If you can't measure it
You can't control it

CK 96/44367/23 (SA)
CC/2005/3576 (NAM)

ENVIRONMENTAL MANAGEMENT PLAN (EMP)
Update for

GRINDROD

Terminals at Walvis Bay Bulk Terminal (Pty) Ltd
Port of Walvis Bay

PROJECT NO: 2021 / 129 / I

ORIGINAL

Building towards better

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STATEMENT PAGE

National Environmental Health Consultants CC is an Approved Inspection Authority in terms of the Occupational Health and Safety Act (85 of 1993). (Certificate No.: CI 057 0H) SA and A.I.A 21/01 Namibia, **Labour Act, 1992 (Act 6 of 1992)** as amended under the **Labour Act 2007, (Act 11 of 2007).**

J. Cornelissen, conducted this EMP on behalf of **National Environmental Health Consultants CC** and hereby declares that the results/findings given in the report are a true reflection of conditions encountered during the survey/observations on site.

Where relevant published and validated methods exist, they are always used in preference to novel methods. If a novel method is applied, a summary of validation and reference to the internal Standard Operating Procedure(s) is provided.

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ACRONYMS AND ABBREVIATIONS

Below a list of acronyms and abbreviations used in this report.

Acronyms / Abbreviations	Definition
AIDS	Acquired Immune Deficiency Syndrome
AIEMA	Associate Member with the Institute of Environmental Management & Assessment
AMC	Abbabis Metamorphic Complex
ATC	Arandis Town Council
BME	Bulk Mining Explosives (Namibia) (Pty) Ltd
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CoM	Chamber of Mines of Namibia
COSDEC	Community Skills Development Centre
CTAN	Coastal Tourism Association of Namibia
DEA	Directorate of Environmental Affairs
DLEU	Line Ministry: Drug Law Enforcement Unit
DOB	Damara Orogenic Belt
DRFN	Desert Research Foundation of Namibia
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EHS	Environmental, Health, and Safety
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMPr	Environmental Management Plan Report
EPC	Engineer, Procure, Construct
EAPAN	Environmental Assessment Professionals' Association of Namibia
EPZ	Export Processing Zone
ERC	Erongo Regional Council
EU	European Union
GDP	Gross Domestic Product
GWh	Gigawatt Hours
HAN	Hospitality Association of Namibia
HC	Hydrocarbon
HDI	Human Development Index
HFO	Heavy Fuel Oil
HHV	Higher Heating Value
HIV	Human Immunodeficiency Virus
HPI	Human Poverty Index
IAPs	Interested and Affected Party
IC	Internal Combustion
IFC	International Finance Corporation
kW	Kilowatt
Kwh	Kilowatt-hour
LED	Local Economic Development
LFO	Light Fuel Oil
$m^3/h.$	Cubic Meters per Hour
MARPOL	Maritime Pollution - International Convention for the Prevention of Pollution from Ships
MAWF	Ministry of Agriculture, Water and Forestry
MDO	Marine diesel oil
MET	Ministry of Environment and Tourism
MGO	Marine Gas Oil
MHSS	Ministry of Health and Social Services
MJ/kg	Mega joule per Kilogram
MLSW	Ministry of Labour and Social Welfare
MME	Ministry of Mines and Energy
MRLGHRD	Line Ministry: Regional Local Government Housing and Rural Development
MW	Megawatt
MWT	Ministry of Works and Transport
NACOMA	Namibian Coast Conservation and Management Project
NAMCOL	Namibian College of Open Learning
NAMPOL	Namibian Police
NANGOF	Namibia Non-Governmental Organizations' Forum
NDP	National Development Plan

Acronyms / Abbreviations	Definition
NEEEF	New Equitable Economic Empowerment Framework
NEHC	National Environmental Health Consultants CC
NEWS	Namibia Environment and Wildlife Society
NHE	National Housing Enterprise
NIMT	Namibian Institute of Mining and Technology
NNF	Namibian Nature Foundation
NOx	Oxides of nitrogen
NP	National Park
NNNP	Namib-Naukluft National Park
PM10	Particulate Matter small than 10 Micrometers
PPA	Power Purchase Agreement
ppm	Parts Per Million
PPP	Public Participation Process
RA	Roads Authority
RUL	Rössing Uranium Limited
SACNSP	South African Council for Natural Scientific Professions
SAIEA	Southern Africa Institute for Environmental Assessment
SEIA	Strategic Environmental Impact Assessment
SMEs	Small and Medium Enterprises
SO_2	Sulphur Dioxide
TB	Pulmonary Tuberculosis
TESEF	Transformational Economic and Social Empowerment Framework
TOC	Terms of Reference
UST's	Underground Storage Tanks
V	Volt
W	Watt
WWF	World Wildlife Fund in Namibia

1. INTRODUCTION

Grindrod Terminals at Walvis Bay Bulk Terminal (Pty) Ltd Port of Walvis Bay (WBBT) operates within the port of Walvis Bay. WBBT core operations is to load and unload vessels, road and rail trucks and to store different products for clients.

The environment is important to the port of Walvis Bay and requires high environmental standards. The port of Walvis Bay requires from each port stakeholder an environmental management plan (EMP) and proof of execution of the stakeholder EMP.

National Environmental Health Consultants (NEHC) was requested by **Mr. Izak de Wit** to conduct a walk-through Environmental Inspection on behalf of **Walvis Bay Bulk Terminal (Pty) Ltd (WBBT)** to assist them in complying with the above requirements. It follows that all the results obtained in this assessment were evaluated against the standards and requirements of the applicable legislation, unless specifically stated otherwise.

2. SUMMARY

There are presently no new projects running in WBBT. WBBT handle several products (e.g.: Metallic ores, coal) on behalf of clients.

WBBT do not own any of the products handled and handle the products on behalf of clients. WBBT are accredited in ISO14001:2015, ISO 45001:2018 and ISO 9001:2015. Strict controls are implemented on all activities and processes.

Standard operating procedures (SOP) are developed for each activity of the process and all staff is trained on each SOP.

Environmental issues in port and terminal that WBBT may contribute to:

- Air emissions
- General waste reception
- Wastewater
- Solid waste management
- Hazardous materials and oil management
- Noise
- Biodiversity

3. OBJECTIVES

WBBT objectives are to comply with all international, national, and local environmental standards at all times. WBBT shall also comply with internal corporate standards set.

Environment: The surroundings within which humans exist and that are made up of:

- The land, water and atmosphere of the earth
- Micro-organisms, plant and animal life
- The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

The EMPr has been compiled to provide recommendations and guidelines according to which compliance monitoring can be done during the operation of **Walvis Bay Bulk Terminal (Pty) Ltd (WBBT).**

The objective of the EMPr is also to ensure that all relevant factors are considered to

ensure for environmentally responsible activity. The purpose of the EMPr is to provide specifications for "good environmental practice" for application during all the phases of **WBBT** operations.

The objectives of an EMPr are to:

- Ensure compliance with regulatory authority stipulations and guidelines which may be local, provincial, national and/or international;
- Ensure that there is sufficient allocation of resources on the project budget so that the scale of EMPr-related activities is consistent with the significance of project impacts;
- Verify environmental performance through information on impacts as they occur;
- Respond to unforeseen events;
- Provide feedback for continual improvement in environmental performance;
- Identify a range of mitigation measures which could reduce and mitigate the potential impacts to minimal or insignificant levels;
- Detail specific actions deemed necessary to assist in mitigating the environmental impact of **WBBT**;
- Identify measures that could optimize beneficial impacts;
- Create management structures that address the concerns and complaints of I&APs with regards to **WBBT**;
- Establish a method of monitoring and auditing environmental management practices during all phases of the activity;
- Ensure that safety recommendations are complied with;
- Specify time periods within which the measures contemplated in the final environmental management programme must be implemented, where appropriate;

The EMPr deals with the following phases as detailed below:

The Operational Phase

Potential environmental impacts arising during the operational phase can be minimized, by taking proactive measures during the planning and construction phases, by doing this the risk of incidents can be minimized and monitoring may be reduced but not exempt.

Anticipated Environmental Impacts

The anticipated adverse impacts requiring mitigation relating to the biophysical and socio-economic environment for both the construction and operational phases of the proposed development are listed below:

Operational Phase - Adverse Impacts

- Visual intrusion and light pollution
- Traffic
- Noise
- Atmospheric pollution & odours
- Safety and security
- Soil, ground and see water contamination (surface spillage of fuel)
- Subsurface leaks (lines, tanks)
- Risks of fires
- Waste generation and disposal

Responsible Parties
There are at several role players participating in the environmental management of the site, namely:

Environmental Control Officer (ECO)

- The ECO will be appointed at the start of the construction phase and is mandated to do the following:
  - Ensure that all contractors/subcontractors/employees are fully aware of their environmental responsibilities. This will take the form of an initial environmental awareness-training program in which the requirements of this document will be explained.
  - Any damage to the environment must be repaired as soon as possible after consultation between the ECO, the Consulting Engineer and relevant contractors.
  - The ECO shall monitor their actions to ensure that the developer and/or contractor are adhering to all stipulations of the EMP.
  - The ECO shall be responsible for monitoring the construction activities throughout the project by means of site visits and meetings. This should be documented as part of the site meeting minutes.
  - The ECO must sign off and the PM must certify that all clean-up and rehabilitation, or any remedial action required, are completed prior to transfer of properties.
  - A post-construction environmental audit is to be conducted to ensure that all conditions in the EMP have been adhered to.

Auditing / Inspections

- The appointed ECO on a regular basis should inspect the site where necessary.
- The PM or the contractor's representative will accompany the ECO on-site inspections.
- The contractor will use the formats presented in this EMP to report to the PM in terms of compliance to this document.
- When, in the opinion of the ECO, a construction activity will result in environmental damage, the ECO will issue instructions to the contractor or PM, who will in turn order the contractor, to halt the activity. Spot fines or penalties may be levied for non-compliance.

Method Statements

- Construction methods statements from the contractor will be required for specific activities in sensitive environments on request of the Authorities or the ECO. All method statements will form part of the EMP documentation and are subject to all terms and conditions contained within the EMP document. For each instance wherein, it is requested that the contractor submit a method statement to the satisfaction of ECO, the format should clearly indicate the following:
  - What - a brief description of the work to be undertaken;
  - How - a detailed description of the process of work, methods and materials;
  - Where - a description / sketch map of the locality of work; and
  - When - the sequencing (phases) of actions with commencement date and completion date estimates.
- The contractor must submit the method statement before any particular construction activity is due to start. Work may not commence until the method statement has been approved by the ECO.

Record Keeping

- All records related to the implementation of this management plan (e.g. site instruction book, ECO diary, methods statements etc.) must be kept together in an office where it is safe. Records should be kept for two years and at any time be available for scrutiny by any relevant Authority.

This EMP must be attached as an Appendix to service provider tender documents and referred to in the tender documents as special conditions of tender.

- ***The Environmental Control Officer (ECO):*** the ECO is appointed by the developer as an independent monitor of the implementation of the EMPr i.e. independent of the developer and contractor. The ECO is responsible for providing feedback on potential environmental problems associated with the development. The ECO has the right to enter the site and do monitoring and auditing at any time, subject to compliance with health and safety requirements applicable to the site (e.g. wearing of protective head gear, safety boots etc.). The ECO will be responsible for a minimum of once monthly site audits, followed by an environmental control report, that will detail the status of environmental compliance, and highlight mitigation. The ECO will be responsible for liaising with authorities, the Ministry of Environment and Tourism (MET) and local authorities. The ECO must submit monthly environmental audit reports to the authorities. The ECO must indicate the necessary corrective action measures to eliminate the cause of the non-conformances. The ECO is also responsible for liaising with contractors, informing them of any decisions that are taken concerning environmental management during the construction phase. This would also include informing the contractors of the necessary corrective actions to be taken.

- ***The Environmental Liaison Officer (ELO):*** The Contractor shall submit to the site agent a nominated representative of the contractor as an ELO to assist with day to day monitoring of the construction activities for the contract. Issues raised by the ECO will be routed to the ELO for the contractor's attention. The ELO shall be permanently on site during the construction phase to ensure daily environmental compliance with the EMPr.

- The ELO should preferably be a senior and respected member of the construction crew; previous experience revealed that ELO's who better relate to the workforce are most effective for information transfer and ensuring compliance with the EMPr. The ELO will report directly to the ECO regarding environmental compliance. The site audits undertaken by the ECO will be undertaken alongside the ELO. The ECO will point out areas of concern; the ELO will be responsible for ensuring day to day compliance with the EMPr. Should any emergencies arise the ELO will alert the ECO who will take action. There shall be an approved ELO on site at all times. Before the contractor commences with each construction activity, the ELO shall give to the site agent a written statement setting out the following:

  - The type of construction activity
  - Locality where the activity will take place
  - Identification of impacts that might result from the activity
  - Identification of activities or aspects that may cause an impact
  - Methodology for impact prevention for each activity or aspect
  - Emergency/disaster incident and reaction procedures (need to be demonstrated)
  - Treatment and continued maintenance of impacted environment

- ***Community Liaison Officer (CLO):*** the contractor must appoint a CLO to act as a point of contact between the contracting team and the community affected by the construction activities. Complaints from the community regarding construction activities should be directed through the CLO. The CLO's responsibility is to liaise with the interested and affected parties.

ENVIRONMENTAL MANAGEMENT PROGRAMME

The following tables form the core of this EMPr for the construction and operational phases of the development. This table should be used as a checklist on site, especially during the construction phase. Compliance with this EMPr must be audited monthly during the construction phase and once immediately following completion of construction.

4. LEGAL FRAMEWORK

The environmental legal requirements are summarized below.

The Republic of Namibia has five tiers of law and a number of policies relevant to environmental assessment and protection, which includes:

- The Constitution.
- Statutory law.
- Common law.
- Customary law.
- International law.

Key policies currently in force include:

- The EIA Policy (1995).
- Namibia's Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1994).

As the main source of legislation, the Constitution of the Republic of Namibia (1990) makes provision for the creation and enforcement of applicable legislation. In this context and in accordance with its constitution, Namibia has passed numerous laws intended to protect the natural environment and militate against adverse environmental impacts.

4.1 Environmental Management Act, No. 7 of 2007

Line Ministry: Ministry of Environment and Tourism EIA's are regulated by the Ministry of Environment and Tourism (MET) in terms of the Environmental Management Act, 7 of 2007. This Act was gazetted on 27 December 2007 (Government Gazette No. 3966) and the Environmental Impact Assessment Regulations: Environmental Management Act, 2007 (Government Gazette No. 4878) were promulgated on 6 February 2012. In terms of this legal framework certain identified activities may not commence without a clearance a certificate that is issued by MET and this clearance can only be granted after consideration of an EIA.

The following activities (**Table 4.1-1**) are relevant to the proposed project. Please note that all activities which might be included in the operations are listed, and form part of the Environmental Clearance.

Table 4.1-1 List of activities that requires Environmental Clearance Certificate.

No	ACTIVITY
	HAZARDOUS SUBSTANCE TREATMENT, HANDLING AND STORAGE
9.1	The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974.

4.2 Applicable Laws and Policies

In the context of the updated EMP of **WBBT** activities, there are several laws and policies currently applicable.

4.3 Petroleum Products and Energy Act, No. 13 Of 1990

Ministry of Mines and Energy
This Act provides for the application of environmental standards and the avoidance of environmental harm caused by the keeping, handling, conveying, using and disposing of petroleum products.

Regulations relating to the purchase, sale, supply, acquisition, usage, possession, disposal, storage, transportation, recovery and refinement of used mineral oil are published in GN 112 of 1991 (GG 281 of 21 October 1991) ("1991 regulations") and the petroleum product regulations are published in GN 155 of 2000 (GG 2357 of 23 June 2000) ("2000 regulations").

The Act stipulates how to conduct the business in respect of petroleum products. The application of health, hygiene, safety and environmental standards and requirements, including: 'The duties of a person in respect of the protection of the health of others and duties in the avoidance of environmental harm, the precautions in respect of the keeping, handling, conveying, using and disposing of petroleum products, and in respect of underground leaks or other spillages of petroleum products.'

4.4 Atmospheric Pollution Prevention Ordinance, No. 11 Of 1976

Line Ministry: Ministry of Health and Social Services
A number of sections **(5 (1), 7, 8 (1), 11 (1) (2) (3), 12 (1), 13 (1) (2) (4) (5) (6), 24 (1), 25 (1) (2)** and **25 (1) (2))** relate to 'Air pollution control certification', dust control, closure certificate, etc. At present, the Ministry does not grant any certificates as no procedures or guidelines exist. The best practice would be to notify the Ministry of the anticipated emissions.

4.5 Hazardous Substance Ordinance, No. 14 Of 1974

Hazardous Substances Ordinance 14 of 1974
Ministry of Health and Social Services

Health and Safety Regulations (Labour Act 6 of 1992)
Ministry of Labour

The Act regulates the validity of licenses or registration referred to in Section 5. It deals with hazardous substances of Groups I to IV. However, while environmental aspects are not really explicitly stated, guidelines for the importing, storage, handling, etc. of hazardous substances are set out.

4.6 The Regional Councils Act (No. 22 Of 1992)

Line Ministry: Regional Local Government Housing and Rural Development (MRLGHRD)
The Regional Councils are responsible for the planning and coordination of regional policies and priorities. Under Article 28, the powers, duties, functions, rights and obligations of regional councils include overseeing the general implementation of regional development activities. They have the power "to undertake, with due regard to the powers, duties and functions of the National Planning Commission the planning of the development of the region for which it has been established", bearing in mind:

- the natural and other resources and the economic potential of such regions,
- the general land utilisation pattern, and
- the sensitivity of the natural environment.

4.7 Labour Act, No. 11 of 2007[(Labour Act, 1992 (Act 6 of 1992) as amended under the Labour Act 2007, (Act 11 of 2007)]

Line Ministry: Ministry of Labour and Social Welfare
The Act aims to "promote and maintain the welfare of the people and to further a policy of labour relations conducive to economic growth, stability and productivity". It details basic conditions of employment, health, safety and welfare requirements of employers.

4.8 Namibian Ports Authority Act, 1994
(and accompanying regulations)

Ministry of Works, Transport and Communication
The Act provides for the establishment of the Namibian Ports Authority (“the Authority”), which is charged with the management and control of ports and lighthouses in Namibia and the provision of facilities and services related thereto. Port Regulations were promulgated in terms of this section in GN 117 published in GG2549 of 5 June 2001.

4.9 WATER – National

Water Act, 1956
This Act provides for the control, conservation and use of water for domestic, agricultural, urban and industrial purposes and for the control of certain activities on or in water in certain areas.
Ministry of Agriculture, Water and Rural Development

Municipality of Walvis Bay : Water Supply Regulations
Official Gazette 3114: 15 October 1970
Municipality of Walvis Bay
Water Resources Management Act (not yet in force)

4.10 INTERNATIONAL CONVENTIONS

INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS – MARPOL 73/78

4.11 CLEANLINESS OF PREMISES: Walvis Bay Municipal Area

Municipality of Walvis Bay : By-Law Relating to the Cleanliness of Premises
Official Gazette 4357: 25 January 1985
Municipality of Walvis Bay

4.12 POLLUTION

Prevention and Combating of Pollution of the Sea by Oil Act No 6 of 1981 (as amended by Act 24 of 1991)
(and accompanying regulations)

Ministry of Works, Transport and Communication

This Act provides for the prevention and combating of pollution of the sea by oil and determines liability in certain respects for loss and damage caused by the discharge of oil from ships, tankers and offshore installations. The provisions relating to offshore installations only apply to such installations as are situated within 50 nautical miles of the low water mark.

4.13 POLLUTION: Walvis Bay Municipal Area

Municipality of Walvis Bay : Regulations relating to the control of the sea-shore, the sea and its environment within or adjoining the area of jurisdiction of the Municipality of Walvis Bay
Government Gazette 3128: 2 January 2004

Municipality of Walvis Bay

4.14 REFUSE REMOVAL: Walvis Bay Municipal Area

Municipality of Walvis Bay : By-Law Relating to the Removal of Refuse
Official Gazette 971: 24 June 1983

Municipality of Walvis Bay

4.15 WASTE DISCHARGE INTO THE SEA

Marine Resources Act 27 of 2000
(and accompanying regulations GN 241, GG 2657, 7/12/2001

Ministry of Fisheries and Marine Resources

This Act focuses primarily on the regulation and control of the exploitation of living marine resources.

Part 10 of the Act allows the Minister to make regulations including for "regulating or prohibiting the discharge in the sea or the sea-shore and land of specified substances or materials, or substances or materials not complying with specified requirements or having specified properties" (s 61(1)(r)). Regulations have been passed (GN 241, GG 2657 of 7/12/2001 which replace the regulations contained in GN 153 Government Gazette of Namibia No 2591).

5. RISK ASSESSMENT

5.1 Risk Assessments must be undertaken in accordance with the **Labour Act, No. 11 of 2007[(Labour Act, 1992 (Act 6 of 1992) as amended under the Labour Act 2007, (Act 11 of 2007)]**. The risk assessment must consider the risks – not only to permanent employees but also to others including non-permanent employees, ship's crew and anyone else that may be affected by the work activity. The appropriate control measures must then be put in place and should consider collective measures ahead of personal or individual measures.

5.2 Risk assessments must be reviewed regularly and immediately after any incident or when there are significant changes to the operation. Most accidents and near misses can be avoided if the risks from the work are suitably and sufficiently assessed and appropriate control methods are adopted.

5.3 The risk assessment should record the significant hazards of the operation together with the relevant control measures.

5.4 Planning and work execution is discussed in the HSE Publication HSG177, Managing Health and Safety in Dock work.

6. LIFTING AND SLINGING OPERATIONS

Labour Act, No. 11 of 2007[(Labour Act, 1992 (Act 6 of 1992) as amended under the Labour Act 2007, (Act 11 of 2007)].

6.1 All lifting operations in ports are subject to specific legislation including The Lifting Operations & Lifting Equipment Regulations, CHAPTER 6, PHYSICAL HAZARDS AND GENERAL PROVISIONS - B. GENERAL PROVISIONS, Mechanical lifting equipment and manual lifting: 205.and CHAPTER 4, SAFETY OF MACHINERY, PART I, GENERAL SAFETY OF MACHINERY - F. GOODS HOISTS

6.2 So as not to cause confusion with the different terms used to describe lifting equipment, clearly uses the following definitions:

- "**lanyard**" means a rope going over a pulley used for lifting building material with a bucket;
- "**goods hoist**" means an appliance used for the transportation of goods by means of a car, cage, cradle or other receptacle in a hatchway on stationery guides, and in which no persons are allowed to be conveyed;
- "**Hatchway**" means a vertical or inclined way in which a goods hoist or elevator is operated;
- "**Lifting tackle**" means chain slings, rope slings, rings, hooks, shackles, swivels, spreaders or similar appliances;

6.3 The following regulations are applicable:

- Ropes: 81.

- Inspection: 82.
- Prohibition of use of goods hoist for conveyance of persons: 83.
- Control of operation: 84.
- Safety of hoist: 85.
- Cranes and other lifting appliances: 86.
- Lifting-gear and tackle: 87.

6.4 The Regulations aim to reduce risks to people's health and safety from lifting equipment provided for use at work. Generally, the Regulations require that lifting equipment provided for use at work is:

- strong and stable enough for the particular use and marked to indicate safe working loads
- positioned and installed to minimise any risks
- used safely, i.e. the work is planned, organised and performed by competent people
- subject to ongoing thorough examination and, where appropriate, inspection by competent people

6.5 Equipment and accessories that are exposed to conditions that can cause deterioration and that could lead to dangerous situations must:

- be thoroughly examined:
  - and inspected at intervals not exceeding three months by a competent person, who shall immediately enter the result of each such inspection in a book kept for this purpose

6.6 It is good practice to identify that all lifting equipment and lifting accessories are within the correct inspection period by use of colour tags.

6.7 If there is any doubt as to the suitability of lifting appliances and lifting accessories, they must be removed from use. A good practice is prior to lifting, personnel to undertake a daily pre-work inspection of the equipment and accessories concerned.

6.8 Always have lifting equipment thoroughly examined following "exceptional circumstances", e.g. if it is damaged or fails, is out of use for long periods, or if there is a major change in how it is used which is likely to affect its integrity.

7. STORAGE AND MANAGEMENT OF DRY BULK CARGO

7.1 NamPort in Walvis Bay handle a wide variety of dry bulk cargoes in shipments of varying sizes from hundreds to many thousands of tonnes. These cargoes and their safe handling and storage present a number of challenges if these operations are to be safely conducted and in a manner that complies with legislative requirements. In addition to safety considerations the impact of such cargoes on the environment can be significant.

7.2 The loading and unloading of a ship remains an area of the operation presenting many hazards. However, the storage forwarding and receiving of the cargo as well as its monitoring, present hazards which require managing it safely.

7.3 Must adhere to all NamPort internal procedures AND also WBBT International standard and procedures.

8. HAZARDS

8.1 Typical hazards to personnel when engaged in storing and forwarding dry bulk cargoes include:

- the cargo itself may be classified as hazardous
- in other cases, whilst not necessarily classified as hazardous the cargo may have characteristics that make its handling more dangerous, for example spontaneous

ignition, explosion, reduction of oxygen in the atmosphere, production of or release of toxic or flammable gases

- the conditions under which the cargo is stored, a shed, silo or bin may be a confined space
- the cargo may be stored whilst under fumigation
- access/egress to and from cargo may present a problem such as gaining access to scrap metal stock piles or access for sampling free flowing bulk cargoes
- handling may involve the use of, grabs, loading shovels, bull dozers, chutes, conveyors, throwers, suction devices, augers and other methods of handling that may create impact, entrapment or entanglement hazards
- moving vehicles (road, rail) plant and equipment and the risk of collisions with pedestrians fixed objects (structure of shed, grid covering etc) or other moving vehicles
- operation of bagging plants, screening equipment, grading or processing plants and associated hazards
- items of cargo falling from lifting equipment
- working at height on top of stacks of bulk cargo
- forwarding & receiving cargo to road, rail or barge transport
- fires caused by dusty cargoes building up on heated surfaces such as plant engines and electrical light fittings
- fires caused by cargoes decomposing, heating up and self-igniting
- exposure to dusty cargoes and to hazardous substances can cause significant risks to health and lead to long term ill-health risks. In order to manage any such risks, consideration should be given to the nature of the cargo and the Material Safety Data Sheets, and specialist advice sought where necessary.
- insects, rodents, pigeons and any other vermin which may be present.

8.2 The above list is not exhaustive and therefore it is important that the qualities and characteristics of the cargo product and design of the store and method of the handling operation are carefully considered to ensure that the operation is carried out in a safe manner as is reasonably practicable. It should also be a prerequisite that a Material Safety Data Sheet (MSDS) be supplied by the shipper for the cargoes to be handled.

9. PLANNING OF OPERATIONS

9.1 In order to ensure that operations are conducted safely they need to be properly planned. When planning operations consideration should be given to the nature and hazards of the cargo, the nature and hazards of the activity and any possible external factors such as visitors (authorised or otherwise) or contractors. Also, the impact of these activities on other operations which may be on going, in the vicinity.

9.2 Where possible agreement should be reached with customers, shippers, forwarders or receivers of cargoes to establish how long products will be required to be stored. In addition, information on temperature management should be exchanged and should include critical temperature information such as the temperatures at which the product becomes unstable. This will enable temperature management plans to be developed to enable product to be safely stored. Such plans should detail the types of actions required to mitigate a situation such as spreading the cargo out thinly across a safe area to allow it to cool.

9.3 If possible plans for how, when and by what mode cargo will be collected, forwarded and handled should be agreed and documented to avoid any confusion.

9.4 Consideration should be given to stock rotation. A first in first out protocol should be adopted where possible. This means ensuring that product does not remain in the back inaccessible area of the shed for prolonged periods whilst further cargo is stored in front of and preventing access to this cargo. However, with products where this is not a requirement this should be documented.

10. RECORDS & PRODUCT INFORMATION

10.1 A record should be made for each cargo which may include: storage arrangements; records of any monitoring undertaken; personnel, plant and equipment involved; any specific traffic routes and any other hazards. Where appropriate information should be given to the personnel involved as part of a "tool box talk".

10.2 The Customer should provide the Operator with the following written product safety data information for each type of cargo to be handled:

- Material Safety Data Sheet (MSDS)
- any additional Environmental characteristics of the product and details of any specific environmental controls that must be applied
- typical moisture content
- typical product density
- typical angle of repose, to enable the operator to establish the area required for the cargo
- characteristics of the product under storage conditions that may be excluded from the MSDS, including confirmation if the product has a tendency to self-heat.

10.3 Prior to the arrival of each shipment of product, the Customer will also provide the operator with the following information:

- Bill of Lading quantities
- Statement of Facts from the NamPort which may include information on where, how and in what conditions the cargo was loaded, which could affect its condition.

11. DANGEROUS GOODS

11.1 Where bulk cargo is also a hazardous substance, the requirements of the *Hazardous Substance Ordinance, No. 14 Of 1974, Health and Safety Regulations* (*Labour Act 6 of 1992*), the International Maritime Solid Bulk Cargoes Code, the International Maritime Dangerous Goods Code and other relevant legislation, which may apply to the transport, storage or handling of the cargo, must be considered.

11.2 Terminal operators should also consult the appropriate Material Safety Data Sheets for the commodities handled.

11.3 Storage of some commodities in specified amounts may require compliance with applicable MET regulations.

12. INSPECTING THE CARGO

12.1 Prior to receiving cargo to store, the cargo should, where possible be inspected, tested, and sampled. Such an inspection should ensure that the cargo is in a safe condition to be handled. Some bulk cargoes may spontaneously combust, develop hot spots, emit dangerous gases, liquefy, develop biological-hazards and become unstable. Therefore, reading the supplied documentation is essential to ensure correct controls are adopted.

12.2 Depending on the physical characteristics of the cargo, there may be a requirement to monitor aspects such as temperature (particularly biomass, etc), build-up of toxic fumes (e.g. carbon monoxide) reduction of oxygen levels and spontaneous combustion (biomass).

12.3 Many cargoes when in store should be monitored for infestation from vermin and pests.

13. SITE CONDITIONS

13.1 The condition and location of the site chosen for cargo storage must be fit for purpose. It

should be suitable to accept the weights and configurations of the cargo and also to accept vehicles used in the operation.

13.2 Consideration should be given to the design of storage facilities. Sheds, bins, silos and other equipment used for the storage of dry bulk cargoes should be suitable for their intended use. This may include, subject to assessment of products to be stored, use of approved electrical installations and other equipment and protective systems for use in potentially explosive atmospheres.

13.3 The impact of cargo residue or dust on the environment should be considered and controls measures such as dust suppression may be required. Many dry bulk cargoes will be subject to licensing approval by the Local Authority and/or MET before they can be handled on the port.

13.4 Typical site conditions to be considered include:

- ground condition and suitability – the ground should be of suitable construction and well maintained
- cargo size, weight, height and size of stows/heaps and quay/ground loading
- angles of repose, stack integrity and likelihood to flow
- obstructions in the handling area - waste materials/plastic banding, unused bearers, discarded packaging, other cargo and fixed immovable objects, such as lighting towers, bollards and pillars, which may present additional risks
- overhead power lines and/or roof structures being struck when tipping trailers or using long reach excavators
- vehicle fumes in bulk storage areas
- lighting conditions; working in close proximity to other operations or activities, for example, public rights of way and third-party premises/activities and adverse weather conditions
- equipment such as overhead or ground level conveyer systems, storage bins, hoppers, stacker reclaimers

14. STORAGE

14.1 The store(s) should be suitable for the cargo to be stored and properly maintained to ensure that the product is protected from/not affected by the elements or any other potential sources of contamination at all times:

- The store(s) or access to the site should be suitably secured and should be closed at all times when the product is not being worked. This is to prevent unauthorized access
- Separate products must not be stored together or allowed to blend together in storage unless this has been agreed in advance with the Customer.
- In large open stores it is good practice to maintain a minimum of 1m gap between cargoes for allowing access for temperature monitoring and/or taking of samples. In stores fitted with Individual bays, the walls of the bay will provide the required segregation of the product and protect the integrity. The product should be stored to a level below the top of the wall to avoid product spilling over.

14.2 Store design should be suited where possible to the commodities likely to be handled. Design criteria should include items such as the electrical installation, access and egress arrangements for both operational and emergency situations, traffic routes, requirements for permanent or movable bulk walls and maintenance cleaning requirements such as reducing or eliminating the amount of internal horizontal surfaces.

15. WORKING AT HEIGHTS

15.1 Comprehensive guidance on reducing risks from work at height, the hierarchy of controls

and the use of personal protective equipment such as work restraint systems (fall arrest, fall prevention or work positioning) can be found in the (*Labour Act 6 of 1992*) Regulations

15.2 The Regulations set out a simple hierarchy for managing and selecting equipment for work at height and for determining how to work at height safely. The hierarchy has to be followed systematically and only when one level is not reasonably practicable may the next level be considered. It is not acceptable to select work equipment from lower down the hierarchy (e.g. personal fall arrest, such as harnesses and lanyards) in the first instance. Duty holders must:

- avoid work at height where they can use work equipment or other measures to prevent falls
- where they cannot avoid working at height
- where they cannot eliminate the risk of a fall, use work equipment or other measures to minimise the distance and consequences of a fall should one occur

15.3 There are several types of personal fall protection systems and equipment. Users of these systems require high levels of training and appropriate close supervision and should refer to the guide to Selecting, using and maintaining personal fall protection equipment to ensure that the right type of fall protection equipment is used.

15.4 Personnel should not be put at risk from falls from height when working on stacks of bulk cargoes. If a safe means of access is not available, consideration should be given, subject to a suitable and sufficient risk assessment, in accordance with the Working at Height (*Labour Act 6 of 1992*) Regulations, to the provision and use of alternative access arrangements. An appropriately rated man-cage, secured in accordance with the requirements of the (*Labour Act 6 of 1992*) *CHAPTER 4, SAFETY OF MACHINERY, PART I, GENERAL SAFETY OF MACHINERYF.GOODS HOISTS: Inspection: 82. AND Lifting-gear and tackle: 87.* is an example of a suitable alternative access arrangement.

15.5 Personnel required to work on cargo may be presented with stows or stacks to work on that are difficult to access or to prevent fall from height risk. This may include the working of mobile plant such as bulldozers or excavators at height on stacks of cargo or sampling cargoes or testing cargoes for temperature/moisture content etc.

15.6 The risks of slips and falls when walking across cargo stows may be increased in adverse weather where high temperatures, snow, ice and rain conditions prevail. The risk of slipping/falling in these conditions may be reduced by wearing appropriate footwear. It may also be appropriate to de-ice/clear cargo tops or to wait for improved climatic conditions.

16. SLINGING AND LIFTING OF LOADS

16.1 Factors to consider in planning and carrying out slinging and lifting of loads include:

- Fixed quayside cranes, ships cranes or derricks and mobile cranes, often fitted with grabs, are commonly used handle bulk cargos for stockpiling and storage purposes prior to or after loading or unloading of the ship. Lifting equipment and lifting accessories should be included in lifting operation risk assessments

- a competent person should ensure that the strength and stability of the lifting equipment and accessories continues to be adequate for the task for which the equipment is intended

- procedures should be established and followed for the selection and use of suitable lifting equipment and accessories. Certain lifting operations may require specialist training and/or advice

- lifting operations must be planned by a competent person, who should have

adequate practical and theoretical knowledge and experience of planning lifting operations

- when selecting lifting equipment and accessories to handle cargo that has been stowed unprotected, allowance should be made for products that may have absorbed moisture. Absorbed moisture can significantly increase the nominal weight of the cargo/pack.

- the weight of the cargo to be lifted should be confirmed or estimated so that the safe working load (SWL) of the lifting equipment and accessories will not be exceeded. It may be necessary to determine the density, specific gravity or stowage factor of the cargo to establish the weight of cargo within a grab

- lifting equipment and accessories should be suitable for the task

- slingers should be competent in the selection and use of equipment and safe slinging

- methods appropriate to the cargo

- suitable lifting accessories should be selected for cargo with sharp edges where there is a risk of the cargo cutting into the slings or the slings damaging the cargo

- a visual check of all lifting equipment and accessories to be used should be carried out by a competent person prior to use. Lifting equipment/accessories which show signs of damage must be segregated from the operation for further examination, repair or disposal. If there is any doubt over the integrity of any lifting equipment or accessory it should not be used

- lifting accessories (including pre-slung cargo and one trip slings) should also be checked for damage by the slingers before attaching the load

- slingers should be made fully aware that if there is any doubt over the integrity of any sling then it should not be used and the issue should be reported to the supervisor or person in charge of the operation.

- all loads to be lifted must: o be held securely by the lifting accessories.

- be slung so that it will not suffer collapse, change of form or posture or internal displacement when subjected to jerks, swings or bumps o not damage or be damaged by the lifting accessories

- as a general principal: “the load should be as safe in the air as it was on the ground”

- port operatives involved in trimming or slinging must be in a place of safety during lifting operations. If a crane operator is unsure that operatives are in a safe position then the lift should be suspended until it is safe to continue. No-one should stand on or under the load while it is being lifted
- where the integrity of a load is compromised a safe method of re-slinging must be devised by a suitably competent person. The safe method should ensure that operatives are not put at risk while re-slinging is undertaken

- a suitable landing site should be prepared as part of the pre-planning stage of any lifting operation. The site should be kept free of debris to minimise slips, trips and falls during the unloading operation and a final clear-up should leave the area clean and ready for future use

- the lifting route should be planned to avoid cargo passing over hazardous plant

and/or other material to minimise possible secondary hazards from impact

- housekeeping standards and arrangements should be included in the safe system of work to ensure that the work area is maintained clear of items which may present risks such as slips, trips and falls

- when multiple packages are to be slung consideration should be given to the use of cargo nets, netted pallet trays or cargo bins

- "reeving" should be avoided and only used in exceptional circumstances as it damages the uniformity of the load. Moreover, the use of a single wire on a single pack should be avoided as there is a danger of the timber slipping from the sling (spearing)

- multi-bundle slinging should avoid varying sizes of bundle

- lifting equipment and lifting accessories must be monitored during use and if there is any doubt as to their suitability they must be removed from use. In addition, any equipment or accessories used to lift personnel should have a daily pre-use check

- where an operator is familiar with the principles of a type of equipment but is unfamiliar with the specific piece of equipment, consideration should be given to providing the operator with a period of familiarisation on the specific equipment's operation

- when lifting equipment such as loading shovels, bulldozers or excavators onto stockpiles, slingers should be competent in the selection and use of equipment and safe slinging methods appropriate to the lifts. Lifting points on handling equipment should be suitable, fit for purpose and inspected as required

- in some cases, grabs are fitted with lifting points and tested for lifting equipment such as loading shovels. When using this type of lifting arrangement care should be taken when lowering off, to avoid the equipment being lifted being struck by the grab

- personnel should not be lifted into or out of ship's holds in plant and equipment.

17. COMPETENCE, INFORMATION, INSTRUCTION, TRAINING AND SUPERVISION

17.1 All persons engaged in work must be trained and assessed as competent for the role that they are required to perform by a competent person. These persons must have their fitness for work assessed against the requirements for each task being performed and consideration should be given to the requirement for a drug and alcohol monitoring system to be in place.

17.2 All persons involved in handling operations must: be provided with adequate information, instruction, training and supervision. This is particularly important where Non-permanent employees are utilised who may be generally competent but have limited experience of the particular lifting operation or type of cargo to be handled.

17.3 All persons involved in handling operations must know who is in charge. This is particularly important where Non-permanent employees are working alongside permanent employees.

17.4 Supervisors should be trained, competent and experienced in the safe lifting and slinging practices associated with the load(s) to be handled and/or have access to relevant competent advice and assistance.

17.5 For routine lifting operations the planning of each individual lifting operation will usually

be a matter for the people using the lifting equipment such as the slinger or equipment operator. The person carrying out this part of the planning exercise should have appropriate knowledge and expertise. (*Labour Act 6 of 1992*) Regulations).

17.6 The "Load Handler" or "Slinger" should have the necessary competence to select suitable accessories. They should receive adequate information and have practical experience on the principles of:

- selection, use, care and maintenance of lifting accessories
- limitations of use • methods of slinging loads
- methods of rating multi legged slings
- interpretation of markings on lifting accessories
- de-rating of lifting accessories for particular weather conditions

18. COMMUNICATION

18.1 Clear lines of communication must be established and maintained between all those involved in the lifting operation. Visual and voice communications from the banksman to the crane operator must be clear, agreed and understood. Where voice communication cannot be established an agreed system for the use of hand signals must be followed

18.2 Guidance on crane signals can be found in the (*Labour Act 6 of 1992*) Regulations. Banksmen should be trained and competent. A banksman should not be engaged in any other role during the lifting operation. The banksman should stand in a secure position, where he can see the path of the load and also be in a position, wherever possible, where he can be clearly seen by the crane operator, especially in situations where the lifting operation requires the use of hand signals. In situations where the banksman cannot be seen, radio communications or two banksmen should be used.

18.3 Where a banksman is actively involved in slinging/unslinging it is important that throughout the lift, the banksman is focused on the lifting operation and the crane operator is in no doubt as to who is providing the instructions.

18.4 The crane driver should normally only accept instructions from one nominated person, whether by voice or through hand signals. The exception to this rule is the emergency stop signal, which any operative may give at any time to override the previous signal.

19. DRY BULK MATERIAL HANDLING EQUIPMENT

19.1 Plant used in general cargo handling may include:

- loading shovels of varying sizes and attachments
- tug-masters or lorries (internal shunt units)
- excavators
- bulldozers
- hoppers
- conveyors
- stacker/reclaimers
- cranes and attachments
- skid-steer machines with various attachments
- ship loaders/unloaders
- suction unloading equipment
- screw/displacement unloading equipment
- screening equipment
- chutes/spouts/throwers

19.2 All plant used for the movement of cargo should be suitable for the intended task.

19.3 When using loading shovels for cargo handling it is essential to consider not only the lifting capacity of the truck but also the size of the bucket and the ground on which the truck is being used. Equipment drivers must be trained, competent and authorised.

19.4 Mobile machinery should only be operated on top of cargo where the risk of overturning, sliding, falling or becoming damaged has been assessed and controlled. A suitable area should be prepared prior to lifting the truck in to ensure it can be operated in a safe manner.

19.5 When cargo is being transported by tipper lorries or similar equipment then cargo stability and security must be considered. Tipper lorries should be sheeted and sealed where appropriate to control dust emissions unless the cargo does not require dust control.

19.6 Fixed mechanical handling systems such as conveyors, loaders/unloaders, etc present hazards during operations. When this equipment is maintained, systems such as permits to work, may need to be in place to ensure safety of staff involved.

20. Monitoring Programs

To manage and comply with the targets set by international, national, and local standards the following methodology is followed:

20.1 Air quality:

- An air-monitoring program were conducted by the Port of Walvis Bay, but this monitoring program was stopped. WBBT appointed NEHC CC to start with an external Dust fallout monitoring program in June of 2021.
- Monthly summery reports are compiled by NEHC CC and then followed up with 3 monthly Environmental Dust Fall-out Reports. These reports are then shared with Namport for compliance purposes.
- First Report is dated 04th of June 2021 till 31st of August 2021.
- Second report is dated 1st of September 2021 till 30th of November 2021.
- Next report due on the 28th of February 2022.
- An ENVIRONMENTAL NOISE ASSESSMENT REPORT for Truck Trailer / Skip Operations to Berth 2 were also conducted during August 2021.
- WBBT must comply with the following standards.

Commodity	Monthly average value µg/m^3	Annual average value µg/m^3
Lead	2.5	0.5
Manganese	4.0	1.0
Copper	20	-
Coal	40	-

- The port of Walvis Bay keeps all records of air quality monitoring results. Graphs must be kept on record and discussed with work force to make them aware of progress / deviations
- Dust suppression methods and technology research are done continuously to increase dust suppression methods and efficiencies.
- Wind speeds are monitored. Should wind speeds reach certain levels (21.5 knots) operations are stopped to prevent air pollution.

- All air quality violations must immediately be reported to the authorities via the prescribed protocols

20.2 Dust fallout monitoring

- Windblown dust remains a persistent problem within Namibia (Especially Walvis Bay) urban and peri-urban (mostly industrial) areas due to the prevailing dry climatic conditions, raw product handling, and stock piling. Despite deposition monitoring guidelines and national dust regulations, Namibia still has persistent dust problems in especially bulk storage areas.

- A dust fallout program is implemented and reported on. WBBT presently comply with SANS 1929:2011, Edition 2. SANS 1929:2011, Edition 2 (South African National Standards, 2011) prescribes the use of ASTM D1739:98 for measuring dust deposition. (ISO 1991), (See tables 9 & 10 below of standards)

- One type of dust fallout monitoring is done. Standard dust fallout monitoring (Also known as passive samplers or non-directional) as per SANS 1929: 2011.

- Non-directional methods provide nuisance monitoring using either dust deposition or surface soiling. Deposit gauges are designed to collect material deposited over a given monitoring period, typically one week to one month and are based on the principle that course particulates suspended in the air will precipitate out either under the influence of gravity (dry deposition) or in contact with water droplets (wet deposition).

- The purpose of the directional gauge dust fallout monitoring is to ensure that that if strong winds exits mostly in one direction than others to see the effect.

- This method is necessary especially with high wind speed conditions.

Table 1: SANS 1929:2005 Fall-out dust standards

Classification	Dust fall (mg/m^2/day) – averaged over 30 days.	Permitted frequency of exceeding the levels.
Target – long-term average	300	Long-term average (Annual)
Action – residential	600	Three within any year, no two sequential months.
Action – industrial	**1200**	**Three within any year, no two sequential months.**
Alert threshold	2400	None. First time exceeded, triggers remediation and reporting to authorities.

Ambient Air Quality – Limits for common pollutants

Regulation 28(1)(a) of the Atmospheric Pollution Prevention Ordinance, (Ordinance No. 45 of 1965) provides as follows regarding steps to be taken by certain persons for preventing atmospheric pollution by dust:

"An owner must take prescribed steps or adopt the best practicable means to prevent dust becoming, or continuing to be, a nuisance in a dust control area."

Table 2: SA DEAT guidelines for dust deposition

Classification	Dust Fall - monthly average (mg/m^2/day)
SLIGHT	< 250
MODERATE	250 - 500
HEAVY	500 -1200
VERY HEAVY	>1200

Figure 1: GPS Points reflected using Google Earth

Figure 1.1. GPS Points

Table 3: Monitoring Strategy Criteria / Dust fall Monitoring

Monitoring Strategy Criteria	Dust fall Monitoring
Monitoring objectives	Assessment of compliance with dust fall limits within the main impact zone of the operation. Temporal trend analysis to determine the potential for nuisance impacts within the main impact zone of the operation.
Monitoring location(s)	Figure 1 and 1.1 Dust Fall to be recorded by Dust Fall monitoring network comprising of 4 single bucket monitors.
Sampling techniques	Single Bucket Dust Fallout Monitors Dust fallout sampling measures the fallout of windblown settle-able dust. Single bucket fallout monitors to be deployed following the American Society for Testing and Materials standard method for collection and analysis of Dust Fall (ASTM D1739). This method employs a simple device consisting of a cylindrical container half-filled with de-ionized water exposed for one calendar month (30 days). The water is treated with an inorganic biocide to prevent algae growth in the buckets. The bucket stand comprises a ring that is raised above the rim of the bucket to prevent contamination from perching birds. Once returned to the laboratory, the content of the bucket is filtered and the residue dried before the *insoluble dust is weighed.*
Sampling frequency and duration	Ones off, continuous monitoring facilitating data collection over 1-month averaging period.
Commitment to QA/QC protocol	Comprehensive QA/QC protocol implemented.
Interim environmental targets (i.e. receptor-based performance indicator)	Maximum total daily Dust Fall (calculated from total monthly Dust Fall) of not greater than 600 mg/m^2/day for residential areas. Maximum annual average Dust Fall to be less than 1,200 mg/m^2/day on-site.
Frequency of reviewing environmental targets	Annually (or may be triggered by changes in air quality regulations).
Action to be taken if targets are not met	(i) Source contribution quantification. (ii) Review of current control measures for significant sources (implementation of contingency measures where applicable).

20.3 Soil Pollution

- All spills must be cleaned immediately when it occurred. Assessments are done to determine the level of pollution.
- A clean-up method will be described and monitored by a competent person.
- Monitoring of soil pollution must be done bi-annually. A sampling profile must be developed, and each sample point must be clearly marked on the sampling profile.
- When results are received it must be compared to the standards set. Should the results be out of specification, action must be taken to conform to specification. More regular samples must be taken until results conform to specification.
- A full investigation must be performed to establish the pollution source.

20.4 Water Pollution (subsurface water)

- Sample monitoring wells must be sampled quarterly.
- When water results are received compare results against standards set. If the results are out of specification, action must be taken to conform to specification. More regular samples must be taken until results conform to specification.
- When spills occur where the subsurface water can be polluted more regularly samples must be taken until quality of subsurface water conform to the set standards
- A full investigation must be performed to establish the pollution source.

20.5 Marine pollution

Marine pollution can only take place during vessels loading and offloading. Should a spill occur while in the process of loading or offloading a vessel immediate action must be taken.

A sea water sample must be taken bi-annually to determine the standard of sea water.

- Report the spill to the port authorities of Walvis Bay.
- Decide jointly (Port authorities and WBBT) on a clean-up method, if necessary.
- Take a sample of the marine sea water and analyse.
- Compare sea water sample against the standard sea water sample.
- If there are negative deviations from the sea water standard decide jointly (Walvis Bay port authorities and WBBT) on actions. It is recommended to take a second sample (at least a week apart from the first sample) to ensure that the pollution does not deteriorate.

20.6 Effluent water

- Effluent water is used for dust suppression. Water volumes used must be recorded and reported monthly.
- Effluent water must be analysed bi-annually for quality purposes and checked against the standards.
- Effluent water will be tested when pollutants elements are detected in soil and sub-surface water. (No subsurface water samples are taken inside WBBT yard. The entire is storage areas are lined with 1.5mm thick HDPE liner and covered with 300mm gypsum material to contain any seepage.) When doing dust suppression, no effluent water leaving WBBT site.

The Model sewage and drainage regulations of 1996 are made under the local Authorities Act 23 of 1992. Annexure C of the drainage and sewage regulations have the following prohibitions, these are applicable to Walvis Bay.

Substance		Maximum
Electrical conductivity		500 mS/m at 200C
Substances not in solution (including fat, oil, grease, waxes and like substances:		2 000 mg/l
Sulphides, hydrosulphides and polysulphides:	(expressed as S)	50 mg/l.
hydrogen cyanide	(expressed as HCN):	20 mg/1
Sulphates	(expressed as SO4)	1800 mg/1.
Anionic surface-active agents:		500 mg/1.
Cadmium	(expressed as Cd)	10 mg/l.
Chromium	(Expressed as Cr)	20 mg/1
Cobalt	(Expressed as Co)	20 mg/1
Copper	(Expressed as Cu)	10 mg/l
Molybdenum	(expressed as Mo)	2,5 mg/l.
Nickel	(expressed as Ni)	10 mg/l
Zinc	(expressed as Zn)	10 mg/l.
Arsenic	(expressed as As)	2,5 mg/l.
Lead	(expressed as Pb)	2,5 mg/l
Selenium	(expressed as Se)	2,5 mg/l.
Mercury	(expressed as Hg)	2,5 mg/l.

21. BASELINE AND CONTEXT

- Samples must be taken bi-annually for the following and used as standard if there is an increase in quality. Decrease in quality must be treated as an incident

  - Soil samples
    - ***It must be noted that soil samples were taken by NEHC CC, during early December 2021, send in for analyses at a South African SANS accredited Laboratory. NEHC CC is waiting results from laboratory. These results will be captured in the next 6th monthly surveillance report.***
  - Subsurface water (Outside WBBT area of responsibility Walvis Bay port authorities do subsurface monitoring)
  - Seawater (only if there was a spillage.)

- If any deviations from the standard are detected in air quality results an investigation must be initiated to establish the source of pollution. If results exceed the standards, it must be treated as an incident.

21.1 Impacts related to the disposal of contaminated topsoil

Migratory measures**:** All stockpiled contaminated waste should be removed from site immediately if practically possible, or it should be contained to prevent windblown dust into the surrounding environment.

Arrangements should be made with the Walvis Bay Municipality prior to the disposal of the contaminated material. Trucks transporting the contaminated material should be covered to prevent spills and windblown dust during transporting. The material should be disposed of at the site designated by the Municipality.

21.2 Operations (Day to Day)

21.2.1 Impacts related to the generation of dust

Background and description of the impact: The envisaged activities will take place within the port area. Operations vary daily, and discharge and loading operations work on a 24-hour basis routinely. There are several dust sensitive receptors around the Bulk Storage area.

- Visual assessment of the immediate surroundings of the WBBT yard should be performed weekly to establish if there is a visible build-up of dust originating from WBBT operational areas.

- If there is visible build-up of dust from the WBBT operational areas an investigation must be conducted to establish if it historical pollution or recent pollution.

- As far as practically possible all material transfer points should be enclosed / covered to ensure that product spillages are contained, and no fugitive dust emissions can occur.

- WBBT with the port of Walvis Bay to quantify dust emissions in the surrounding environment and to monitor whether control mechanism is working effectively.

21.2.2 Impacts related to employee exposure to dust

Background and description of the impact: The occupational health aspects of workers are covered in the Labour Act. Employees working at the facility are potentially exposed to several occupational hazards, including dust and respiratory diseases

Migratory measures**:** It is in WBBT best interest to limit the amount of dust generation at the bulk handling facility from both a moral point of view as well as the fact that employee exposure to dust will affect the operational activities. Employees should be provided with respiratory protection and it is the responsibility of management to create the awareness of the potential workplace hazards and enforce the use of personal protective equipment.

21.2.3 Impacts related to seepage

Background and description of the impact: Any form of moisture, i.e. using water as dust suppressant, or precipitation in the form of rain, mist etc. could potentially liquefy the material being handled causing seepage.

Mitigatory measures**:** The storage areas are lined with 1.5mm thick HDPE liner and covered with 300mm gypsum material to contain any seepage. Seepage will be diverted via lined trenches towards concrete evaporation ponds. This will prevent any seepage from causing pollution of the substratum.

Arrangements should be made with the Walvis Bay Municipality prior to the disposal of any solids in the evaporation ponds. This material should be regarded as contaminated and should be disposed at the site designated by the Municipality.

22. ENVIRONMENTAL MANAGEMENT PLAN

WBBT and the Contractor Company's employees (short- and long-term contractors) will need to comply with this EMP in order to ensure the least impact on the environment.

The overall responsibility for ensuring compliance with the EMP is with WBBT management.

23. POLICIES

a. Grindrod Freight Services (GFS) environmental policy
b. WBBT policies
c. Port of Walvis Bay policies

24. SUMMARY AND CONCLUSIONS

The WBBT operational impacts related to dust is regarded as the main environmental impacts that will require priority management. The lining of the areas is also a positive initiative that will minimise environmental impacts

The identified potential impacts can be effectively managed by implementing the proposed migratory measures.

Annexure 1:

Grindrod 2025 Change Vision and Environmental policy

GRINDROD 2025 CLIMATE CHANGE AND ENVIRONMENTAL POLICY

POLICY STATEMENT

Grindrod understands its role as a responsible corporate citizen in managing its business growth, appreciative of the environmental and social context in which it operates. In this regard, Grindrod acknowledges that its long-term positioning will be dependent on the ability of the company to balance short-term business imperatives with long-term sustainability. This policy supports Grindrod's business objectives within a changing global risk context.

INTRODUCTION

This policy aims to ensure that Grindrod remains a competitive business over the long term while operating in a rapidly changing world. With increasing global awareness of the environmental impacts of business, the direct link between setting environmental targets and financial profitability is growing. Shareholders are also aware of the environmental and sustainability risks faced by companies. This policy sets Grindrod's environmental targets and supports our business objectives within the context of a changing global risk environment.

POLICY CONTEXT

Grindrod's business is about moving cargo by road, rail, sea and air, providing integrated service offerings and investments in key trade corridors in Sub-Saharan Africa, creating sustainable returns and long-term value. It is a global business represented in more than 30 countries and is uniquely positioned to service Africa trade flows.

Grindrod understands that we operate in a global economic context which is influenced by several environmental and social sustainability issues. Both the short term profitability and long term sustainability of our business are highly dependent on our ability to adapt to our operating environment on an ongoing basis and to minimise any negative impacts our operations may have on this environment. Our challenge is to successfully balance the trade-offs between economic, social and environmental drivers.

This policy establishes a pathway for the management of the environmental impacts of our business up to 2025. It is presented in the context of international best practice, as it builds on the recommendation of the Task Force for Climate-related Financial Disclosure (TCFD) while focusing on our strategic objectives, and the operating realities of the markets within which we operate.

GOVERNANCE

This policy reconfirms the importance of governance in Grindrod's environmental and sustainability management framework.

With respect to governance at an operational level, this policy requires that all business units will:

- Create the capacity to manage the metrics and targets articulated in this policy at operational level;
- Implement structures needed for measurement and tracking the metrics;
- Pro-actively plan and budget for the implementation of actions required to achieve the targets;
- Consider environmental issues related to the business in ongoing operational planning and implementation;
- Consider environmental metrics in the existing risk management procedures;
- Include the progress made towards the targets in operational reports; and
- Integrate environmental metrics and targets in the performance metrics for individual managers.

With respect to governance at a corporate level, Grindrod will:

- Consolidate information on environmental metrics and targets at Group level;
- Pro-actively manage the progress made towards the implementation of measurement and reporting systems;
- Actively manage the progress made towards environmental targets;
- Integrate environmental metrics and targets in the performance metrics for individual managers;
- Consider environmental metrics in the existing risk management procedures; and
- Transparently report on environmental metrics and targets in Grindrod's internal as well as external reports to society.

STRATEGY

Grindrod recognises that business strategy must dynamically adjust to changing internal and external conditions. In this regard, Grindrod will consider the following aspects as part of developing, reviewing and implementing its business strategy:

- Integrate metrics and targets into the business strategy and identify key focus areas of the various targets as they relate to the strategic objectives;
- Each operational unit must determine which metrics and targets are relevant to their core business and devise specific environmental targets in relation thereto;
- Each operational unit will keep a watch list of environmental risk variables;
- Grindrod will review and update group-wide environmental metrics and targets regularly;
- The environmental targets, and progress made, will be communicated to stakeholders, including investors, shareholders and financiers
- Grindrod will make sufficient budgetary provisions for the achievement of targets; and
- Disclose the resilience of Grindrod's business strategy, taking into consideration global change and related impacts.

RISK MANAGEMENT

Investors and other stakeholders need to understand how an organisation's risks resulting from global and local change are identified, assessed, and managed and whether those processes are integrated into existing risk management processes.

Grindrod's climate change and environmental risk is integrated in the existing risk management systems at the operational level by the following:

- Identify and define physical (acute and chronic) and transitional risks related to environmental and climate change related issues which could impact Grindrod's business;
- Integrate these risks into existing enterprise risk management;
- Adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimise, risks and impacts to the environment;
- Identify adaptation interventions to increase Grindrod's resilience and reduce its vulnerability towards climate change-related impacts; and
- Disclose environmental and climate change related risks and opportunities identified over the short, medium and long term.

METRICS AND TARGETS

In addition to the qualitative nature of governance, strategy and risk management, Grindrod needs to consider quantifiable metrics and targets as part of our Climate Change and Environmental Policy. Such targets will support Grindrod in measuring the effectiveness of its governance, strategy and risk management processes in terms of integrating and managing material climate change and environmental issues.

Grindrod has identified four key areas of focus. These are summarised below:

- ***Water*** is a critical resource, specifically in water-scarce countries such as South Africa. In this regard, Grindrod must acknowledge their impact in terms of how water is used and conserved where possible.
- ***Greenhouse gas emissions:*** Grindrod monitors its Scope 1 and Scope 2 emissions in an effort to minimise the company's greenhouse gas emissions. As such, Grindrod has set specific targets to move towards carbon neutrality in the long term.
- ***Waste:*** Grindrod recognises the role of sustainable waste management in contributing towards a circular economy.
- ***Energy and Fuel:*** Grindrod recognises the role that fossil fuels and the combustion of these fuels in transport and electricity generation play in terms of climate change. As such, Grindrod has set specific targets to move towards carbon neutrality in the long term, which includes the generation and use of renewable energy.
- ***Renewable Energy:*** Grindrod recognises the opportunities for business efficiency in renewable energy. In this regard, Grindrod will investigate the feasibility of appropriate renewable energy options for its business and develop a timeframe for renewable energy roll-out within the company.

Grindrod's environmental targets include the following:

Absolute GHG Emissions

Metric	Tonnes of Carbon Dioxide equivalent	
2019 emissions	110 808	tCO_2e
Target percent change	-2,5%	per year
Target for 2025	95 192	

Emissions intensity

Metric	Tonnes CO_2e per million Rand turnover	
2019 emissions intensity	28,90	million Rand per tCO_2e
Target percent change	-7,0%	per year
Target for 2025	18,53	million Rand per tCO_2e

Electricity consumption

Metric	Megawatt hours (MWh)	
2019 consumption	16 041	MWh
Target percent change	-2,5%	per year
Target for 2025	13 781	MWh

Electricity efficiency

Metric	Kilowatt hour per full time employee	
2019 efficiency	3 517	kWh/FTE
Target percent change	-2,5%	per year
Target for 2025	3 021	kWh/FTE

Renewable energy

Metric	kWh renewable energy consumed	
Target	50%	Of total electricity bill by 2025

Water intensity

Metric	Kilolitres of water used per million Rand revenue	
2019 emissions	29,27	kilolitre per million Rand revenue
Target percent change	-2,5%	per year
Target for 2025	25	kilolitre per million Rand revenue

Waste to landfill

Metric	Tonnes of waste sent to landfill	
2019 waste to landfill	1 836	tonnes
Target percent change	Zero waste to landfill in 10 years	
Target for 2025	918,00	tonnes

Annexure 2:

Walvis Bay Bulk Terminal Occupational Health, Safety, Environmental and Quality Commitment.

GRINDROD

WALVIS BAY BULK TERMINAL

OCCUPATIONAL HEALTH, SAFETY, ENVIRONMENTAL AND QUALITY COMMITMENT

Our Scope

Walvis Bay Bulk Terminal (WBBT) is a dry bulk terminal, which is well equipped to handle bulk commodities required for the domestic and overseas markets. WBBT is situated in the port of Walvis Bay to ensure that neighboring countries via the Walvis Bay Corridor can be effectively serviced.

Our Vision

We at WBBT aspire to Zero Harm to people, our host communities and the environment as much as operationally practicable. We are committed to and are working towards creating a healthy and safe working environment, preventing pollution, conducting business in an environmentally sound manner and produce the required product, which will conform to customer specifications and expectations

Our Policy

In pursuance of the above and within support of corporate policies and standards, WBBT undertake to:

Where operationally practicable WBBT will strive to minimize or prevent potentially adverse risks/impacts associated with bulk handling at the terminal, which can impact on employees, visitors, contractors, interested parties, the environment, product, processes and our host communities. Where risk elimination is not possible, risks will be minimized through substitution, engineering controls, administrative controls or personal protective equipment as a last resource. *Currently the emphasizes are on managing the following aspects: Pedestrian safety, Contractor management, TMM safety, Working at heights, Electrical safety, Energy management, GHG emissions (air pollution), Waste management, Water management and Customer Satisfaction.*

Be committed to provide essential resources needed to continually improve our SHEQ management system and SHEQ performance to prevent or reduce the likelihood of injury, ill-health, pollution, inferior product or service. This will be accomplished by establishing and implementing realistic and achievable objectives and targets, considering the organization's significant risks, legal requirements and other requirements regarding safety, health, hygiene, product, environment, workers and the community we work and operate in

Be compliant with applicable legal and other requirements to which the organisation subscribes that relate to its health, safety, environmental and quality hazards/aspects.

Train and let employees participate to a standard where they can recognize risks pertaining to the working place activities, be aware of their legal obligation and to work in an environmentally responsible way and to be able to use, continuously improve and maintain the current SHEQ management system effectively.

This policy will be displayed in appropriate areas and will be made available to interested parties on request and will be reviewed at appropriate intervals and revised whenever necessary to ensure that it remains relevantt and appropriate to WBBT

J Ferreira (General Manager)

Date: 15 Sept 2021

WBBT-POL-001 Rev 006 15 September 2021

Annexure 3:

February 2019

Environmental Clearance Certificate.

REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT AND TOURISM

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Fax: (00 26461) 232 057

Cnr Robert Mugabe &
Dr Kenneth Kaunda Street
Private Bag 13306
Windhoek
Namibia

Enquiries: Mr. Josafat K Hiwana
E-mail: josafat.hiwana@met.gov.na

15 February 2019

OFFICE OF THE ENVIRONMENTAL COMMISSIONER

The Chief Executive Officer
Walvis Bay Bulk Terminal
P.O. Box 652
Walvis Bay
Namibia

Dear Sir/Madam

SUBJECT: ENVIRONMENTAL CLEARANCE CERTIFICATE FOR THE OPERATION OF BULK STORAGE FACILITIY OF METALIC ORE SITUATED IN WALVIS BAY PORT, ERONGO REGION

The Environmental Management Plan submitted is sufficient as it made provisions of the environmental management concerning the proposed activities. From this perspective, regular environmental monitoring and evaluations on environmental performance should be conducted. Targets for improvements should be established and monitored throughout this process.

This Ministry reserves the right to attach further legislative and regulatory conditions during the operational phase of the project.

On the basis of the above, this letter serves as an environmental clearance certificate for the project to continue. However, this clearance letter does not in any way hold the Ministry of Environment and Tourism accountable for any misleading information, nor any adverse effects that may arise from this project's activities. Instead, full accountability rests with Walvis Bay Bulk Terminal.

This environmental clearance is valid for a period of 3 (three) years, from the date of issue unless withdrawn by this office.

Yours sincerely,

P/Bag 13306 Windhoek, Namibia 2019 -02- 15

Fredrick Mupoti Sikabongo
DEPUTY ENVIRONMENTAL COMMISSIONER

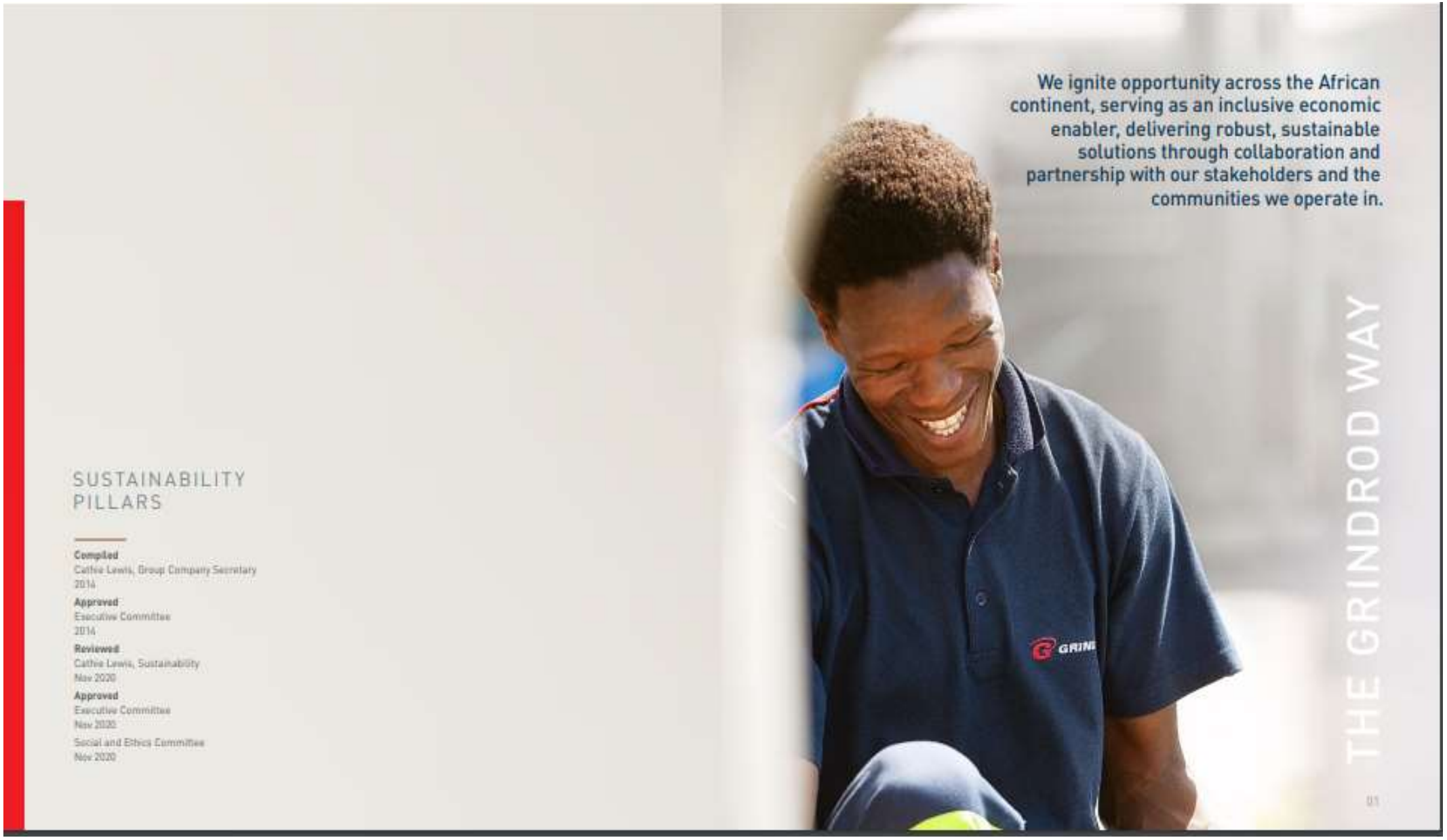
"Stop the poaching of our rhinos"

All official correspondence must be addressed to the Permanent Secretary

Annexure 4:

Grindrod Sustainability Pillars.


PORT AND TERMINALS + LOGISTICS + BANK
www.grindrod.com
GRINDROD
SUSTAINABILITY PILLARS


We ignite opportunity across the African continent, serving as an inclusive economic enabler, delivering robust, sustainable solutions through collaboration and partnership with our stakeholders and the communities we operate in.
THE GRINDROD WAY
SUSTAINABILITY PILLARS
Compiled
Cathie Lewis, Group Company Secretary
2014
Approved
Executive Committee
2014
Reviewed
Cathie Lewis, Sustainability
Nov 2020
Approved
Executive Committee
Nov 2020
Social and Ethics Committee
Nov 2020
01

Our vision is to create sustainable returns and long-term value for our stakeholders, thus playing an active part in securing a future where all people can live well within the planet's finite resources. We create shared value holistically, drawing on all our resources.

Unleashing **shared value**

PEOPLE	PLANET	PROSPERITY	PARTNERSHIP	PEACE
Human rights Labour rights Quality education incentive	Precautionary approach Sustainable development Resource efficiency	Inclusive growth in Africa	Inspiring trust and confidence Win / win solutions	Ethical culture Reputable heritage Equity and fairness
PEOPLE RESOURCE	NATURAL RESOURCE	FINANCIAL RESOURCE	RELATIONSHIP RESOURCE	CULTURE AND GOVERNANCE

02

We strive to conduct our business responsibly in a safe and healthy working environment, taking care to protect and respect our employees, the environment and the communities in which we operate, in accordance with internationally recognised standards and good practice.

In order to deliver this holistic approach, we have developed our Sustainability Pillars based on international principles, conventions and standards such as the Sustainable Development Goals, the recommendations of the Task Force on Climate-related Financial Disclosure (TCFD), the Paris Agreement, the Ten United Nations Global Compact Principles, the ILO Fundamental Conventions and the International Finance Corporation's (IFC) Performance Standards.

Our Sustainability Pillars, together with the Grindrod suite of SHERQ standards, procedures and protocols, including the 2025 Grindrod Climate Change and Environmental Policy, summarise our environmental and social approach and commitments. Grindrod's approach towards responsible environmental and social management is systematic, anticipating risks and impacts and putting in place measures to avoid, mitigate and compensate, where applicable, for adverse impacts and risks.

Additionally, our approach focuses on identifying opportunities for continuous improvement of our environmental and social performance.

Our Sustainability Pillars are clearly and transparently communicated to our employees, contractors and relevant stakeholders. **Operating in accordance with our Sustainability Pillars is more than aspirational**; it is an inherent component of Grindrod's business culture.

A safe and healthy working environment is recognised by Grindrod as a fundamental human right, as enshrined in the 1948 Universal Declaration of Human Rights.

We recognise that the health and safety of our employees, contractors, and visitors is of paramount importance and cannot be compromised. Grindrod has a zero-tolerance approach towards breaches of our safety, health and security standards.

We will maintain occupational health and safety management systems (ISO 45001:2018) in accordance with the international standard.

AS PART OF OUR OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEMS, WE WILL DO THE FOLLOWING

- comply with all statutory health and safety obligations including the provisions of adequate supervision, information, instruction, and training
- implement and maintain appropriate procedures and management plans to identify, avoid and mitigate health and safety risks as well as promote continuous improvement of health and safety performance
- establish clear targets and objectives on an annual basis to improve health and safety in the workplace
- audit and report on such targets and objectives in a clear, concise, and transparent manner
- consult with employees on health and safety issues and commit to addressing reasonable concerns
- develop a body of knowledge, based on learnings and best practice to be shared and expanded with the Group
- investigate all incidents, implement corrective actions in a timely manner and ensure that injured persons receive the best possible medical care, based on the Incident Cause Analysis Method (ICAM) methodology
- provide, operate, and maintain buildings, plant, equipment and systems of work that are safe and without risk to health; and
- supervise our contractors to ensure compliance with Grindrod requirements and work with them to improve their health and safety performance

OUR PEOPLE

Human rights

Human rights are fundamentally entrenched basic rights as proclaimed in the Universal Declaration of Human Rights, which forms the foundation of international customary law. It is furthermore acknowledged in the Constitution of the Republic of South Africa, 1996. We subscribe to the UN Global Compact's Protect, Respect and Remedy Framework, which clearly articulates the responsibilities of corporates to respect and protect human rights.

IN ORDER TO ACHIEVE THIS COMMITMENT, WE WILL DO THE FOLLOWING

- treat our people with respect and dignity
- require our contractors to respect Human Rights while working for Grindrod
- assess whether our business processes or products cause or contribute to adverse
- human rights impact and strive to contribute to positive human rights development
- use our best efforts to ensure that we are not complicit in human rights abuses
- assess human rights impacts to determine, address, and prevent, where necessary, any adverse human rights actions
- implement and maintain appropriate grievance mechanisms
- support and promote human rights through strategic social investments and collaborative partnerships and
- monitor and report on our efforts

Labour rights

The International Labour Organisation's Declaration on Fundamental Principles and Rights at Work, is considered as the foundation of the four principal, internationally acknowledged labour rights.

WE SUBSCRIBE TO THESE RIGHTS, AND COMMIT TO DO THE FOLLOWING

- comply with all applicable statutory labour obligations
- promote and recognise in good faith the right of our employees to the freedom of association and collective bargaining
- not to permit any form of forced or compulsory
- not to permit child labour
- not to permit discrimination in respect of employment and occupation
- maintain grievance mechanisms for our employees and contractors
- monitor and report on our efforts
- we firmly commit ourselves to the object and spirit of legislation and policy directed at substantively addressing present inequalities in the workplace caused by past unfair discriminatory practices
- we require contractors to abide with the above while providing services to Grindrod

We subscribe to the UN Global Compact's Protect, Respect and Remedy Framework, which clearly articulates the responsibilities of corporates to respect and protect human rights.

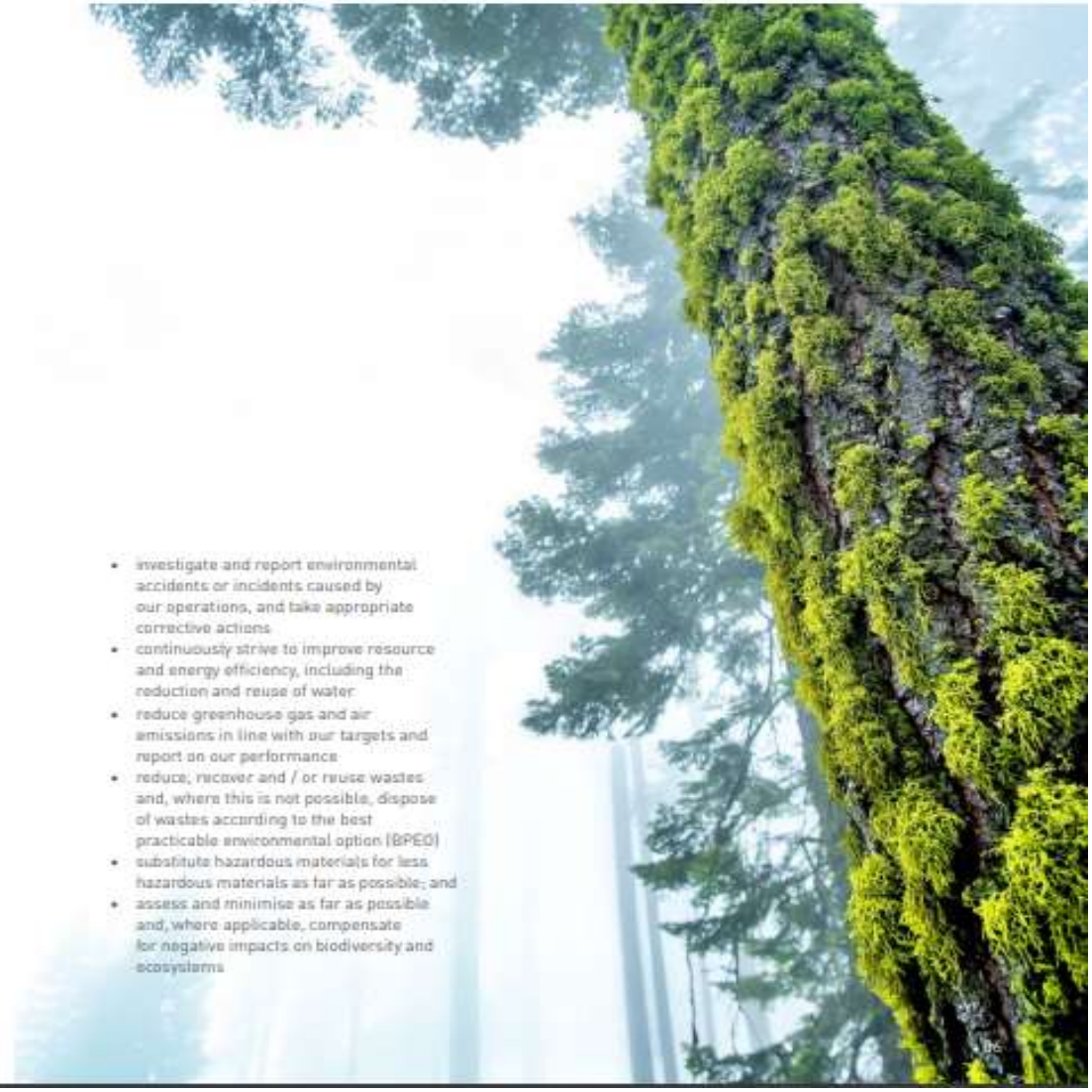
ENVIRONMENT

We are committed to minimising the adverse impact of our activities on the environment, including air, water, land, biodiversity, and natural resources in line with the precautionary approach, and taking guidance from the recommendations of the TCFD. In this regard, we are committed to the Paris Agreement and strive towards net zero carbon by 2050.

We will maintain environmental management systems, based on the international standard ISO 14001:2015.

AS PART OF OUR ENVIRONMENTAL MANAGEMENT SYSTEMS, WE WILL DO THE FOLLOWING

- comply with all statutory, regulatory and other environmental obligations including the provision of adequate supervision, information, instruction, and training
- implement and maintain appropriate standards, procedures, management plans and programs to identify, avoid, mitigate, or compensate, as appropriate, the risks and impacts to the environment caused by our operations
- conduct environmental and social assessments for projects or activities in line with the applicable legislation and international standards
- incorporate international environmental standards in the planning and development of new projects, where applicable
- establish clear targets and objectives per business division for review on an annual basis, as defined by our 2025 Climate Change and Environmental Policy
- audit and report on such targets and objectives in a clear, concise, and transparent manner
- where reasonably and economically possible, assess and compare technologies and use environmentally friendly options, including the use of renewable energy sources such as solar PV and integrated water management technologies
- investigate and report environmental accidents or incidents caused by our operations, and take appropriate corrective actions
- continuously strive to improve resource and energy efficiency, including the reduction and reuse of water
- reduce greenhouse gas and air emissions in line with our targets and report on our performance
- reduce, recover and / or reuse wastes and, where this is not possible, dispose of wastes according to the best practicable environmental option (BPEO)
- substitute hazardous materials for less hazardous materials as far as possible; and
- assess and minimise as far as possible and, where applicable, compensate for negative impacts on biodiversity and ecosystems



COMMUNITIES

We acknowledge that establishing and maintaining respectful relationships with the communities within which we operate is critical to the sustainability of the company.

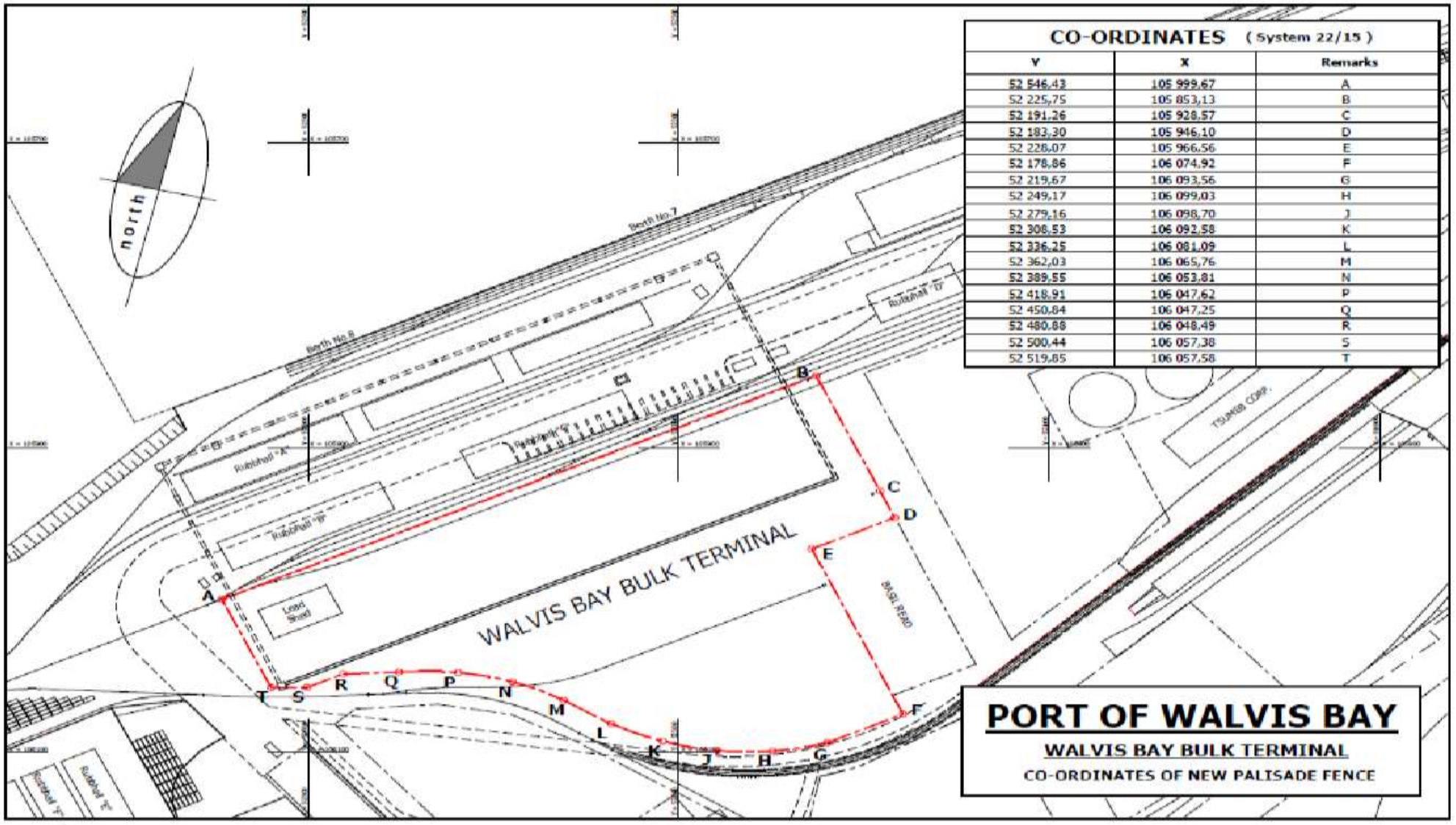
We will respect the human rights, culture and customary livelihoods of affected communities and strive to contribute positively to their social and economic development.

WE UNDERTAKE TO UPHOLD THESE RIGHTS, AND COMMIT TO DO THE FOLLOWING

- comply with all applicable statutory obligations
- implement and maintain appropriate procedures and management plans in order to identify, avoid, mitigate or compensate for, as appropriate, the risks and impacts to communities affected by our operations
- where impacts are unavoidable, compensate for adverse impacts in accordance with international standards and good practice
- incorporate international social standards in the planning and development of new projects, where applicable
- determine the reasonable needs and expectations of host communities by means of consultation and continual engagement with local communities
- implement and maintain adequate grievance mechanisms for affected communities in accordance with international standards and good practice; and
- monitor and report on our efforts

Annexure 5:

Ground Layout of WBBT yard area –
Port of Walvis Bay.



Layout of WBBT yard area