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**PROJECT STATUS**

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**ABBREVIATIONS**

AIDS	Acquired Immuno-Deficiency Syndrome
DR	Developer's Representative
EA	Environmental Assessment
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
GG	Government Gazette
GIS	Geographic Information System
GN	Government Notice
GPS	Global Positioning System
HIV	Human Immuno-deficiency Virus
I&APs	Interested and Affected Parties
MEFT:DEA	Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs
MHSS	Ministry of Health and Social Services
NHCN	National Heritage Council of Namibia
Reg.	Regulation
S	Section
TB	Tuberculosis

## 1 INTRODUCTION

Ruacana is a town in the Omusati Region, located on the border with Angola on the river Kunene. The town is known for the picturesque Ruacana Falls nearby, and for the Ruacana Power Station (Ruacana, 2016). Ruacana was developed around a major underground hydroelectric plant linked to the nearby dam across the border in Angola at Calueque. The dam and pumping station were bombed in a Cuban airstrike in 1988, during the Angolan Civil War. The facility was partially repaired and today NamPower operates three turbines producing a maximum of 240 megawatts. Ruacana's settlement status was upgraded to that of a village in 2005, and to town in 2010. It is now governed by a town council (Ruacana, 2016).

Oshifo is an approved township located within the town of Ruacana. It is the intention of the proponent to construct a service station to be located within Oshifo, Ruacana. The town is ideally located with transport routes travelling to Outapi (C42) which can benefit from the proposed service station. Additionally the Town Council intends to try and increase tourist attraction and economic investment within the town. Thus a service station would be beneficial in terms of economic growth as well as provision of services for the tourists travelling through the town as well as the residents of the town.

M. Shikongo's Investments Group CC, hereafter referred to as the proponent is of the intention to undertake the following activity:

- **Construction of a Service Station in Oshifo, Ruacana, Omusati Region.**

Healthy Earth Environmental Consultants CC (HEEC) has been appointed to compile this updated Environmental Management Plan (EMP) as part of the scoping EA process conducted for the proposed developments.

Regulation 8 of the Environmental Management Act's (EMA) (7 of 2007) Environmental Impact Assessment Regulations (2012) requires that an updated EMP should be included within a renewal application.

An updated EMP is one of the most important outputs of the EA process as it synthesises all of the proposed mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. This updated EMP details the mitigation and monitoring actions to be implemented during the following phases of these developments:



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

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

The decommissioning of these developments is not envisaged; however in the event that this should be considered some recommendations have been outlined in **Table 3-5**.



### 1.1 PROJECT LOCATION

The town of Ruacana is located within the Omusati Region close to the border with Angola on the Kunene River. Please refer to the locality map of Oshifo, Ruacana in **Figure 1** and of the intended development in **Figure 2** below.



**Figure 1:** Locality map of Ruacana

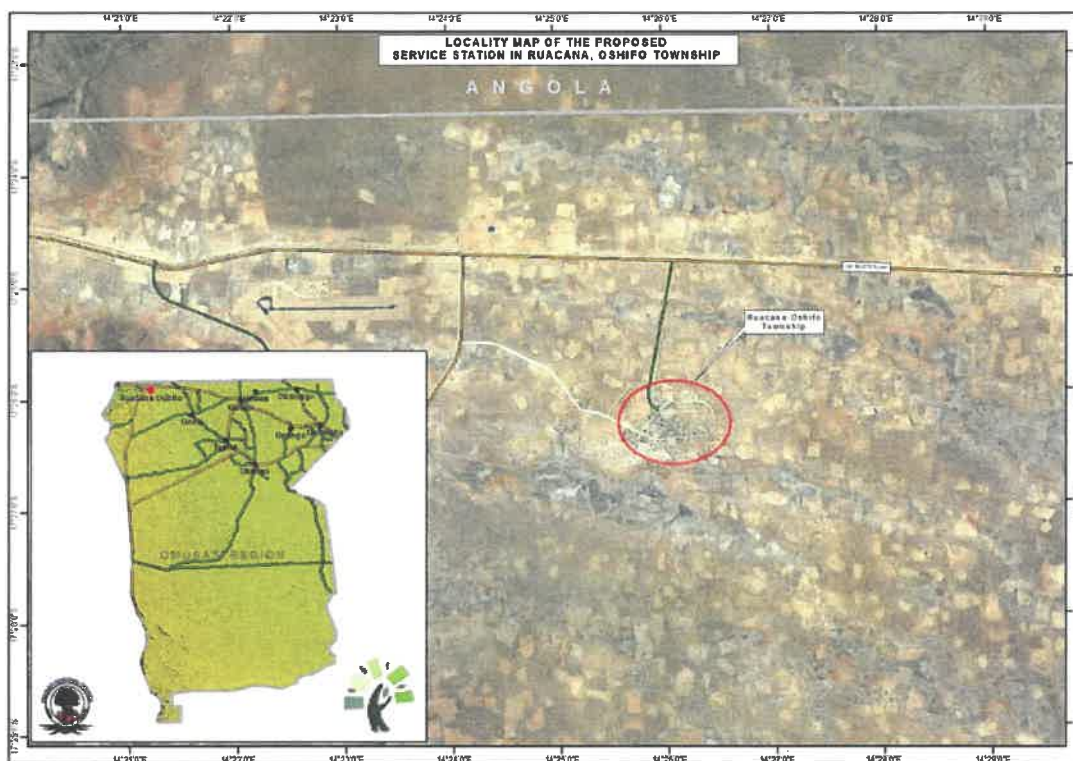


Figure 2: Locality map of proposed development (GPS:-14.43333333, 17.43055556)



## 2 ROLES AND RESPONSIBILITIES

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

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

### 2.1 DEVELOPER'S REPRESENTATIVE

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

**Table 2-1** Responsibilities of DR

Responsibility	Project Phase
Making sure that the necessary approvals and permissions laid out in <b>Table 3-1</b> are obtained/adhered to.	Throughout the lifecycle of these developments
Making sure that the relevant provisions detailed in <b>Table 3-2</b> are addressed during planning and design phase.	Planning and design phase
Suspending/evicting individuals and/or equipment not complying with the EMP	<ul style="list-style-type: none"> <li>• Construction</li> <li>• Operation and maintenance</li> </ul>
Issuing fines for contravening EMP provisions	<ul style="list-style-type: none"> <li>• Construction</li> <li>• Operation and maintenance</li> </ul>



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## 2.2 ENVIRONMENTAL CONTROL OFFICER

The DR should assign the responsibility of overseeing the implementation of the whole EMP on the ground during the construction and operation and maintenance phases to a designated member of staff, referred to in this EMP as the Environmental Control Officer (ECO). The DR/Developer may decide to assign this role to one person for both phases, or may assign a different ECO for each phase. The ECO will have the following responsibilities during the construction and operation and maintenance phases of these developments:

- Management and facilitation of communication between the Developer, DR, the contractors, and Interested and Affected Parties (I&APs) with regard to this EMP;
- Conducting site inspections (recommended minimum frequency is monthly) of all construction and/or infrastructure maintenance areas with respect to the implementation of this EMP (monitor and audit the implementation of the EMP);
- Assisting the Contractor in finding solutions with respect to matters pertaining to the implementation of this EMP;
- Advising the DR on the removal of person(s) and/or equipment not complying with the provisions of this EMP;
- Making recommendations to the DR with respect to the issuing of fines for contraventions of the EMP; and
- Undertaking an annual review of the EMP and recommending additions and/or changes to this document.

## 2.3 CONTRACTOR

Contractors appointed by the Developer are automatically responsible for implementing all provisions contained within the relevant chapters of this EMP. Contractors will be responsible for the implementation of this updated EMP applicable to any work outsourced to subcontractors. **Table 3-3** applies to contractors appointed during the construction phase and **Table 3-4** to those appointed during the operation and maintenance phase. In order to ensure effective environmental management the aforementioned chapters should be included in the applicable contracts for outsourced construction, operation and maintenance work.

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The tables in the following chapter (**Chapter 3**) detail the management measures associated with the roles and responsibilities that have been laid out in this chapter.

## **2.4 Covid19 INFECTION PREVENTION AND CONTROL MEASURES**

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

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

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

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

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

### **2.4.1 Education of workers should be given on:**

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

- 
- Regular washing of hands with soap.
  - Regular sanitising of hands with alcohol-based hand rub (ABHR) or other appropriate sanitisers.
  - Avoid touching your face areas (mouth, eyes and nose).
  - Avoid physical hand contact such as handshakes.
  - Avoid using other people's personal belongings such as stationery, cell phones and sharing food etc.
  - When coughing or sneezing do not use your hands, rather use a tissue/toilet paper or the inside of your elbow.
  - Use disposable tissues rather than a handkerchief; immediately dispose of these tissues in a closed bin and wash or sanitise your hands thereafter.
  - Avoid big crowds and travelling.
  - Avoid touching objects before sanitising, like steering wheels on machinery, toilet seats, tables and chairs.
  - Coach and teach family members.
  - Wearing and handling of appropriate PPE.
- a) Posters on Infection Prevention to be visible at designated areas of the construction site (See **Figure 3** for a typical Covid19 information poster).



**Figure 3:** Typical COVID-19 information poster to be placed at designated areas at the construction site.

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

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- c) Sanitisers (as per World Health Organisation guidelines) should be available in each consultation room and testing areas at the screening centre, and sanitisation should take place before and after every consultation.
  - d) PPE is required for all staff, and PPE management programmes should be in place to ensure that PPE is worn correctly (including fit testing), replaced as necessary, stored correctly and disposed of safely.
  - e) Employees not able to socially distance by 1 m should be provided with PPE as per the Guidance on PPE for COVID-19.
  - f) Re-enforce compliance with the taking of chronic medication.

## **2.5 Screening and testing at the designated areas**

Employers should comply with the following:

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

## **2.6 Continuous Measures**

Employers should comply with the following:

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

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

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### 3 MANAGEMENT ACTIONS

The aim of the management actions in this chapter of the EMP is to avoid potential impacts where possible. Where impacts cannot be avoided, measures are provided to reduce the significance of these impacts.

The following tables provide the management actions recommended to manage the potential impacts rated in the scoping-level EA conducted for these developments. These management actions have been organised temporally according to project phase:

- Applicable legislation (**Table 3-1**);
- Planning and design phase management actions (**Table 3-2**);
- Construction phase management actions (**Table 3-3**);
- Operation and maintenance phase management actions (**Table 3-4**); and
- Decommissioning phase management actions (**Table 3-5**).
- The proponent should assess these commitments in detail and should acknowledge their commitment to the specific management actions detailed in the tables below.

#### 3.1 ASSUMPTIONS AND LIMITATIONS

This EMP has been drafted with the acknowledgment of the following assumptions and limitations:

- This EMP has been drafted based on the scoping-level Environmental Assessment (EA) conducted for the construction of the service station in Oshifo, Ruacana, Omusati Region. HEEC will not be held responsible for the potential consequences that may result from any alterations to the above mentioned layout.
- It is assumed that construction labourers will be sourced mostly from the Ruacana constituency area and that migrant labourers (if applicable) will be housed in established accommodation facilities within Oshifo, Ruacana.
- No engineering designs have been carried out for the development of the associated services infrastructure (roads, potable water, storm water, sewerage and electrical reticulations).



### 3.2 APPLICABLE LEGISLATION

Legal provisions that have relevance to various aspects of these developments are listed in

**Table 3-1:** Legal provisions relevant to the proposed development below. The legal instrument, applicable corresponding provisions and project relevance details are provided.

**Table 3-1:** Legal provisions relevant to the proposed development

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
The Constitution of the Republic of Namibia as Amended	Article 91 (c) provides for duty to guard against "the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia."  Article 95(l) deals with the "maintenance of ecosystems, essential ecological processes and biological diversity" and sustainable use of the country's natural resources.	Sustainable development should be at the forefront of this development.
Environmental Management Act No. 7 of 2007 (EMA)	Section 2 outlines the objective of the Act and the means to achieve that. Section 3 details the principle of Environmental Management	The development should be informed by the EMA.
EIA Regulations GN 28, 29, and 30 of EMA (2012)	GN 29 Identifies and lists certain activities that cannot be undertaken without an environmental clearance certificate. GN 30 provides the regulations governing the environmental assessment (EA) process.	<b>Activity 9.4</b> - The storage and handling of a dangerous goods, including petrol, diesel, liquid petroleum, gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location <b>Activity 9.5</b> - Construction of filling stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid, petroleum, gas or paraffin. <b>Activity 10.1 (a)</b> - The construction of – Oil, water, gas and petrochemical and other bulk supply pipelines.
Convention on Biological Diversity (1992)	Article 1 lists the conservation of biological diversity amongst the objectives of the convention.	The project should consider the impact it will have on the biodiversity of the area.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Draft Procedures and Guidelines for conducting EIAs and compiling EMPs (2008)	Part 1, Stage 8 of the guidelines states that if a proposal is likely to affect people, certain guidelines should be considered by the proponent in the scoping process.	The EA process should incorporate the aspects outlined in the guidelines.
Namibia Vision 2030	Vision 2030 states that the solitude, silence and natural beauty that many areas in Namibia provide are becoming sought after commodities and must be regarded as valuable natural assets.	Care should be taken that the development does not lead to the degradation of the natural beauty of the area.
Water Act No. 54 of 1956	Section 23(1) deals with the prohibition of pollution of underground and surface water bodies.	The pollution of water resources should be avoided during construction and operation of the development.
The Ministry of Environment, Forestry and Tourism (MEFT) Policy on HIV & AIDS	MEFT has recently developed a policy on HIV and AIDS. In addition it has also initiated a programme aimed at mainstreaming HIV and gender issues into environmental impact assessments.	The proponent and its contractor have to adhere to the guidelines provided to manage the aspects of HIV/AIDS. Experience with construction projects has shown that a significant risk is created when construction workers interact with local communities.
Local Authorities Act No. 23 of 1992	The Local Authorities Act prescribes the manner in which a town or municipality should be managed by the Town or Municipal Council.	The development has to comply with provisions of the Local Authorities Act
Labour Act no 11 of 2007	<ul style="list-style-type: none"> <li>• Chapter 2 details the fundamental rights and protections.</li> <li>• Chapter 3 deals with the basic conditions of employment.</li> </ul>	Given the employment opportunities presented by the development, compliance with the labour law is essential.
National Heritage Act No. 27 of 2004	The Act is aimed at protecting, conserving and registering places and objects of heritage significance.	All protected heritage resources (e.g. human remains etc.) discovered, need to be reported immediately to the National Heritage Council of Namibia (NHCN) and require a permit from the NHCN before they may be relocated

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Roads Ordinance 17 of 1972	<ul style="list-style-type: none"> <li>• Section 3.1 deals with width of proclaimed roads and road reserve boundaries</li> <li>• Section 27.1 is concerned with the control of traffic on urban trunk and main roads</li> <li>• Section 36.1 regulates rails, tracks, bridges, wires, cables, subways or culverts across or under proclaimed roads</li> <li>• Section 37.1 deals with Infringements and obstructions on and interference with proclaimed roads.</li> </ul>	Adhere to all applicable provisions of the Roads Ordinance.
Public and Environmental Health Act of 2015	This Act (GG 5740) provides a framework for a structured uniform public and environmental health system in Namibia. It covers notification, prevention and control of diseases and sexually-transmitted infections; maternal, ante-natal and neo-natal care; water and food supplies; infant nutrition; waste management; health nuisances; public and environmental health planning and reporting. It repeals the Public Health Act 36 of 1919 (SA GG 979).	Contractors and users of the proposed development are to comply with these legal requirements.
Nature Conservation Ordinance no 4 of 1975	Chapter 6 provides for legislation regarding the protection of indigenous plants	Indigenous and protected plants have to be managed within the legal confines.
Water Quality Guidelines for Drinking Water and Waste Water Treatment	Details specific quantities in terms of water quality determinants, which waste water should be treated to before being discharged into the environment (see Appendix B).	These guidelines are to be applied when dealing with water and waste treatment

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Petroleum Products and Energy Act, 1990 (Act No. 13 of 1990))	The Act makes provision for impact assessment for new proposed fuel facilities and petroleum products known to have detrimental effects on the environment.	The proposed project involves the use and management of fuel facilities and petroleum products.
Pollution Control and Waste Management Bill	This Bill serves to regulate and prevent the discharge of pollutants to air and water as well as providing for general waste management. The Bill will repeal the Atmospheric Pollution Prevention Ordinance (11 of 1976) (below) when it comes into force.	The proposed development would not entail the discharge to air and or water, but might result in the generation of noise and dust during the construction phase. The potential risk of hazardous substance leakages does occur and should be manage accordingly.
Atmospheric Pollution Prevention Ordinance (Act No.11 of 1976)	This Ordinance serves to control air pollution from point sources, but it does not consider ambient air quality. Any person carrying out a 'scheduled process' which are processes resulting in noxious or offensive gases typically pertaining to point source emissions have to obtain a registration certificate from the Department of Health.	Although we do not anticipate the development to generate noxious or offensive gasses, the proponent will ensure that a registration certificate (air pollution permit) is obtained, if required. As duty of care, the proponent should implement the necessary mitigation measures set out in in order to limit emissions to air in the form of dust during construction and operation. Emissions could occur during the event of a fire or explosion and then risk mitigation and management measures should be in place.



### 3.3 PLANNING AND DESIGN PHASE

The DR should ensure that the management actions detailed below should be adhered to during the period before the construction of the services infrastructure starts.

**Table 3-2:** Planning and design management actions

Aspect	Management Actions
Existing Service Infrastructure	<ul style="list-style-type: none"> <li>• While it will be incumbent on the new owners to apply for municipal services it is advised that the proponent engages the services of an engineering professional to design and construct the service connections to the development as far as water, sewer, electricity and roads are concerned.</li> <li>• It is recommended that alternative and renewable source of energy be explored and introduced into the proposed development to reduce dependency on the grid.</li> <li>• Solar geysers and panels should be considered to provide for general lighting and heating of water and buildings.</li> <li>• Water saving mechanisms should be considered for incorporation within the developments in order to further reduce water demands.</li> <li>• Re-use of treated waste water should be considered wherever possible to reduce the consumption of potable water.</li> </ul>
Roads	<ul style="list-style-type: none"> <li>• Make ample provision in road design for pedestrian walkways and speed bumps at crossing and busy nodes</li> <li>• Ensure that road junctions have good sightlines.</li> <li>• Implement traffic control measures where necessary.</li> </ul>
Wastewater	<p>The Developer should appoint a professional engineer to design the required aspects for the wastewater. These designs should consider as a minimum the following:</p> <ul style="list-style-type: none"> <li>• Avoid pollution of the underground and surface water sources.</li> </ul>
Borrow pits	Building sand should be sourced from a borrow pit with a valid ECC.

### 3.4 Environmental awareness

#### 3.4.1 Construction Job Site Guidelines- Covid19 Regulations

For construction activities at the service station development site at Oshifo, please follow all MHSS guidelines to limit the spread of COVID-19 including:

- If you feel sick, stay home. Do not go to work.
- Wear a face mask at all times while in the workplace.
- Maintain at least 2 metres of social distancing as work duties permit.
- Practice good hygiene. Wash your hands and avoid touching your face.
- Clean and disinfect all shared areas and equipment routinely.

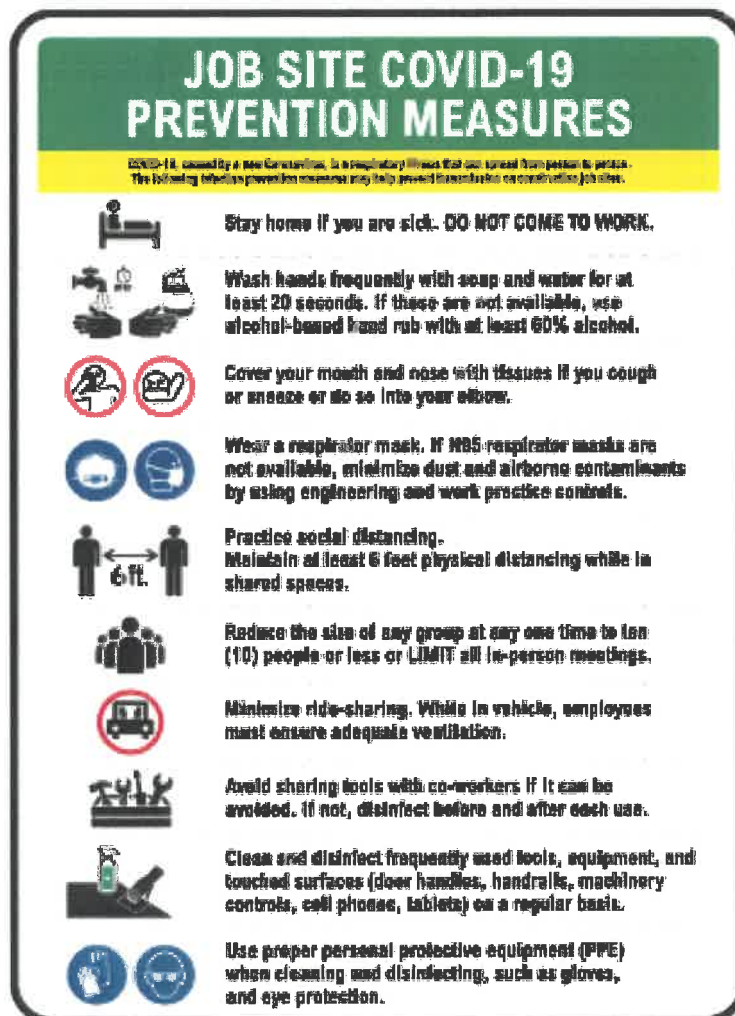


Figure 4: Construction site regulations to stop the spread of Covid19.

### 3.5 CONSTRUCTION PHASE

The management actions listed in **Table 3-3** applies during the construction phase. This table may be used as a guide when developing EMPs for other construction activities within these development areas.

**Table 3-3:** Construction phase management actions

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



Aspect	Management Objective	Management actions	Responsibility
Dust	To limit dust levels.	<ul style="list-style-type: none"> <li>Dust suppressants such as Dustex may be applied to the construction clearing activities to ensure 50% control efficiency on all the unpaved where applicable;</li> <li>Construction vehicles to only use designated roads;</li> <li>During high wind conditions the Contractor must make the decision to cease works until the wind has calmed down; and</li> <li>Cover any stockpiles with a suitable material, such as plastic or shade-cloth, to minimise windblown dust.</li> </ul>	Contractor
Noise	To limit noise levels.	<ul style="list-style-type: none"> <li>Install and maintain silencers on machinery</li> <li>Appropriate directional and intensity settings are to be maintained on all hooters and sirens</li> <li>No amplified sound shall be allowed on site other than in emergency situations</li> <li>Drivers and operators are to be instructed to not use their hooters unless absolutely required</li> <li>Operators of machinery should not use hooters for the purposes of general communication</li> </ul>	Contractor
Method statements	To ensure effective and formal communication between the Project Management Team and the Contractor on construction issues throughout all stages of the project	<p>System regarding method statement compilation, submission, review and approval to be rigorously implemented.</p> <p>Method Statements that shall be provided by the Contractor 14 days prior to the mobilisation on site include:</p> <ul style="list-style-type: none"> <li>Mobilisation plan; and</li> <li>Operational and rehabilitation plan.</li> </ul>	Contractor / ECO
Environmental considerations pertaining to site layout	Suitable area identified where employees can eat and take work recess.	<ul style="list-style-type: none"> <li>The Contractor shall identify a suitable area, which is shaded and away from construction noise and dust, where employees can eat and take work recesses in relative comfort.</li> <li>The eating areas shall be provided with scavenger proof rubbish bins, potable water and other sanitary conveniences.</li> </ul>	Contractor / ECO
Ablution facilities	Temporary toilets shall be provided by the contractor.	<ul style="list-style-type: none"> <li>Temporary / portable toilets shall be supplied by the Contractor for the workers at a maximum ratio of 1 toilet per 15 workers and be within walking distance of the work area.</li> <li>The toilets shall be placed at appropriate locations to the approval of the Engineer / ECO.</li> <li>Toilets shall be kept in a good state of repair and shall be serviced at intervals sufficient to ensure that they are kept in clean and sanitary condition.</li> </ul>	Contractor

Aspect	Management Objective	Management actions	Responsibility
Site demarcation	The Contractor shall restrict all his activities, materials, equipment and personnel to the designated Site.	<ul style="list-style-type: none"> <li>The Contractor shall ensure that the clearance of vegetation is restricted only to that required to facilitate the execution of the works.</li> <li>The Contractor shall peg the route for the proposed pipeline before commencing with any clearing operations.</li> </ul>	Contractor
Access, traffic and haul roads	Construction traffic shall be controlled to ensure minimal disruption to normal road users.	The Contractor shall be held responsible for the control of all project related traffic, including that of his suppliers, in ensuring that vehicles associated with the project remain on designated routes and within the designated working times.	Contractor
Solid waste management	To ensure that there is no illegal disposal of waste.	<ul style="list-style-type: none"> <li>The Contractor shall provide sufficient number of rubbish bins with secured lids.</li> <li>No waste materials, including domestic, organic or construction wastes shall be burnt, dumped or buried on the Site.</li> </ul>	Contractor
Fuel and oil	To ensure that all liquid fuels are stored appropriately and adequate firefighting equipment is stored on site.	<ul style="list-style-type: none"> <li>The Contractor shall ensure that all liquid fuels are stored in tanks or mobile bowsters with lids that are kept firmly shut.</li> <li>All tanks and/or mobile bowsters shall be situated in a bunded area.</li> <li>The Contractor shall ensure that there is adequate fire-fighting equipment at the fuel storage areas.</li> </ul>	Contractor
Equipment maintenance and storage	All vehicles and equipment are kept in good working order.	<ul style="list-style-type: none"> <li>Leaking or damaged equipment shall be repaired immediately or removed from the Site.</li> <li>Drip trays shall be provided in construction areas for stationary and parked plant as well as for the emergency servicing of vehicles.</li> </ul>	Contractor
Stockpiling and stockpile areas	All plant and materials shall be stored in designed areas to minimise the disturbance to vegetation and topsoil.	Plant and materials shall be stored within the demarcated construction camp or batching areas.	Contractor
Materials handling, use and storage	All delivery drivers are informed of the on-site procedures and restrictions.	<ul style="list-style-type: none"> <li>The Contractor shall ensure that any delivery drivers are informed of all procedures and restrictions, including "no-go" areas and designated haul routes.</li> <li>All material shall be stored within the designated Site boundaries.</li> </ul>	Contractor
Hazardous substances	Any hazardous substances are stored appropriately.	<ul style="list-style-type: none"> <li>Hazardous chemical substances used during construction shall be stored in secondary containers.</li> <li>The relevant Material Safety Data Sheets (MSDS) shall be available on site.</li> </ul>	Contractor
Cement and concrete batching	Cement and concrete batching takes place in designated areas.	<ul style="list-style-type: none"> <li>The batching of concrete shall take place on a smooth, impermeable surface (plastic) and shall be enclosed with a bund and sloped toward a sump to contain any spillages.</li> <li>The Contractor shall take all reasonable measures to prevent the spillage of cement / concrete during batching and construction operations.</li> </ul>	Contractor

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

### 3.6 OPERATION AND MAINTENANCE PHASE

The management actions included in **Table 3-4** below apply during the operation and maintenance phase of these developments.

**Table 3-4: Operation and maintenance management actions**

Environmental Feature	Impact	Management Actions
EMP training	Lack of EMP awareness and the implications thereof	All contractors appointed for maintenance work on the respective services infrastructure must ensure that all personnel are aware of necessary health, safety and environmental considerations applicable to their respective work.
Monitoring	EMP non-compliance	The ECO should monitor the implementation of the EMP: <ul style="list-style-type: none"> <li>• The ECO should inspect the site before construction starts; and</li> <li>• The ECO should inspect the site at the end of the construction period.</li> </ul>
Water	Surface and groundwater contamination	<ul style="list-style-type: none"> <li>• Ensure that all properties are connected to a professionally designed and constructed water and wastewater infrastructure.</li> <li>• A no-go buffer area of at least 15 m should be allocated to any water bodies in the area.</li> <li>• No dumping of waste products of any kind in or in close proximity to any surface water bodies.</li> <li>• Contaminated runoff from the various operational activities should be prevented from entering any surface or ground water bodies.</li> <li>• Ensure that surface water accumulating on-site are channeled and captured through a proper storm water management system to be treated in an appropriate manner before disposal into the environment.</li> <li>• Disposal of waste from the various activities should be properly managed.</li> </ul>
Aesthetics	Visual impacts	The proponent should consult with a view to incorporate the relevant local/national/international development guidelines which addresses the following: <ul style="list-style-type: none"> <li>• The use of 'green' technologies within the architectural designs and building materials of the development.</li> <li>• The incorporation of indigenous vegetation, natural colours and building materials such as wood and stone into property development.</li> </ul>

Environmental Feature	Impact	Management Actions
Energy efficiency	Waste of scarce resources	<p>The proponent should consult, with the view to incorporate the relevant local/national/international development guidelines which addresses the following:</p> <ul style="list-style-type: none"> <li>• The use of solar geysers and solar panels for the general lighting and heating of water for buildings.</li> <li>• Use of designs and building materials, which reduce dependency on artificial heating and cooling.</li> <li>• The incorporation of water saving initiatives within the development's design and plans in order to reduce water demands.</li> </ul>
Noise	Noise nuisance impact	<p>The proponent should consult with the view to incorporate the relevant local/national/international guidelines to manage the generation of noise in the development area.</p>
Waste management		<ul style="list-style-type: none"> <li>• Sufficient waste storage containers are available on site.</li> <li>• Waste should be removed from new properties on a regular basis by an authorised waste management company.</li> <li>• All waste should be disposed of at a municipal approved waste disposal site.</li> <li>• Hazardous waste is separated from non-hazardous waste.</li> <li>• Hazardous waste should be disposed of at a registered hazardous waste disposal site.</li> </ul>
Hazardous Substances		<ul style="list-style-type: none"> <li>• Storage of the hazardous substances in a bunded area, with a volume of 120 % of the largest single storage container or 25 % of the total storage containers whichever is greater.</li> <li>• Refuel vehicles in designated areas that have a protective surface covering and utilise drip trays for stationary plant.</li> <li>• All fuel storage and handling facilities in Namibia must also comply with strict safety distances as prescribed by SANS 10089. SANS 10089 is adopted by the Ministry of Mines and Energy as the national standard.</li> <li>• All staff be trained with regards to the proper handling of these substances as well as First Aid in the case of spillage or intoxication.</li> <li>• Storage areas for all substances should be bunded and capable to hold 120% of the total volume of a given substance stored on site</li> </ul>



Environmental Feature	Impact	Management Actions
		<ul style="list-style-type: none"> <li>• Underground fuel tankers should be stored in proper containers and include appropriate risk control measures in the case of leakages or pollution.</li> <li>• Specific safety features and protocols should be implemented in the case of a fire or explosion.</li> <li>• Proper licensed and updated fire-fighting equipment should be installed and easily implemented.</li> <li>• It must further be assured that sufficient water and sand is available for fire-fighting purposes.</li> <li>• Regular inspections should be carried out to inspect and test fire-fighting equipment and pollution control materials at the service station.</li> <li>• The following plans should be onsite and well known to staff and easily directed to the general public in case of an emergency. These include but are not limited to: <ul style="list-style-type: none"> <li>○ Health and Safety Plan</li> <li>○ Risk Management Plan</li> <li>○ Fire and Explosions Management Plan (protection and prevention)</li> </ul> </li> </ul>
Fire and Explosion Risk Management		<ul style="list-style-type: none"> <li>• The developer is to follow the guidelines of the <b>Petrol Filling Stations Guidance on Managing the Risks of Fire and Explosion (The Red Guide) of August 2009</b></li> </ul>

### 3.7 DECOMMISSIONING PHASE

The decommissioning of these developments is not foreseen. In the event that these developments are decommissioned the following management actions should apply.

**Table 3-5: Decommissioning phase management actions**

Environmental Feature	Management Actions
Deconstruction activity	Many of the mitigation measures prescribed for construction activity for these developments (Table 3-3 above) would be applicable to some of the decommissioning activities. These should be adhered to where applicable.
Rehabilitation	In the event that decommissioning is deemed necessary, excavations need to be rehabilitated according to the management actions laid out in Table 3-3 above.

## APPENDIX A-Generic Method Statement Example

### INFORMATION ON METHOD STATEMENTS

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

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

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

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

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

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

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

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



**EXAMPLE OF METHOD STATEMENT**

CONTRACT: ..... DATE: .....

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

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

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

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

**Start Date:**

**End Date:**

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

**DECLARATIONS****1) ENVIRONMENTAL CONTROL OFFICER**

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

\_\_\_\_\_  
**(Signed)**

\_\_\_\_\_  
**(Print name)**

\_\_\_\_\_  
**(Signed)**

\_\_\_\_\_  
**(Print name)**

**Date:** \_\_\_\_\_

**2) PERSON UNDERTAKING THE WORKS**

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
**(Signed)**

\_\_\_\_\_  
**(Print name)**

**Date:** \_\_\_\_\_

**3) ENGINEER**

The works described in this Method Statement are approved:

\_\_\_\_\_  
**(Signed)**

\_\_\_\_\_  
**(Print name)**

**Date:** \_\_\_\_\_

**4) APPROVING AUTHORITY**

The works described in this Method Statement are approved:

\_\_\_\_\_  
**(Signed)**

\_\_\_\_\_  
**(Print name)**

**Date:** \_\_\_\_\_

## APPENDIX B- Water Quality Guidelines

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

#### 1. INTRODUCTION

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

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

The sections of the Water Act that relate to the discharge of industrial effluents are:

- Section 21(1) which states that

-- The purification of waste water shall form an integral part of water usage and

-- that purified effluents shall comply with the General Standard Quality restrictions as laid out in Government Gazette R553 of 5 April 1962 and

- Section 21(2) which further stipulate that this purified effluent be returned as close as possible to the point of abstraction of the original water.

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

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

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

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

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

### 2.1 CLASSIFICATION OF WATER QUALITY

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

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

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

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

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

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

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

TABLE 1: DETERMINANTS WITH AESTHETIC / PHYSICAL IMPLICATIONS

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

\* In this and all following tables "l" (lower case L in ARIAL) is used to denote dm<sup>3</sup> or litre

\*\*All values greater than the figure indicated.

\*\*\* Pt = Platinum Units

\*\*\*\* Nephelometric Turbidity Units

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

TABLE 2: INORGANIC DETERMINANTS

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

\* All values greater than the figure indicated.



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

## 2.2 BACTERIOLOGICAL DETERMINANTS

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

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

TABLE 3: BACTERIOLOGICAL DETERMINANTS

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

\* All values greater than the figure indicated.

\*\* In 95% of the samples.

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

## 2.3 FREQUENCY FOR BACTERIOLOGICAL ANALYSIS OF DRINKING-WATER SUPPLIES

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

TABLE 4: FREQUENCY FOR BACTERIOLOGICAL ANALYSIS

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

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

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

TABLE 5 GENERAL STANDARDS FOR ARTICLE 21 PERMITS (EFFLUENTS)

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

\* Also known as Permanganate Value (or PV).

\*\* In Windhoek the saturation level is at approx. 9 mg/l O<sub>2</sub>.

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

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

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

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

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

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

#### 4. AUTHORIZATION

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

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

PERMANENT SECRETARY  
Dr V Shivute

WINDHOEK,

DATE STAMP

**APPENDIX C: COVID-19 Risk Assessment form (as amended periodically based on developing medical information)  
Return to Work Medical Screening**

<b>Surname:</b>	<b>First Name:</b>	<b>Company Number</b>	
<b>Date Of Birth:</b>	<b>Occupation:</b>	<b>Department:</b>	
<b>Date Employed:</b>	<b>Date Discharged:</b>	<b>Length Of Service:</b>	

1.

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

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

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

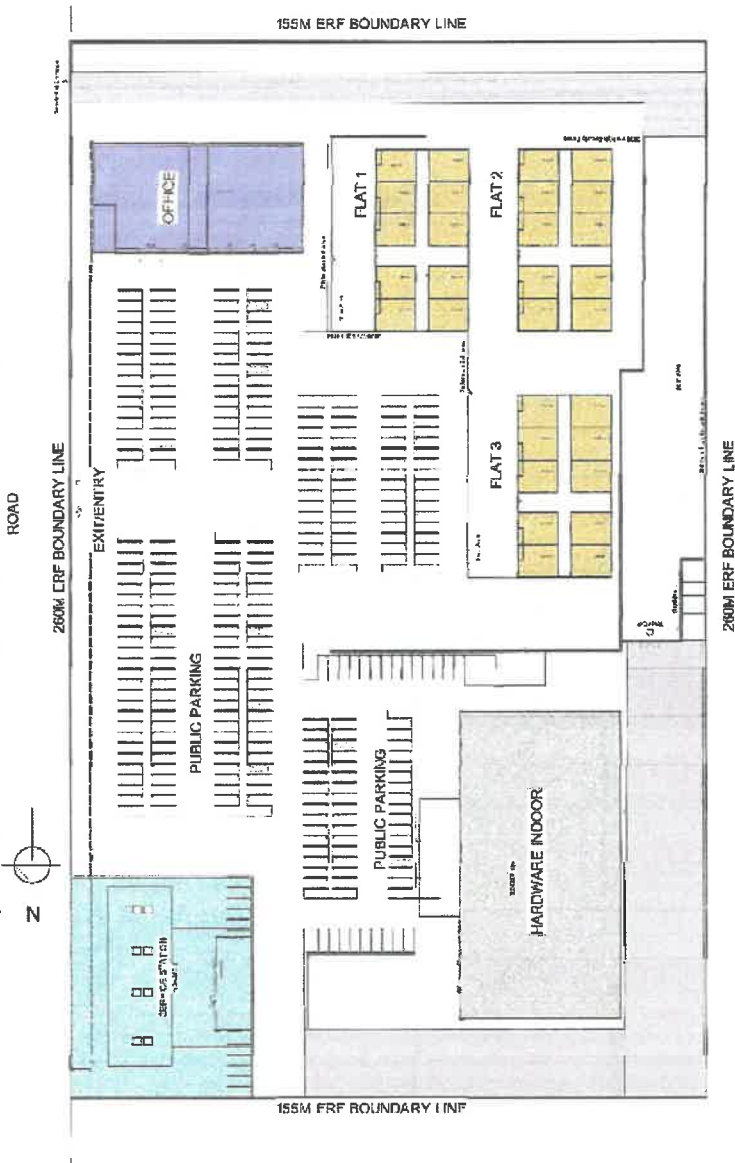
**I hereby declare that all the information furnished above is, to the best of my knowledge, true and correct and that no information has been omitted or withheld.**

**Signature of employee:** \_\_\_\_\_

**Assessed by:** \_\_\_\_\_

APPENDIX D: Site Plans

Proposed Development At Ruacana

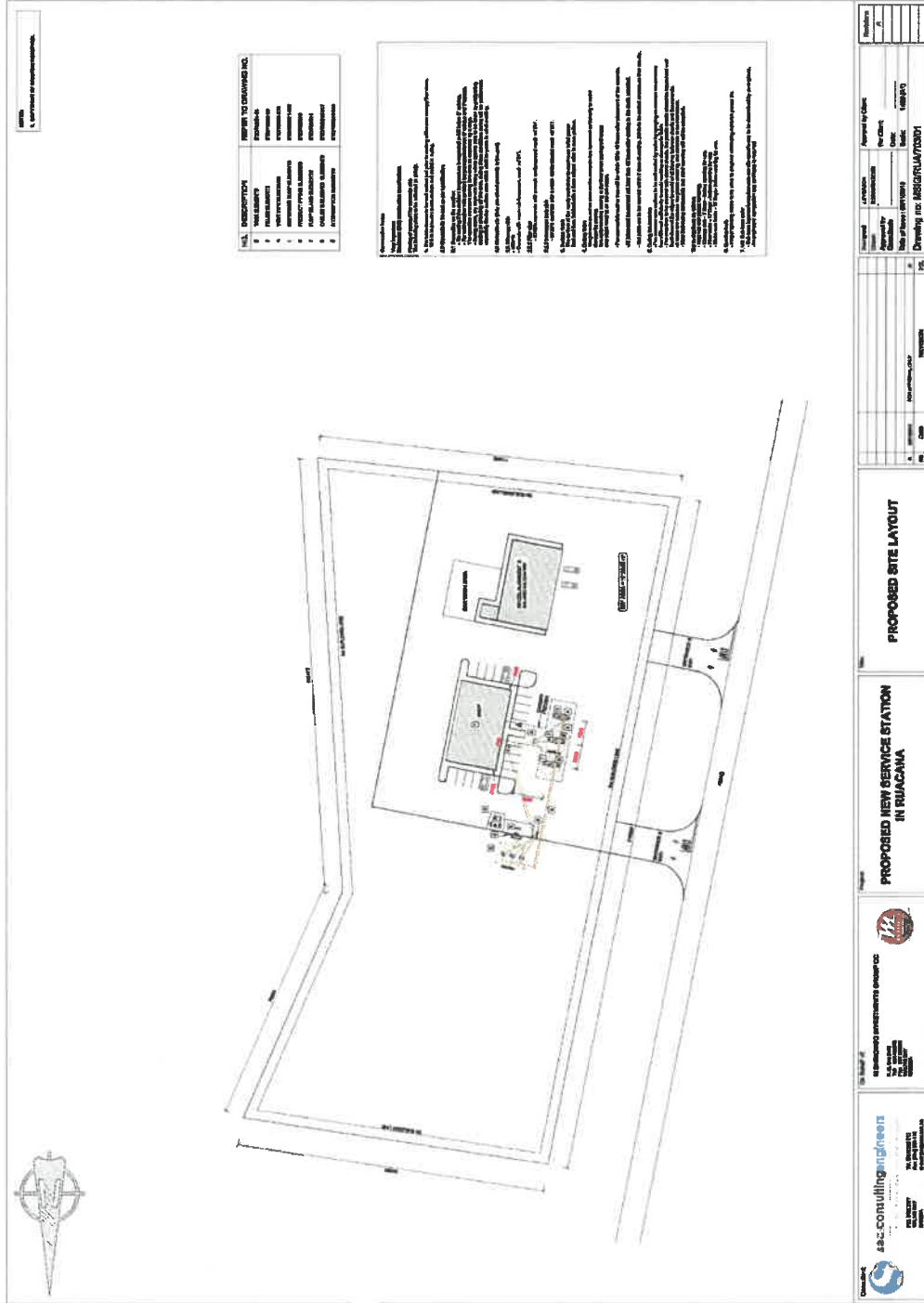


M Shikongo Investment Group CC

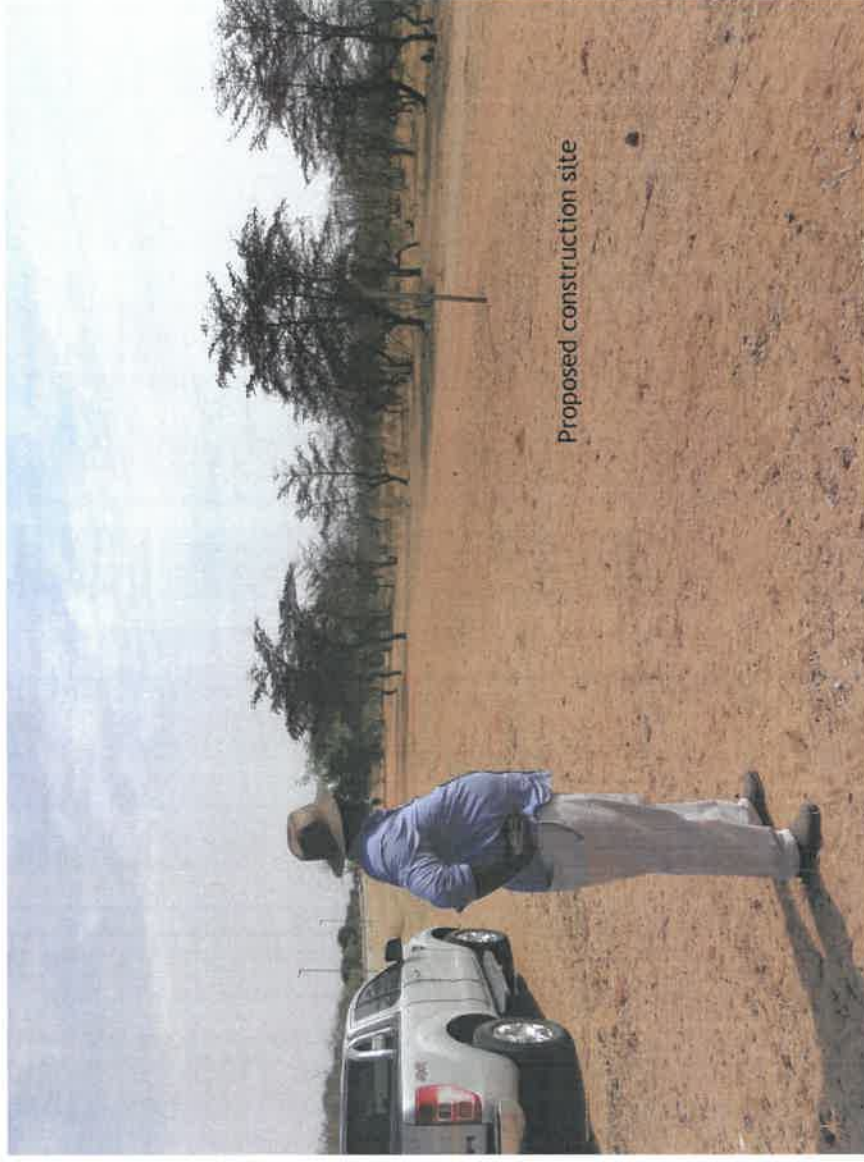
P.O. Box 1897, Oshifo  
Cell: +264 811 29719





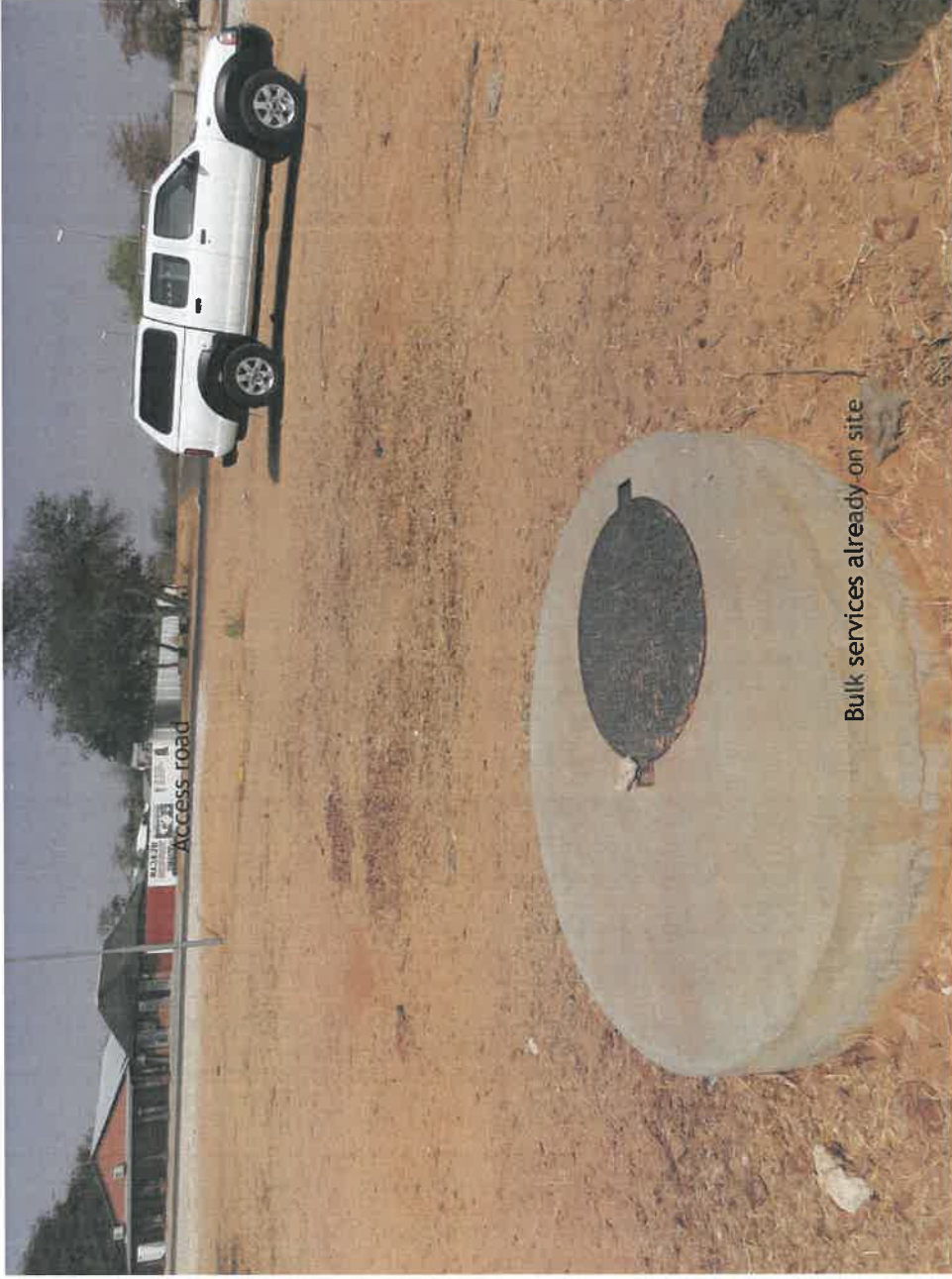


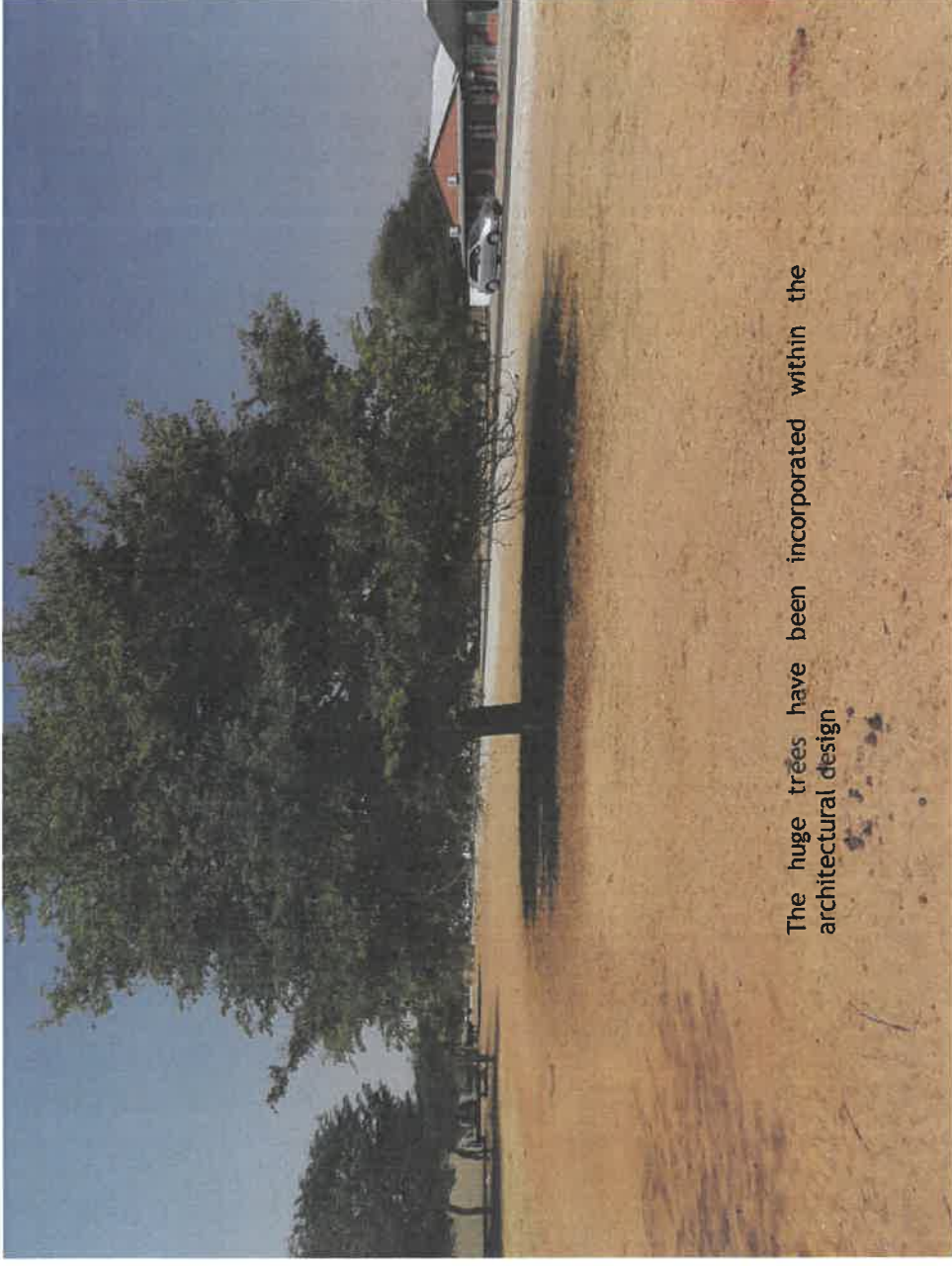
**Appendix E: Site Photos**











The huge trees have been incorporated within the architectural design



**Appendix F: Previously issued Environmental Clearance Certificate**







REPUBLIC OF NAMIBIA

## MINISTRY OF ENVIRONMENT AND TOURISM

Tel: (00 26461) 284 2111  
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Dr Kenneth Kaunda Street  
Private Bag 13306  
Windhoek  
Namibia

17 February 2017

### OFFICE OF THE ENVIRONMENTAL COMMISSIONER

The Managing Director  
M. Shikogo's Investments Groups cc  
P.O. Box 2498  
Walvis Bay  
Namibia

Dear Sir or Madam,

**SUBJECT: ENVIRONMENTAL CLEARANCE CERTIFICATE FOR PROPOSED CONSTRUCTION OF A SERVICE STATION IN OSHIFO TOWNSHIP, RUACANA, OMUSATI REGION**

The Environmental Scoping Report and Environmental Management Plan submitted are sufficient as it made provisions of the environmental management concerning the project's activities. From this perspective, regular environmental monitoring and evaluations of environmental performance should be conducted. Targets for improvements should be established and monitored from time to time.

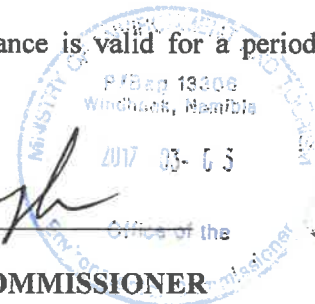
This Ministry reserves the right to attach further legislative and regulatory conditions during the operational phase of the project. From this perspective, I issue this clearance with the condition that all relevant permitting authority involved must be properly consulted and written consent obtained from them.

On the basis of the above, this letter serves as an Environmental Clearance Certificate for the project to commence. However, this clearance letter does not in any way hold the Ministry of Environment and Tourism accountable for misleading information, nor any adverse effects that may arise from this project activity. Instead, full accountability rests with M. Shikongo's Investments Groups cc and their consultants.

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

Yours sincerely,

Teofilus Nghitila  
ENVIRONMENTAL COMMISSIONER



**"Stop the poaching of our rhinos"**

All official correspondence must be addressed to the Permanent Secretary

