as per the Guidance on PPE for COVID-19.
- f) Re-enforce compliance with the taking of chronic medication.

2.6 SCREENING AND TESTING AT THE DESIGNATED AREAS

Employers should comply with the following:

- a) Where there is company accommodation, initial pre-screening should be done at the residences, before getting to the work site. This is to isolate and quarantine any possible cases and suspects.
- b) At work, pre-screening of workers should be done before entering the facility (at the gate) either by nursing or security staff as per agreed-on protocol. This should include a temperature check.
- c) Employees with elevated temperatures should be referred directly to the isolation area for assessment by a Registered Nurse.
- d) Employees who do not have elevated temperatures should be referred to the site office for COVID-19 Risk Assessment and to complete a return to work medical (**Appendix B**).

2.7 Continuous Measures

Employers should comply with the following:

- a) Training of staff and employees.
- b) Continually re-enforcing of universal hygiene precautions.
- c) Enforce physical distancing in the workplace.
- d) Continue use of facemasks.
- e) Promotion of good hygiene practices.

The employer should allocate an appropriate person to monitor and document compliance with this EMP specifically for ensuring adherence to the Covid19 regulations as continually prescribed as the pandemic is monitored and as per WHO guidelines.

2.8 TOOLBOX TALKS

Environmental, health and safety issues specific to each area of the works, shall form part of the daily toolbox talks in each area. The foreman responsible will provide feedback to his staff on their day-to-day environmental performance and address issues requiring attention and specific actions required. A synopsis of the topics discussed at each area shall be recorded on a register and submitted to the ECO on regular (typically weekly) basis. Environmental matters shall be dealt with in toolbox talks on a regular basis (typically at least once a week).



2.8.1 Safety of the Public

The Contractor shall take all reasonable measures to ensure the safety of people in the surrounding area. Where the public could be exposed to danger by any of the Works or site activities, the Contractor shall provide flagmen, barriers, and/or warning signs in English, all to the approval of the Engineer / ECO.

All unattended open excavations shall be adequately demarcated (fencing shall consist of a minimum of three strands of wire wrapped with danger tape). Adequate protective measures must be implemented to prevent unauthorized access to the Working Area. No firearms shall be permitted on site without the prior approval of the Project Manager.

The Contractor shall implement appropriate measures to limit any adverse social impacts associated with the establishment of a construction camp and/or the accommodation of a construction workforce on the local communities. The following mitigation and management measures are prescribed in this regard:

- Measures to prevent crime:
 - Construction workers should be clearly identifiable by wearing proper construction uniforms displaying the logo of the construction company.
 - Construction workers could also be issued with identification tags in order to gain access to the construction site and campsite area.
 - The Contractor should establish clear rules and regulations for access to the construction site and offices to control loitering. Consultation should occur with the local Henties Bay Namibian Police branch to establish standard operating procedures for the control and/or removal of loiterers.

2.8.2 Human Resource and Opportunities Management

Job creation, inward migration of workers and accommodation of a workforce within a small community have the potential to result in significant social impacts. Henties Bay Municipality and the Contractor must approach human resource management in a careful, cooperative and considered fashion so as to enhance the positive impacts, whilst minimising negative impacts associated with construction projects.

Given that the Henties Bay community will be most affected by the project, it is consistent with international best-practice standards (such as the Performance Standards of the IFC) that they should be given special consideration in terms of the benefits arising from the project. In order to enhance the benefits of employment creation for these communities, it is recommended that the following measures be implemented:

- The Contractor shall establish a formal and organised recruitment process.
- The Contract should be encouraged to employ local labour (i.e. from Henties Bay) where possible.
- The Contractor should be encouraged to recruit Namibian labourers.
- Tender criteria should require training and skills development of the workforce by the Contractor.
- Recruiting by the Contractor must be conducted through a central office and no on-site hiring should be allowed.
- The Contractor shall inform job seekers that they are hired for a contract period only.



2.8.3 Working Times

The Contractor shall restrict construction activities to the hours of 06h30 - 17h00 during summer and 07h00 - 17h00 during winter on Mondays to Saturdays and no work will be permitted on Sundays or public holidays.

2.8.4 Dust

The Contractor shall take all reasonable measures to minimise the generation of dust as a result of construction activity, to the satisfaction of the Engineer / ECO. Dust suppression measures shall be agreed upon in consultation with the Engineer / ECO. Appropriate dust control measures include the following:

- Dustex may be applied to the construction clearing activities to ensure 50% control efficiency on all the unpaved where applicable;
- 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; and
- Cover any stockpiles with a suitable material, such as plastic or shade-cloth, to minimise windblown dust.

2.8.5 Noise

The Contractor shall limit noise levels (e.g. install and maintain silencers on machinery). Appropriate directional and intensity settings are to be maintained on all hooters and sirens and no amplified sound shall be allowed on site other than in emergency situations. Drivers and operators are to be instructed to not use their hooters unless absolutely required (i.e. operators of machinery should not use hooters for the purposes of general communication, which is typically seen on construction sites).

2.9 METHOD STATEMENTS

Any Method Statements required by the Engineer / ECO or called for by the Project Specification shall be produced within such reasonable time as specified by the Engineer / ECO or as stipulated in the Project Specification. Please refer to **Appendix A** for a generic example of a method statement. The Contractor shall not commence the activity until the Method Statement has been approved, except in the case of emergency activities. The Contractor shall allow the Engineer / ECO a one week period for the review and approval of the Method Statement. Such approval shall not be unreasonably withheld.

The Engineer / ECO may require changes to a Method Statement if the proposal does not comply with the Specification or if, in the reasonable opinion of the Engineer / ECO, the proposal may result in, or carries a greater risk of, damage to the environment in excess of that which can be tolerated.

Approved Method Statements shall be readily available on the site and shall be communicated to all relevant personnel. The Contractor shall carry out the works in accordance with the approved Method Statement. Approval of the Method Statement shall not absolve the Contractor from any of his obligations or responsibilities in terms of the Contract or any other law.

Method Statements that shall be provided by the Contractor 14 days prior to the mobilisation on site include:



1. Mobilisation plan, covering:
 - a. The location and layout of all offices, storage containers, gates and fences, fuel storage areas and protection bunds, material lay-down areas, ablution facilities, carpentry areas, hazardous chemical storage facilities, wash bays, workshops and works service and maintenance areas, oil separators and grease traps, storm-water layout, first aid facilities, recess, training, eating and meeting areas, central waste storage areas, access / haul roads and any other facilities associated with the Contractor's yard.
 - b. Security and access control to the site.
 - c. The design and location of all waste storage facilities, in particular the central waste storage area.
 - d. The central waste storage area shall include a separate, weather proof, water-tight vessel for the disposal of hazardous waste and contaminated soil recovered during spills.
 - e. The system of collection and disposal of wastes, including the name and location of the point of final disposal, to an appropriately landfill site.
 - f. Initiatives for the control and recovery of litter on and around the Site and Contractor's yard.
 - g. Fuels and fuel spills: Methods of refuelling vehicles and details of methods for fuel spills and clean-up operations.
 - h. Sedimentation and Erosion Control: Sedimentation and erosion control of bulk earthworks and the management of sediment into rivers.
 - i. Storm water management: Provisions to manage storm water during the construction phase, especially during phases involving bulk earthworks as well as at the culvert where the pipeline will go through underneath the road.
2. Operational and rehabilitation plan, covering:
 - a. Procedure for the clearing of vegetation, grubbing of the works and handling, stockpiling and disposal of the debris arising from the grubbing operations;
 - b. Measures to be used to protect the topsoil stockpiles against contamination or erosion;
 - c. Measures used to protect cleared areas from erosion, windblown dust and suspended solid contaminated runoff;
 - d. Method to be used for backfilling, shaping, spacing and shape of erosion protection beams and the redistribution of stockpiled topsoil (care to be taken that topsoil is not over diluted with sub-soil); and
 - e. Seeding and aftercare of planted materials and control of alien invasive. It is encouraged that concurrent rehabilitation practices are used where possible.

2.10 ENVIRONMENTAL CONSIDERATIONS PERTAINING TO SITE LAYOUT

2.10.1 Employee Eating and Recess Areas

The Contractor shall identify a suitable area, which is shaded if possible and away from construction noise and dust, where employees can eat and take work recesses in relative comfort. The eating areas shall be provided with scavenger proof rubbish bins which are to be emptied into the central waste storage vessel daily. Potable water and other sanitary conveniences shall also be located within reasonable range of the designated eating area. The Contractor shall prevent his employees from eating or recessing anywhere else but in the designated eating area.



2.10.2 Ablution Facilities

Temporary / portable toilets shall be supplied by the Contractor for the workers at a maximum ratio of 1 toilet per 15 workers and be within walking distance of the work area. The toilets shall be placed at appropriate locations to the approval of the Engineer / ECO. The toilets shall be located within the construction camp, but not closer than 50m to water resources (e.g. the ocean). Toilets shall not be located in depressed areas where they may be subject to flooding. Toilets shall be kept in a good state of repair and shall be serviced at intervals sufficient to ensure that they are kept in clean and sanitary condition. The Contractor shall ensure that no spillage occurs when the toilets are cleaned or emptied and that the contents are removed from site. Discharge of waste from toilets into the environment is prohibited. Each toilet shall be stocked with toilet paper at all times. All toilets shall be secured to the ground to ensure that they do not overturn during high winds or for any other reason.

Washing whether of the person or of personal effects and acts of excretion and urination are strictly prohibited other than at the facilities provided.

2.10.3 Site Division and Site Demarcation

The Contractor shall restrict all his activities, materials, equipment and personnel to the designated Site. The Contractor shall erect and maintain permanent and/or temporary fences of the type and in the locations directed by the Engineer / ECO. Such fences shall, unless otherwise directed by the Engineer / ECO, be erected before undertaking other designated activities within the fenced-off area. Fences and gates shall be maintained throughout the Contract. All areas outside of the demarcated site shall be deemed as “no-go” areas for all construction personnel and equipment.

The Contractor shall ensure that the clearance of vegetation is restricted only to that required to facilitate the execution of the works. A preventative approach to rehabilitation is emphasised, site clearance shall occur in a planned manner, over or accidental clearance will be prevented. The Contractor shall peg the boundaries for the proposed works before commencing with any clearing operations.

2.10.4 Access, Traffic and Haul Roads

The Contractor shall be held responsible for the control of all project related traffic, including that of his suppliers, in ensuring that vehicles associated with the project remain on designated routes and within the designated working times. Construction traffic shall be controlled to ensure minimal disruption to normal road users. All existing access roads that may be affected during construction shall be kept open and in a good state of repair, where this is not possible, unobstructed and safe alternative access routes through the Works must be provided. The following mitigation measures are further proposed to limit the impact of traffic in the area:

- The absolute minimum new roads / tracks should be established. Vehicles should stay on existing roads / tracks as far as possible.
- Should new roads / tracks need to be established, a plan should be provided for the road before construction commences.
- New roads / tracks should not be constructed if the quality of existing roads deteriorates. Where possible, repair or upgrade existing roads / tracks.



- Road construction methods should ensure good road surfaces to preclude vehicles driving off road to find smoother surfaces with less corrugations or potholes.
- The area to be cleared for road construction should be as small as possible.
- Road surface should be regularly assessed and upgraded where appropriate.
- No off-road driving is allowed except where the clearing route for service infrastructure is planned.
- No operator will operate any equipment when he is under the influence of alcohol.
- Make sure all vehicles are roadworthy. Repair faulty brakes, exhausts etc. immediately/
- Good driving and adherence to safety rules at all times.
- Drivers must keep their headlights on when driving on gravel roads.
- Drivers must have the correct licence for the vehicles they are driving.
- Roads which were constructed for the purposes of this project and will not be required for further use shall be rehabilitated in accordance with the rehabilitation measures provided in section 2.9.
- The following minimum standards for access roads should be followed:
 - Enter and exit roadways and construction areas should be demarcated at the entrances.
 - Erect signage to warn motorists about construction activities and heavy vehicle movement where appropriate.
 - Use 3-point turns and not U-turns and confine turning to the road.
 - Prevent shortcuts between roads.

No new parking bay, haul or access road or passage of any sort shall be opened or be caused to be opened without the prior consent of the Engineer / ECO. Establishing new borrow pits are strictly prohibited. Any contraventions of this clause shall result in penalisation.

2.10.5 Solid Waste Management

The Contractor shall provide sufficient number of rubbish bins with secured lids. Rubbish bins shall always be placed in pairs, to ensure that one is always present while the other is being emptied. As a minimum, rubbish bins shall be located at every point of entry / exit to the site, any building, work area, ablutions facility or recess area. Areas where rubbish is likely to be generated in higher quantities shall be equipped with an additional rubbish bins according to the activities occurring there and the volume of waste being generated to allow for waste separation on site. Area requiring additional rubbish bins will include for example:

- Training and meeting facilities (4);
- Workshops (4);
- Stores (4);
- Canteens and eating areas (4);
- Materials lay down areas;
- Any work areas where outfitting (Electrical, plumbing, mechanical) of structures is occurring (as required);
- Any mobile teams carrying out work away from the main site infrastructure, for example pipe or electrical installation teams, road building and maintenance teams, etc, shall carry a rubbish bin with them at all time and return all waste collected to the central storage area at the end of a day's work; and
- Any other area where an accumulation of litter and rubbish is noted or as instructed by the ECO.



No waste materials, including domestic, organic or construction wastes shall be burnt, dumped or buried on the site. Bins shall be emptied daily or as required. The waste may be stored temporarily on site in a central waste area that is weather and scavenger proof, as approved by the Engineer / ECO. The Contractor shall, at his own cost, make available the time and resources required in recovering any litter or other wastes that have accumulated or have been dispersed as a result of his activities on the Site. The ECO shall monitor this strictly and institute strict penalties in the event of non-compliances.

The central waste storage vessel shall be emptied weekly or as necessary. All solid waste shall be disposed of at the existing landfill site in Henties Bay. A copy of the waste disposal certificates shall be submitted to the Engineer / ECO for record purposes.

2.10.6 Fuel and Oil

The Contractor shall ensure that all liquid fuels are stored in tanks or mobile bowzers with lids that are kept firmly shut. The Contractor shall ensure that there is adequate fire-fighting equipment at the fuel storage areas. The tanks or bowzers shall be situated on a smooth impermeable surface (concrete slab or 250 micron plastic sheeting covered with at least 50mm of sand) with an earth bund. The impermeable lining shall extend to the crest of the bund. The volume of the bunded area shall be 120% the volume of the combined tank volumes stored therein. Provision shall be made for refuelling at the fuel storage area, by protecting the soil with an impermeable surface (similar to that used for the storage area itself).

The Contractor shall prevent unauthorised access to the fuel storage area. No smoking shall be permitted in the vicinity of the fuel storage area. The Contractor shall ensure that there are adequate fire-fighting provisions located at the fuel storage area.

Should a mobile fuel bowser be used, all refuelling shall occur with appropriate measures in place to prevent spillages; these may include the use of drip trays, funnels, non-drip dispensing nozzles, and any other similar device. Regardless of the preventative measures in place, all mobile fuel bowzers shall carry a spill-kit that is adequately sized to contain at least a 200 litre spill, at all times.

2.10.7 Equipment Maintenance and Storage

All vehicles and equipment shall be kept in good working order and shall be operated by designated and competent operators. Leaking or damaged equipment shall be repaired immediately or removed from the Site. Where emergency, *in situ* maintenance operations are required, the Contractor shall ensure that the soil or vegetation does not become contaminated. Drip trays shall be provided in construction areas for stationary and parked plant as well as for the emergency servicing of vehicles. Drip trays shall be inspected and emptied daily, or as required. The contents of the drip trays shall be disposed of at an appropriately authorised facility.

The washing of equipment shall be restricted to urgent or preventative maintenance requirements only during which the use of detergents for washing shall be restricted to low phosphate and nitrate containing, low foaming type detergents.

The Contractor shall ensure that oil and lubricant containers are stored in an area where the ground has been protected. The containers shall be inspected regularly to ensure that no leakage occurs. When oil / lubricants are dispensed, the proper dispensing equipment shall be used, and the storage container shall not be tipped in order to dispense the oil / lubricant. The dispensing mechanism of



the oil / lubricant storage container shall be stored in a waterproof container when not in use. The Contractor shall take all reasonable precautions to prevent accidental and incidental spillage during the use of oils.

In the event of oil / lubricant or other hazardous spill, the source of the spillage shall be isolated, and the spillage contained. The Contractor shall clean up the spill by removing the contaminated soil to the hazardous waste vessel and the application of absorbent material to the affected area. Treatment and remediation of the spill area shall be undertaken to the reasonable satisfaction of the Engineer / ECO.

2.10.8 Stockpiling and Stockpile Areas

Plant and materials shall be stored within the demarcated construction camp or batching areas. Where this is not feasible, the Engineer / ECO will identify additional sites for stockpiling within the Working Area. Where possible, stockpiled materials shall be stored off the ground on scaffolding and care shall be taken to minimise disturbance to the vegetation and topsoil.

Soil, sand, and gravel stockpiles shall be convex in shape and shall be located so as to cause minimal disturbance. Stockpiles shall be so placed as to occupy the minimum width compatible with the natural angle of repose of the material, and measures shall be taken to prevent the material from being spread over too wide a surface. The Contractor shall ensure that all stockpiles do not result in the damming of water or run off, or are themselves washed away. Stockpiles shall be placed to not obstructed or pollute any storm water or drainage paths.

2.10.9 Materials

a) Materials Handling, Use and Storage

The Contractor shall ensure that any delivery drivers are informed of all procedures and restrictions, including “no-go” areas and designated haul routes.

All material shall be stored within the designated Site boundaries and all material stockpiles shall be located no less than 20m from any water resource. The Contractor shall ensure that all material lay-down areas, workshops and stores, including temporary lay-down areas within the Works, are kept in a neat and orderly fashion on a daily interval, and to the satisfaction of the Engineer / ECO. The Contractor shall set aside the time and resources required to remedy any contraventions of this clause at his own expense.

Materials shall be appropriately secured and covered to ensure safe passage between destinations. The Contractor shall be responsible for any clean-up resulting from the failure by his employees or suppliers to properly secure transported materials.

b) Hazardous Substances

Hazardous chemical substances used during construction shall be stored in secondary containers. The relevant Material Safety Data Sheets (MSDS) shall be available on site. Procedures detailed in the MSDSs shall be followed in the event of an emergency situation. Potentially hazardous substances shall be stored, handled and disposed of as prescribed by the Engineer / ECO.

The Contractor shall provide a separate weather-proof, impervious vessel at the central waste storage area for the temporary storage of hazardous, potentially hazardous and contaminated



materials. Waste from this vessel shall be disposed of at a landfill site that is registered to receive such waste. A copy of the Certificate of Disposal issued by the landfill shall be submitted to the Engineer / ECO after every deposit.

2.10.10 Cement and Concrete Batching

The batching of concrete shall take place on a smooth, impermeable surface (plastic) and shall be enclosed with a bund and sloped toward a sump to contain any spillages. Concrete batching shall take place at least 20m away from any water resource to avoid contaminated water and/or sediment entering the resource. All waste water resulting from batching of concrete shall be contained and disposed of appropriately and shall not be discharged into the environment unless treated to acceptable standard, as determined by the Engineer / ECO. Where concrete trucks are used, the Contractor shall ensure that dumping of the drum-wash does not occur directly onto the ground. If needed, facilities for the handling of the concrete contaminated wash-water shall be established to the satisfaction of the Engineer / ECO. Any spillages of concrete or concrete-truck-drum-wash-water shall be cleaned-up immediately and disposed of through the solid waste disposal system.

The Contractor shall take all reasonable measures to prevent the spillage of cement / concrete during batching and construction operations. During pouring, the soil surface shall be protected using plastic and all visible remains of concrete shall be physically removed on completion of the pour and disposed of as part of the solid waste disposal system. Empty cement bags shall be collected continuously and stored in temporary weatherproof containers, where they are protected from dispersion by wind and shall be disposed of regularly via the solid waste disposal system.

2.10.11 Trenching

Trenches where envisaged shall be demarcated appropriately and securely and regularly monitored during operations to ensure that pedestrian (and vehicular) access to these areas is strictly prohibited. Where appropriate, sign boards, alerting pedestrians and road users to the potential dangers presented by the construction activities, shall be erected. The Contractor shall ensure that the time a trench is left exposed is kept to a minimum, and that open trenches are inspected on a daily basis for animals which may have fallen or become trapped.

2.10.12 Fire Control

Fires are only permitted in designated area and shall not be left unattended. Cooking places shall be located at a safe distance from fuel / hazardous materials storage area and vehicle parking areas. All grass and bushes shall be removed around fireplaces. Fire extinguishers shall be readily available in the construction camp. Any fires that occur outside of designated areas shall be reported to the Engineer / ECO immediately. Employees shall be made aware that the collection and removal of firewood is prohibited, except where indicated by the contractor as clearing takes place. The Contractor shall either provide firewood or to limit the use thereof; provide gas or fuel efficient stoves. Smoking shall not be permitted in those areas where there is a fire hazard. Burning of waste for disposal purposes is not permitted.

The Contractor shall be responsible for ensuring that immediate and appropriate actions are taken in the event of a fire and shall ensure that employees are aware of the procedures to be followed. The Contractor shall ensure that there is at least one fire extinguisher at the entrance to the site and at the recess area. A fire extinguisher shall be present whenever undertaking any form of hot work,



i.e. welding, gas cutting, angle grinding, etc. All transport, earth moving equipment, and materials handling equipment on the Site shall be fitted with fire extinguishers.

All fire extinguishers shall be serviced at the specified intervals and all other fire-fighting equipment shall be maintained in a good state of repair.

2.10.13 Emergency Procedures

The Contractor shall ensure that his employees are aware of the procedure to be followed for dealing with leaks and spills, which shall include notifying the Engineer / ECO. The Contractor shall ensure that the necessary materials and equipment for dealing with leaks and spills are available on Site at all times. Treatment and remediation of spills shall be done to the satisfaction of the Engineer / ECO.

In the event of a hydrocarbon spill, the source of the spillage shall be isolated, and the spillage contained. The affected areas shall be cordoned off and secured. The Contractor shall ensure that there is always sufficient supply of absorbent material on Site to absorb / breakdown or encapsulate at least a 200ℓ liquid hydrocarbon spill. Any soil contaminated by such a spill must be removed and disposed of at an appropriately registered waste site.

Emergency equipment including spill kits and fire extinguishers shall be positioned at accessible locations near to areas or facilities where such emergencies may arise.

2.10.14 Erosion, Water Quality, and Storm Water Control

The Contractor shall take all reasonable steps to prevent or remediate damage to the environment resulting from the Works in the form of erosion and sedimentation. The Contractor shall immediately remedy any situation that is or has the potential to result in soil erosion, water pollution and sedimentation from the works as a result of storm water flows. A preventative approach must be adopted whereby the extent of clearance and disturbance is limited to those areas required to complete the works. If required, the Contractor shall establish necessary storm water control mechanisms in agreement with the engineer, to effectively control the movement of water onto, through and off the construction site.

Storm water should be managed appropriately at the culvert crossing where the pipeline are planned to go through underneath the road, so that blockage does not occur.

The Contractor shall establish, in agreement with the Engineer / ECO, a suitable mechanism, where necessary, for containment and treatment of contaminated water emanating from the works or associated activities, i.e. settlement or sedimentation ponds / oil separators. Should dewatering of the pipe trench be required, then a method statement detailing how this will be done shall be compiled and submitted for the Engineer / ECO's approval, before commencement. Consideration for erosion at discharge points is to be effectively dealt with. The Plan for the control of large volumes of water associated with pipe pressure testing must be undertaken in a manner that does not pose a risk of soil erosion on slopes.



2.11 PROTECTION OF NATURAL FEATURES AND HERITAGE RESOURCES

2.11.1 Protection of Freshwater Ecosystems

Heavy construction vehicles should be kept out of the seasonal and ephemeral drainage channels and the movement of construction vehicles should be limited where possible to the existing roads / tracks. Contaminated runoff from the construction site should be prevented from entering the water courses as far as possible. Where pipelines cross streams, they should do so in a manner that does not impeded or divert the flow in the channels.

The following mitigation measures are proposed for the protection of watercourses:

- Heavy construction vehicles should be kept out of surface water bodies and the movement of construction vehicles should be limited where possible to the existing roads.
- Where pipelines cross streams, they should do so in a manner that does not impeded or divert the flow in the channels.
- Contaminated runoff from the construction site should be prevented from entering the ocean/ river / water bodies as far as possible.
- Avoid development in and destruction of the drainage lines in the area.
- All materials on the construction site should be properly stored.
- Disposal of waste from the sites should be properly managed.
- Construction workers should be given ablution facilities at the construction sites that are located at least 30m away from the ocean and watercourses, and should be regularly serviced.

2.11.2 Protection of Natural Systems

The Contractor shall ensure that the disturbance of vegetation and faunal communities and their habitats is kept to a minimum. The following mitigation and management measures are prescribed in this regard:

- The Contractor shall ensure that the bulldozer operators are clearly instructed and are informed about the objectives of the EMP.
- Vegetation should only be removed where it is absolutely necessary.
- Keep the few individual trees/shrubs not directly affecting the developments as part of the landscaping.
- Prevent the introduction of potentially invasive alien ornamental plant species such as; *Lantana*, *Opuntia*, *Prosopis*, *Tecoma*, etc.; as part of the landscaping as these species could infestate the water bodies further over time.
- Prevent development in and destruction of the drainage lines in the area.
- Employees who poach fauna shall be handed to the authorities for prosecution.
- Employees who set traps shall be handed to the authorities for prosecution.
- Employees found guilty of poaching or setting traps shall not be allowed to continue with work on this project and shall be immediately removed from the construction team.
- Prevent contractors from collecting wood, veld food, etc. during the construction phase.
- Show overall environmental commitment by adapting a minimalistic damage approach during the construction phase.
- Inform construction contractors/workers regarding the above mentioned issues prior to development and monitor for compliance thereof throughout
- Recommend the planting of local indigenous species of flora as part of the landscaping as these species would require less maintenance than exotic species.



2.11.3 Protection of Archaeological Sites

The proposed development is deemed to result in a **Very-Low to Negligible (negative)** impact on the cultural or heritage resources due to the fact that no major historical activity took place within close proximity to the site. The project management should however be made aware of the provisions of the National Heritage Act regarding the prompt reporting of archaeological finds. In the event of such finds, the project management or contractors should contact the National Heritage Council of Namibia immediately.

Should a heritage site or archaeological site be uncovered or discovered during the construction phase of the project, a “chance find” procedure should be applied in the order they appear below:

- If operating machinery or equipment, stop work;
- Demarcate the site with danger tape;
- Determine GPS position if possible;
- Report findings to the construction foreman;
- Report findings, site location and actions taken to superintendent;
- Cease any works in immediate vicinity;
- Visit site and determine whether work can proceed without damage to findings;
- Determine and demarcate exclusion boundary;
- Site location and details to be added to the project’s Geographic Information System (GIS) for field confirmation by archaeologist;
- Inspect site and confirm addition to project GIS;
- Advise the National Heritage Council of Namibia (NHCN) and request written permission to remove findings from work area; and
- Recovery, packaging and labelling of findings for transfer to National Museum.

Should human remains be found, the following actions will be required:

- Apply the chance find procedure as described above;
- Schedule a field inspection with an archaeologist to confirm that remains are human;
- Advise and liaise with the NHCN and Police; and
- Remains will be recovered and removed either to the National Museum or the National Forensic Laboratory.

All earthworks equipment operators shall be informed to cease operating immediately if any artefact is unearthed and to report the finding immediately to the Engineer / ECO and Henties Bay Municipality, who in turn shall notify the National Heritage Council. The Contractor shall take reasonable measures to protect any such find against further damage until its value can be properly assessed. Work in the immediate vicinity of such a find shall also be discontinued until the Engineer / ECO, and the National Heritage Council issues a clearance to recommence.

2.12 EXITING AND REHABILITATION

The Contractor shall, on completion of the Contract, ensure that all materials, temporary structures, temporary fences, plant, equipment and waste are completely removed from the Site. Rehabilitation operations and re-vegetation of all disturbed areas shall commence as soon as possible and even run concurrently where appropriate.



For the purposes of this updated EMP, the landscaping and rehabilitation of disturbed areas shall entail the clearing, shaping, trimming, and scarification of the area, replacement of stockpiled topsoil where relevant, by randomly distributed stone and gravel surface and spraying down with water.

a) Timing of Landscaping and Rehabilitation

The Contractor shall programme for the landscaping and rehabilitation of disturbed areas to occur as soon as practically possible following the cessation of the work in a specific area. In this regard, the Contractor's Works Programme shall clearly indicate how rehabilitation will be executed per phase, upon the completion of the works within a specific area. The period between the cessation of activities associated with the construction of a particular infrastructural component and the onset of landscaping and rehabilitation for the area affected by these activities shall not exceed 1 month (30 days). Once an area has undergone rehabilitation it shall be deemed a "no-go" area and protected accordingly against further or repetitive disturbance.

b) Shaping and Trimming

All slopes which do not form part of the permanent works shall be graded so that no slope exceeds a maximum gradient of 1:3 or as otherwise directed by the Engineer. Contour drains may be provided to control erosion where required by the Engineer. Excavation and fills shall be formed in such a manner that the final profile shall appear as a natural extension to the adjacent, undisturbed ground profiles. Trimming shall consist of bringing the existing or previously shaped ground to a smoothly flowing surface with the final levels generally following the original surface and tying in with adjacent undisturbed areas as directed by the Engineer / ECO.

c) Scarifying and Ripping

Prior to the application of stone and gravel, areas stripped during clearance shall be scarified by hand, plough or a mechanical ripper to a depth of approximately 150mm to break down soil clods. Soil which has become compacted and has become too hard to scarify, shall be mechanically ripped to a depth at least 250mm prior to replacement of stone and gravel. No areas of compaction shall remain undisturbed after ripping, subject to the approval of the Engineer / ECO.

d) Replacement of Soil, Stone and Gravel

Following scarification or ripping, and replacement of soil, stone and gravel removed during site clearance shall be replaced in a random pattern or similar to that seen in adjacent, undisturbed areas, subject to the approval of the Engineer / ECO.



2.13 COMPLIANCE AND PENALTIES

2.13.1 Compliance

Environmental management is concerned not only with the final results of the Contractor's operations to carry out the Works but also with the control of how those operations are carried out. Tolerance with respect to environmental matters applies not only to the finished product but also to the standard of the day-to-day operations required to complete the works.

It is thus required that the Contractor shall comply with the environmental requirements on an on-going basis and any failure on his part to do so will entitle the Engineer / ECO to certify the imposition of a penalty, as detailed below, if such non-compliance is not corrected within a period of one week of notification thereof.

2.13.2 Penalties

Penalties will be issued for certain transgressions. Penalties may be issued per incident at the discretion of the Engineer / ECO. Such penalties will be issued in addition to any remedial cost incurred as a result of the non-compliance with this Specification. The Engineer / ECO will inform the Contractor of the contravention and the amount of the penalty, and shall be entitled to deduct the amount from the monies due under the Contract.

Table 5: Penalties for the activities detailed below, will be imposed by the Engineer / ECO on the Contractor and / or his Sub-Contractors.

a)	Any employees, vehicles, or things related to the Contractor's operations, operating outside the designated boundaries or a "no-go" area.	N\$ 5,000
b)	Persistent and un-repaired oil leaks from machinery.	N\$ 2,000
c)	Persistent failure to monitor and empty drip trays timeously.	N\$ 2,000
d)	The use of inappropriate methods for refuelling, resulting in spillages.	N\$ 2,000
e)	Litter on site associated with construction activities.	N\$ 2,000
f)	Deliberate lighting of illegal fires on site.	N\$ 2,000
g)	Any employee eating meals on site, outside of the defined eating area.	N\$ 2,000
h)	Employees not making use of the site ablution facilities.	N\$ 2,000
j)	Failure to empty waste bins on a regular basis.	N\$ 200
k)	Unauthorised removal of vegetation.	N\$ 500
l)	Hunting, trapping and collection of animals (per unit taken).	N\$ 10,000
m)	Failure to implement specified noise controls.	N\$ 2,000
n)	A spillage, pollution, fire or any damage to the environment resulting from negligence on the part of the Contractor.	N\$ 5,000
o)	Damage to vegetation or ground arising from equipment leaving designated haul or access routes.	N\$ 5,000
p)	Failure to submit and, or proceeding with work without having or deviating from an approved method statement, for those task requiring a method statements in terms of the EMP.	N\$ 5,000

NB: For each subsequent similar offence the penalty shall be doubled in value to a maximum value of N\$ 20,000. The Engineer / ECO shall be the judge as to what constitutes a transgression in terms of this clause.



2.14 MEASUREMENT AND PAYMENT

2.14.1 Basic principles

Except as specified below or in the Project specifications or as Scheduled, no separate measurement and payment will be made to cover the cost of complying with the provisions of this EMP and such costs shall be deemed to be covered by the rates tendered for the items in the Schedule of Quantities completed by the Contractor when submitting his tender.

2.14.2 Scheduled items

All requirements of the environmental management specification

All work not measured elsewhere, associated with complying with any requirement of the environmental management Specification shall be as a measured sum. The tendered rate shall cover any cost associated with complying with the environmental management specification and shall include for all materials, labour and plant required to execute and complete the work as specified, described in the Schedule of Quantities or shown on the drawing(s).

Method statements: Additional work

No separate measurement or payment will be made for the provision of Method Statements but, where the Engineer / ECO requires a change on the basis of his opinion that the proposal may result in, or carries a greater than warranted risk of damage to the work required, provided it could not reasonably have been foreseen by an experienced Contractor.

Work “required by the project specification”

Where a clause in this Specification includes a requirement as “required by the Project Specification”, measurement and payment for compliance with that requirement shall be in accordance with the relevant measurement and payment clause of the Project Specification.



2.15 SUMMARY OF CONSTRUCTION PHASE MANAGEMENT ACTIONS

The table 6 below is only a summary of the management actions to be taken in order to minimise negative impacts. Please turn back to the relevant section above for more detail on the various management actions to be taken for each impact.

Table 6: Summarized Construction Phase Management Table

Aspect	Management Objective	Management actions	Responsibility
Responsible management	To ensure that construction activities are carried out so as to cause the least possible disturbance to the existing amenities, whether natural or man-made.	<ul style="list-style-type: none"> The Contractor shall take adequate steps to educate all members of his workforce as well as his supervisory staff on the relevant environmental laws and protection requirements. A suitably qualified independent ECO shall be appointed by the Contractor. The Contractor shall construct and/or implement all the necessary environmental protection measures in each area before any construction work may proceed. 	Contractor
Environmental awareness	To ensure that all employees and Sub-Contractors are informed of their environmental obligations.	The Environmental, Health, and Safety Induction Course should be conducted by the ECO and Contractor's Health and Safety officer.	ECO
		The foreman responsible will provide feedback to his staff on their day-to-day environmental performance and address issues requiring attention and specific actions required.	Contractor
Safety to the public	To reduce the risks posed by the project to the public.	<ul style="list-style-type: none"> Where the public could be exposed to danger by any of the Works or site activities, the Contractor shall provide flagmen, barriers, and/or warning signs in English. No firearms shall be permitted on site without the prior approval of the Project Manager. <p>The Contractor shall implement appropriate measures to limit any adverse social impacts associated with the establishment of a construction camp and/or the accommodation of a construction workforce on the local communities.</p>	Contractor
Human resource and opportunities management	To ensure that job creation, inward migration of workers and accommodation of a workforce within a small community does not result in significant social impacts.	In order to enhance the benefits of employment creation for these communities, it is recommended that the Contractor shall establish a formal and organised recruitment process in line with this EMP.	Contractor
	Construction activities shall be restricted to specified hours in order to limit disturbance to the public.	The Contractor shall restrict construction activities to the hours of 6h30 - 17h00 during summer and 07h00 - 17h00 during winter on Mondays to Saturdays and no work will be permitted on Sundays or public holidays.	Contractor
Dust	To limit dust levels.	Appropriate dust control measures must be implemented.	Contractor
Noise	To limit noise levels.	Appropriate measures shall be implemented to limit noise levels.	Contractor
Method statements	To ensure effective and formal communication between the Project Management Team and the Contractor on construction issues throughout all stages of the project	System regarding method statement compilation, submission, review and approval to be rigorously implemented.	Contractor / ECO
		Method Statements that shall be provided by the Contractor 14 days prior to the mobilisation on site include: <ul style="list-style-type: none"> Mobilisation plan; and 	Contractor / ECO



Aspect	Management Objective	Management actions	Responsibility
		<ul style="list-style-type: none"> Operational and rehabilitation plan. 	
Employee eating and recess area	Suitable area identified where employees can eat and take work recess.	<ul style="list-style-type: none"> The Contractor shall identify a suitable area, which is shaded and away from construction noise and dust, where employees can eat and take work recesses in relative comfort. The eating areas shall be provided with scavenger proof rubbish bins, potable water and other sanitary conveniences. 	Contractor
Ablution facilities	Temporary toilets shall be provided by the contractor.	<ul style="list-style-type: none"> Temporary / portable toilets shall be supplied by the Contractor for the workers at a maximum ratio of 1 toilet per 15 workers and be within walking distance of the work area. The toilets shall be placed at appropriate locations to the approval of the Engineer / ECO. Toilets shall be kept in a good state of repair and shall be serviced at intervals sufficient to ensure that they are kept in clean and sanitary condition. 	Contractor
Site demarcation	The Contractor shall restrict all his activities, materials, equipment and personnel to the designated Site.	<ul style="list-style-type: none"> The Contractor shall ensure that the clearance of vegetation is restricted only to that required to facilitate the execution of the works. The Contractor shall peg the route for the proposed pipeline before commencing with any clearing operations. 	Contractor
Access, traffic and haul roads	Construction traffic shall be controlled to ensure minimal disruption to normal road users.	The Contractor shall be held responsible for the control of all project related traffic, including that of his suppliers, in ensuring that vehicles associated with the project remain on designated routes and within the designated working times.	Contractor
Solid waste management	To ensure that there is no illegal disposal of waste.	<ul style="list-style-type: none"> The Contractor shall provide sufficient number of rubbish bins with secured lids. No waste materials, including domestic, organic or construction wastes shall be burnt, dumped or buried on the Site. 	Contractor
Fuel and oil	To ensure that all liquid fuels are stored appropriately and adequate firefighting equipment is stored on site.	<ul style="list-style-type: none"> The Contractor shall ensure that all liquid fuels are stored in tanks or mobile bowsers with lids that are kept firmly shut. All tanks and/or mobile bowsers shall be situated in a bunded area. The Contractor shall ensure that there is adequate fire-fighting equipment at the fuel storage areas. 	Contractor
Equipment maintenance and storage	All vehicles and equipment are kept in good working order.	<ul style="list-style-type: none"> Leaking or damaged equipment shall be repaired immediately or removed from the Site. Drip trays shall be provided in construction areas for stationary and parked plant as well as for the emergency servicing of vehicles. 	Contractor
Stockpiling and stockpile areas	All plant and materials shall be stored in designed areas to minimise the disturbance to vegetation and topsoil.	Plant and materials shall be stored within the demarcated construction camp or batching areas.	Contractor
Materials handling, use and storage	All delivery drivers are informed of the on-site procedures and restrictions.	<ul style="list-style-type: none"> The Contractor shall ensure that any delivery drivers are informed of all procedures and restrictions, including "no-go" areas and designated haul routes. All material shall be stored within the designated Site boundaries. 	Contractor



Aspect	Management Objective	Management actions	Responsibility
Hazardous substances	Any hazardous substances are stored appropriately.	<ul style="list-style-type: none"> Hazardous chemical substances used during construction shall be stored in secondary containers. The relevant Material Safety Data Sheets (MSDS) shall be available on site. 	Contractor
Cement and concrete batching	Cement and concrete batching takes place in designated areas.	<ul style="list-style-type: none"> The batching of concrete shall take place on a smooth, impermeable surface (plastic) and shall be enclosed with a bund and sloped toward a sump to contain any spillages. The Contractor shall take all reasonable measures to prevent the spillage of cement / concrete during batching and construction operations. 	Contractor
Trenching	Trenches are appropriately demarcated and secured.	Trenches shall be demarcated appropriately and securely and regularly monitored to ensure that pedestrian (and vehicular) access to these areas is strictly prohibited.	Contractor
Fire control	To reduce the risk of fires	<ul style="list-style-type: none"> Fires are only permitted in designated area and shall not be left unattended. Fire extinguishers shall be readily available. 	Contractor
Emergency procedures	All employees are aware of emergency procedures.	<ul style="list-style-type: none"> The Contractor shall ensure that his employees are aware of the procedure to be followed for dealing with leaks and spills. The Contractor shall ensure that the necessary materials and equipment for dealing with leaks and spills are available on Site at all times. 	Contractor
Erosion, water quality, and storm water management	To prevent or remediate damage to the environment resulting from the Works in the form of erosion and sedimentation shall be taken.	<ul style="list-style-type: none"> The Contractor shall take all reasonable steps to prevent or remediate damage to the environment resulting from the Works in the form of erosion and sedimentation. The Contractor shall immediately remedy any situation that is or has the potential to result in soil erosion, water pollution and sedimentation from the works as a result of storm water flows. Storm water should be managed appropriately at the culvert crossing where the pipeline are planned to go through underneath the road, so that blockage does not occur. 	Contractor
Protection of natural systems and archaeological sites.	Impacts to natural systems are kept to a minimum.	<ul style="list-style-type: none"> Disturbance of vegetation and faunal communities and their habitats is kept to a minimum. Heavy construction vehicles should be kept out of the surface water bodies and the movement of construction vehicles should be limited where possible to the existing roads. All earthworks equipment operators shall be informed to cease operating immediately if any artefact is unearthed and to report the finding immediately to the Engineer / ECO and Henties Bay Municipality, who in turn shall notify the National Heritage Council. 	Contractor
Rehabilitation	On completion of the Contract all materials, temporary structures, temporary fences, plant, equipment and waste are completely removed from the Site.	<ul style="list-style-type: none"> Rehabilitation operations and re-vegetation of all disturbed areas shall commence as soon as possible and even run concurrently where appropriate. 	Contractor
Penalties	To ensure that environmental requirements are strictly adhered to.	Penalties will be issued for certain specified transgressions.	Contractor



2.16 SUMMARIZED OPERATIONAL & MAINTENANCE PHASE MANAGEMENT ACTIONS

The management actions included in Table 7 below apply during the operation and maintenance phase of these developments.

Table 7: Operation and maintenance management actions

OPERATIONAL PHASE			
Aspect	Management Objective	Management actions	Responsibility
Flora and fauna	Impacts to natural systems are kept to a minimum.	<ul style="list-style-type: none"> • Prevent the destruction of protected tree species. • Adopt intensive production systems • Adopt improved nutrient management • Reduce the rates of deforestation • Reduce rangeland burning. 	Proponent/Owner
Surface and groundwater	Maintain good quality water	<ul style="list-style-type: none"> • Ensure that all facilities are constructed in line with the requirements stipulated in the permit from MAWF. • Ensure that all facilities are regularly inspected and supervised by a suitably experienced person • Ensure that all facilities are not within 50 metres of the river bed or any other ground or surface water sources • Where possible, water reclamation systems shall be installed. • Care should be taken to ensure that the above systems are properly installed and maintained. • Regular monitoring of boreholes shall be carried out. • Water will only be used for the purposes of the agricultural activities taking place on the portions, employees and owners and will not be given or sold to any other party. • Limitations are to be placed on the size of gardens for growing plantations for own consumption by staff members. • The proponent shall ensure that he has a valid permit from MAWF at all times and conform to the requirements thereof • Adopt good fertilizer management systems to avoid losses through leaching and runoff. 	Proponent/Owner



		<ul style="list-style-type: none"> • Adopt improved screening methods for pesticide safety in line with relevant legislation. • Prevent the discharge of nitrogen and other nutrients into surface waters. • Ensure the design of the landfill is such that it prevents leachate from reaching the water table. • Ensure that an environmental clearance certificate is obtained for the landfill site. • Adhere to the water quality guidelines of the Ministry of Agriculture Water and Forestry (See Appendix C). 	
Air pollution and emissions	Improved air quality	<ul style="list-style-type: none"> • Increased livestock productivity related to improved feed intake and feed digestibility can reduce emissions per animal. • Adopt improved on-farm fertilizer management. • Adhere to relevant regulatory measures for fertilizer management • Consider organic farming practises 	Proponent/Owner
Visual & Sense of place	Maintain an attractive and aesthetically pleasing environment.	<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 considered for incorporation as well as the use of indigenous vegetation in order to help beautify the development. • Visual pollutants can further be prevented through mitigations (i.e. keep existing trees, introduce tall indigenous trees; keep structures unpainted and minimising large advertising billboards). 	Proponent/Owner
Social	Communities are benefiting from the project	<ul style="list-style-type: none"> • No specific mitigation measures are required, only that the local community be involved in the notification when plots will be available for purchasing and in terms of possible job creation opportunities. 	Proponent/Owner
Noise	To minimise occurrences of nuisance	<ul style="list-style-type: none"> • Do not allow activities that generate excessive noise levels on the properties • All areas where noise levels are above 85 dB should be managed and controlled in accordance with the Labour Act. 	Proponent/Owner



		<ul style="list-style-type: none"> • Continuous monitoring of noise levels should be conducted to make sure the noise levels does not exceed acceptable limits. • No activity having a potential noise impact should be allowed after 18:00 if possible. 	
Hazardous substances	Resident are living in a safe environment	<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. • Storage areas for all substances should be bunded and capable to hold 120% of the total volume of a given substance stored on site. 	Proponent/Owner



3 DECOMMISSIONING PHASE

Given the nature and purpose of the infrastructure, it is unlikely that this infrastructure will be decommissioned in the foreseeable future. In the unlikely event that use of the infrastructure is discontinued by Henties Bay Town Council, the infrastructure should be “mothballed” or made available or sold to the surrounding land users. Removal of the infrastructure is likely to cause more environmental harm than its abandonment.

4 CONCLUSION

In conclusion it should be noted that this EMP should be regarded as a living document and changes should be made to the EMP as required by project evolution while retaining the underlying principles and objectives on which the document is based. The compilation of the EMP has incorporated impacts and mitigation measures from the Environmental Assessment Report, as well as incorporating principles of best practice in terms of environmental management.



APPENDIX A: GENERIC METHOD STATEMENT EXAMPLE



INFORMATION ON METHOD STATEMENTS

Method Statements are to be completed by the person undertaking the work (i.e. the Contractor). The Method Statement will enable the potential negative environmental impacts associated with the proposed activity to be assessed and potentially significant environmental aspects mitigated at the planning stage.

The Method Statement can only be implemented once approved by the ECO.

The Contractor (and, where relevant, any Sub-Contractors) must also sign the Method Statement, thereby indicating that the works will be carried out according to the methodology contained in the approved Method Statement.

The ECO will use the Method Statement to audit compliance by the Contractor with the requirements of the approved Method Statement.

Changes to the way the works are to be carried out must be reflected by amendments to the original approved Method Statement; amendments require the signature of the ECO, denoting that the changed methodology or works are necessary for the successful completion of the works, and are environmentally acceptable. The Contractor will also be required to sign the amended Method Statement thereby committing him/herself to the amended Method Statement.

This Method Statement **MUST** contain sufficient information and detail to enable the ECO to apply their minds to the potential impacts of the works on the environment. The Contractor will also need to thoroughly understand what is required of him/her in order to undertake the works. A method statement should clearly answer to following:

- What does the activity entail;
- Why is the activity required;
- When will it commence and how long;
- Where will the activity be undertaken;
- How will the activity be undertaken
 - What equipment and machinery will be required;
 - What materials (Chemicals) will be used in the process;
- What are the potential environmental, health and safety concerns associated with this activity and what mitigation measures will be employed to manage these risks.

The time taken to provide a thorough, detailed method statement is time well spent. Insufficient detail will result in delays to the works while the method statement is rewritten to ECO's satisfaction. The page overleaf provides a pro forma method statement sheet, which needs to be completed for each activity requiring a method statement in terms of the EMP.



EXAMPLE OF METHOD STATEMENT

CONTRACT: DATE:

PROPOSED ACTIVITY (give title of Method Statement and reference number):

WHAT WORK IS TO BE UNDERTAKEN (give a brief description of the works):

WHERE ARE THE WORKS TO BE UNDERTAKEN (where possible, provide an annotated plan and a full description of the extent of the works):

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date:

End Date:

HOW ARE THE WORKS TO BE UNDERTAKEN (provide as much detail as possible, including annotated maps and plans where possible): Note: please attach extra pages if more space is required



DECLARATIONS

1) ENVIRONMENTAL CONTROL OFFICER

The work described in this Method Statement, if carried out according to the methodology described, is satisfactorily mitigated to prevent avoidable environmental harm:

(Signed)

(Print name)

(Signed)

(Print name)

Date: _____

2) PERSON UNDERTAKING THE WORKS

I understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to other signatories and that the ECO will audit my compliance with the contents of this Method Statement:

(Signed)

(Print name)

Date: _____

3) ENGINEER

The works described in this Method Statement are approved:

(Signed)

(Print name)

Date: _____

4) APPROVING AUTHORITY

The works described in this Method Statement are approved:

(Signed)

(Print name)

Date: _____



APPENDIX B: COVID-19 RISK ASSESSMENT FORM (AS AMENDED PERIODICALLY BASED ON DEVELOPING MEDICAL INFORMATION)

Return to Work Medical Screening

Surname:		First Name:		Company Number	
Date Of Birth:		Occupation:		Department:	
Date Employed:		Date Discharged:		Length Of Service:	

1.

	Vital Data			
2.	Blood Pressure			mmHg
	Pulse			Bpm
	Temperature			°C
	HGT (for known diabetics)			mmol/L
3.	Have you ever had a serious occupational accident or an occupational disease?		Yes	No
	Describe			
	Chronic Disease		Yes	No



	Hypertension				
	Diabetes				
	Epilepsy				
4.	Asthma				
	TB				
	Psycho-social problems **				
	If yes and symptomatic, or any vital signs out of normal limits, refer to the medical centre				
	** If yes, refer to the medical centre for referral for EAP				
5.	Do you take <u>any</u> medication (List Below)	Yes	No		



	Symptom Check	Yes	No
	Fever		
	Cough		
6.	Sore Throat		
	Shortness of breath		
	Any contact with person diagnosed with COVID—19		
If any symptoms are present refer the employee to the isolation area			
Status (Tick appropriate box)			
7.	Fit to work		
	Refer to medical centre		
	Refer to isolation area		

I hereby declare that all the information furnished above is, to the best of my knowledge, true and correct and that no information has been omitted or withheld.



Signature of employee: _____

Assessed by: _____



APPENDIX C: WATER QUALITY GUIDELINES

THE WATER ACT, 1956 (ACT 54 OF 1956) AND ITS REQUIREMENTS IN TERMS OF WATER SUPPLIES FOR DRINKING WATER AND FOR WASTE WATER TREATMENT AND DISCHARGE INTO THE ENVIRONMENT

1. INTRODUCTION

The provisions of the Water Act are intended, amongst other things, to promote the maximum beneficial use of the country's water supplies and to safeguard water supplies from avoidable pollution.

The drinking water guidelines are not standards as no publication in the Government Gazette of Namibia exists to that effect. However the Cabinet of the Transitional Government for National Unity adopted the existing South African Guidelines (461/85) and the guidelines took effect from 1 April 1988 under the signature of the then Secretary for Water Affairs.

The sections of the Water Act that relate to the discharge of industrial effluents are: - Section 21(1) which states that

- The purification of waste water shall form an integral part of water usage and
- that purified effluents shall comply with the General Standard Quality restrictions as laid out in Government Gazette R553 of 5 April 1962 and
- Section 21(2) which further stipulate that this purified effluent be returned as close as possible to the point of abstraction of the original water.

Where a local authority has undertaken the duty of disposing of all effluents from an industrial process the provisions of Section 21(1) and 21(2) apply to the local authority and not the producer of the effluents. If there is difficulty in complying with these provisions then the applicant may apply for an exemption from the conditions in terms of Section 21(5) and 22(2) of the Water Act. The Permanent Secretary after consultation with the Minister may grant the issuance of a Waste Water Discharge Permit under Sections 21(5) and 22(2) subject to such conditions as he may deem fit to impose.

After independence, the Government of the Republic of Namibia decided that for the interim the existing guidelines will continue to be valid and to remain in use until a proper study has been conducted and new standards have been formulated (Article 140 of Act 1 of 1990).



2. GUIDELINES FOR THE EVALUATION OF DRINKING-WATER QUALITY FOR HUMAN CONSUMPTION WITH REGARD TO CHEMICAL, PHYSICAL AND BACTERIOLOGICAL QUALITY

Water supplied for human consumption must comply with the officially approved guidelines for drinking-water quality. For practical reasons the approved guidelines have been divided into three basic groups of determinants, namely:

- Determinants with aesthetic / physical implications: TABLE 1.
- Inorganic determinants: TABLE 2.
- Bacteriological determinants: TABLE 3.

2.1 CLASSIFICATION OF WATER QUALITY

The concentration of and limits for the aesthetic, physical and inorganic determinants define the group into which water will be classified. See TABLES 1 and 2 for these limits. The water quality has been grouped into 4 quality classes:

- Group A: Water with an excellent quality
- Group B: Water with acceptable quality
- Group C: Water with low health risk
- Group D: Water with a high health risk, or water unsuitable for human consumption.

Water should ideally be of excellent quality (Group A) or acceptable quality (Group B), however in practice many of the determinants may fall outside the limits for these groups.

If water is classified as having a low health risk (Group C), attention should be given to this problem, although the situation is often not critical as yet.

If water is classified as having a higher health risk (Group D), urgent and immediate attention should be given to this matter.

Since the limits are defined on the basis of average lifelong consumption, short-term exposure to determinants exceeding their limits is not necessarily critical, but in the case of toxic substances, such as cyanide, remedial measures should immediately be taken.

The overall quality group, into which water is classified, is determined by the determinant that complies the least with the guidelines for the quality of drinking water.

TABLE 1: DETERMINANTS WITH AESTHETIC / PHYSICAL IMPLICATIONS

DETERMINANTS	UNITS*	LIMITS FOR GROUPS			
		A	B	C	D**
Colour	mg/l Pt***	20			
Conductivity	mS/m !at 25 °C	150	300	400	400
Total hardness	mg/l CaCO ₃	300	650	1300	1300
Turbidity	N.T.U****	1	5	10	10
Chloride	mg/l Cl	250	600	1200	1200
Chlorine (free)	mg/l Cl	0,1- 5,0	0,1 – 5,0	0,1 – 5,0	5,0
Fluoride	mg/l F	1,5	2,0	3,0	3,0
Sulphate	mg/l SO ₄	200	600	1200	1200
Copper	µg/l Cu	500	1000	2000	2000
Nitrate	mg/l N	10	20	40	40
Hydrogen Sulphide	µg/l H ₂ S	100	300	600	600
Iron	µg/l Fe	100	1000	2000	2000
Manganese	µg/l Mn	50	1000	2000	2000
Zink	mg/l Zn	1	5	10	10
pH****	pH-unit	6,0 – 9,0	5,5 – 9,5	4,0 – 11,0	4,0 – 11,0

* In this and all following tables "l" (lower case L in ARIAL) is used to denote dm³ or litre

• All values greater than the figure indicated.

*** Pt = Platinum Units

**** Nephelometric Turbidity Units

***** The pH limits of each group exclude the limits of the previous group



TABLE 2: INORGANIC DETERMINANTS

DETERMINANTS	UNITS	LIMITS FOR GROUPS			
		A	B	C	D*
Aluminium	µg/l Al	150	500	1000	1000
Ammonia	mg/l N	1	2	4	4
Antimony	µg/l Sb	50	100	200	200
Arsenic	µg/l As	100	300	600	600
Barium	µg/l Ba	500	1000	2000	2000
Beryllium	µg/l Be	2	5	10	10
Bismuth	µg/l Bi	250	500	1000	1000
Boron	µg/l B	500	2000	4000	4000
Bromine	µg/l Br	1000	3000	6000	6000
Cadmium	µg/l Cd	10	20	40	40
Calcium	mg/l Ca	150	200	400	400
Calcium	mg/l CaCO ₃	375	500	1000	1000
Cerium	µg/l Ce	1000	2000	4000	4000
Chromium	µg/l Cr	100	200	400	400
Cobalt	µg/l Co	250	500	1000	1000
Cyanide (free)	µg/l CN	200	300	600	600
Gold	µg/l Au	2	5	10	10
Iodine	µg/l I	500	1000	2000	2000
Lead	µg/l Pb	50	100	200	200
Lithium	µg/l Li	2500	5000	10000	10000
Magnesium	mg/l Mg	70	100	200	200
Magnesium	mg/l CaCO ₃	290	420	840	840
Mercury	µg/l Hg	5	10	20	20
Molybdenum	µg/l Mo	50	100	200	200
Nickel	µg/l Ni	250	500	1000	1000
Phosphate	mg/l P	1	See note below	See note below	See note below
Potassium	mg/l K	200	400	800	800
Selenium	µg/l Se	20	50	100	100
Silver	µg/l Ag	20	50	100	100
Sodium	mg/l Na	100	400	800	800
Tellurium	µg/l Te	2	5	10	10
Thallium	µg/l Tl	5	10	20	20
Tin	µg/l Sn	100	200	400	400
Titanium	µg/l Ti	100	500	1000	1000
Tungsten	µg/l W	100	500	1000	1000
Uranium	µg/l U	1000	4000	8000	8000
Vanadium	µg/l V	250	500	1000	1000

* All values greater than the figure indicated.

Note FOR Table 2 on phosphate: Phosphates are not toxic and essential for all life-forms. Natural water will, however, seldom contain phosphate; it is generally seen as an indicator of pollution and is usually accompanied by other pollutants. Wherever drinking water is combined with or consists wholly of reclaimed or recycled water, it may be expected to contain phosphate. The general guideline for a concentration level to be aimed at is 1 mg/l as P. But in many cases this may be difficult to achieve technically. For this reason the Department will allow a phosphate concentration level of up to 5 mg/l as P in water intended for human consumption. Please refer also to the “Note on Phosphate” under Section 3: General Standards for Waste/Effluent.

2.2 BACTERIOLOGICAL DETERMINANTS

The bacteriological quality of drinking water is also divided into four groups, namely:

- Group A: Water which is bacteriological very safe;
- Group B: Water which is bacteriological still suitable for human consumption;
- Group C: Water which is bacteriological risk for human consumption, which requires immediate action for rectification;
- Group D: Water, which is bacteriological unsuitable for human consumption.

TABLE 3: BACTERIOLOGICAL DETERMINANTS

DETERMINANTS	LIMITS FOR GROUPS			
	A**	B**	C	D*
Standard plate counts per 1 ml	100	1000	10000	10000
Total coliform counts per 100 ml	0	10	100	100
Faecal coliform counts per 100 ml	0	5	50	50
E. coli counts per 100 ml	0	0	10	10

* All values greater than the figure indicated.

** In 95% of the samples.

NB If the guidelines in group A are exceeded, a follow-up sample should be analysed as soon as possible.

2.3 FREQUENCY FOR BACTERIOLOGICAL ANALYSIS OF DRINKING-WATER SUPPLIES

The recommended frequency for bacteriological analysis of drinking water is given in Table 4.

TABLE 4: FREQUENCY FOR BACTERIOLOGICAL ANALYSIS

POPULATION SERVED	MINIMUM FREQUENCY OF SAMPLING
More than 100 000	Twice a week
50 000 – 100 000	Once a week
10 000 – 50 000	Once a month
Minimum analysis	Once every three months



3 GENERAL STANDARDS FOR WASTE / EFFLUENT WATER DISCHARGE INTO THE ENVIRONMENT

All applications in terms of Section 21(5) and 22(2), for compliance with the requirements of Section 21(1) and 21(2) of the Water Act (Act 54 of 1956) that purified water shall comply with the General Standard as laid out in Government Gazette Regulation R553 of 5 April 1962.

TABLE 5 GENERAL STANDARDS FOR ARTICLE 21 PERMITS (EFFLUENTS)

DETERMINANTS	MAXIMUM ALLOWABLE LEVELS
Arsenic	0,5 mg/l as As
Biological Oxygen Demand (BOD)	no value given
Boron	1,0 mg/l as B
Chemical Oxygen Demand (COD)	75 mg / l as O
Chlorine, residual	0,1 mg/l as Cl ₂
Chromium, hexavalent	50 Ng/l as Cr(VI)
Chromium, total	500 Ng/l as Cr
Copper	1,0 mg/l as Cu
Cyanide	500 Ng/l as CN
Oxygen, Dissolved (DO)	at least 75% saturation**
Detergents, Surfactants, Tensides	0,5 mg/l as MBAS – See also Note 2
Fats, Oil & Grease (FOG)	2,5 mg/l (!gravimetric method)
Fluoride	1,0 mg/l as F
Free & Saline Ammonia	10 mg/l as N
Lead	1,0 mg/l as Pb
Oxygen, Absorbed (OA)	10 mg / l as O*
pH	5,5 – 9,5
Phenolic Compounds	100 Ng/l as phenol
Phosphate	1,0 mg/l as P - See also Note 1
Sodium	not more than 90 mg/l Na more than influent
Sulphide	1,0 mg/l as S
Temperature	35°C
Total Dissolved Solids (TDS)	not more than 500 mg / l more than influent
Total Suspended Solids (TSS)	25 mg/l
Typical faecal Coli.	no typical coli should be counted per 100 ml
Zinc	5,0 mg/l as Zn

* Also known as Permanganate Value (or PV).

** In Windhoek the saturation level is at approx. 9 mg/l O₂.

Note (1) on phosphate: Phosphates are not toxic and essential for all life forms. Natural water will seldom contain phosphate; it is generally seen as an indicator of pollution and is usually accompanied by other pollutants. Wherever drinking water is combined with or consists wholly of reclaimed or recycled water, it may be expected to contain phosphate. There is no general guideline for phosphate contained in the Regulation 553. But generally it is assumed that eutrophication or algal bloom in dams is promoted by nutrient concentrations as low as 0,01 mg/l as P; generally a phosphate concentration limit for dams of 0,1 mg/l is recommended. All water that is consumed and subsequently discharged, will eventually end up in rivers, dams or



groundwater – that is why for potable water, a concentration level of 1 mg/l as P is aimed at.

But, again, in many cases of waste and effluent treatment, this may be difficult to achieve technically, or the required waste and effluent treatment infrastructure is not available; as the required infrastructure is sophisticated and expensive. The current situation calls for a compromise and for this reason, this Department will judge each application individually on its merits and allow, in certain cases, a phosphate concentration level of up to 15 mg/l as P in any effluent or waste stream to be discharged into the environment. This regulation is subject to be reviewed every two years, calculated from the date of approval of this document.

Note (2) on detergents, surfactants and ten sides: The MBAS (or methylene blue active substances) – test does not encompass all surface active compounds currently, commercially available. The limit given is therefore only a guideline. Many of the cleaning agents are toxic to biological life-forms in rivers and dams.

It should be taken into consideration that some commercial products interfere with the effective removal of oil, fat and grease by grease and fat traps, by breaking up such long-chain molecules into shorter ones. These cleaning agents thus effectively allow such components to pass through the traps and land into sections of a treatment plant further down the line and interfere with the process there.

Many cleaning agents contain very powerful disinfectants, and/or biocides. Such substances may interact with biological treatment processes. They may reduce the effectiveness of such treatment or 'kill' it completely, if they land in septic tanks, biofilters or even activate-sludge plants. Their activity may be attenuated by dilution.

4. AUTHORIZATION

Herewith, the Guidelines for the Evaluation of Drinking Water for Human Consumption with regard to Chemical, Physical and Bacteriological Quality, as well as the General Standards for Article 21* Permits, amended for detergents, surfactants, ten sides, as well as phosphates, are confirmed and remain in force until further notice.

Issued under my hand with the authority vested in my office, within the Ministry for Agriculture, Water and Rural Development,

PERMANENT SECRETARY

WINDHOEK,

DATE STAMP



APPENDIX D: PROPERTY DEVELOPMENT ENVIRONMENTAL MANAGEMENT PLAN

Environmental feature	Mitigation measure
Conservation of vegetation	<ul style="list-style-type: none"> • All trees listed (with co-ordinates provided) in the title deed for this erf should be conserved as far as practicably possible. These trees should be incorporated into the planning layout of any structures to be erected on this erf. • Where listed trees cannot be accommodated by the planned structures to be built, written motivation should be submitted to Henties Bay Municipality and the Forestry Department under the Ministry Of Environment, Forestry and Tourism requesting permission to remove such trees. Only once a permit has been received from the Town Council may the owner of the erf remove affected trees.
Health and safety	<ul style="list-style-type: none"> • No human waste may be expelled on open soil. Every construction site should have at least one portable toilet. • Only one or two security guards may reside/sleep on-site during construction. No other construction personnel may sleep/reside on-site. • No open fires may be made anywhere on-site during the construction period. Heating and cooking facilities (where necessary/applicable) should be provided by the Contractor.
Waste management	<ul style="list-style-type: none"> • The waste container of portable toilets should be emptied on a regular basis to avoid overflows. Waste from portable toilets should be disposed of at municipal wastewater treatment facility. • All waste should be placed in the appropriate waste containers on a daily basis. • All waste on-site should be removed on a weekly basis. • Concrete should not be mixed on open soil. Concrete should be mixed on an impermeable (i.e. lined) surface.



APPENDIX E: PREVIOUSLY ISSUED ENVIRONMENTAL CLEARANCE CERTIFICATE

