

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CEMETERY ESTABLISHMENT IN LÜDERITZ, //KARAS REGION

ENVIRONMENTAL SCOPING REPORT

Prepared For:

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LIST OF ACRONYMS

EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
GIS	Geographic Information Systems
GN	Government Notice
GRN	Government Republic of Namibia
I&AP	Interested and Affected Parties
I&AP	Interested and Affected Parties
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
MURD	Ministry of Urban and Rural Development
NDP	National Development Plan
NHE:	National Housing Enterprises
SDF	Spatial Development Framework
ToR	Terms of Reference

EXECUTIVE SUMMARY

Rapid urbanization has created a growing demand for the provision of adequate municipal services in urban areas in Namibia and globally and the town Lüderitz is no exception. The town of Lüderitz is currently served with three cemeteries; one has already reached its maximum capacity while the remaining two are also about to reach maximum capacities, hence, the need for a new cemetery ground. Three alternative sites were identified within the Lüderitz Townlands for the establishment of a new cemetery.

In terms of the Environmental Management Act, No. 07 of 2007 and the EIA Regulations (GN No. 30 of 6 February 2012) "Cemetery" establishment cannot be undertaken without an EIA study being conducted. The intended cemetery size is about 2 ha which will be sufficient for the next fifty (50) years based on the current burial statistic. The Lüderitz Town Council appointed Green Gain Consultants cc to undertake the Environmental Impact Assessment (EIA) process and apply for an Environmental Clearance Certificate (ECC) for the proposed cemetery establishment.

The study followed a multidisciplinary approach which includes different surveys such as ecological, hydrogeological, and visual and traffic impact assessments and socio-economic studies were conducted during the assessment process. Potential Interested and Affected Parties (I&APs) were consulted, and their input has been incorporated in this report. Possible mitigation measures to prevent and lessen the identified impacts have been identified and are outlined in this report. Since there were no major flaws observed to prevent this project from being implemented, the EAP recommends for the ECC to be issued to enable the implementation the proposed cemetery development in Lüderitz.

This is a systematic study of impacts of the proposed project activities on the bio-physical and the socio-economic components of the environment. This EIA study was undertaken to envisage the impacts of the proposed development on the environment and propose mitigation measures that will be incorporated into the project's Environmental Management Plan (EMP).

1. INTRODUCTION

1.1 Background and introduction

The town of Lüderitz is served with three cemeteries namely, *Nautilus, Benguela and Town Cemetery* and has an average of 41 burials per year. Benguela and Town cemeteries have already reached full capacities, while there is only a small space remaining in the Nautilus cemetery. Hence, the Lüderitz Town Council has proposed to establish a new cemetery within its Townlands. The required cemetery should be approximately 2ha in extent in order to serve the Lüderitz for the next fifty (50) years. It is the desire of the Lüderitz Town Council to establish, operate and maintain a cemetery that is beautiful, dignified, and an appropriate final resting place for departed loved ones.

The purpose of the EIA study is to identify potential environmental impacts (physical, ecological, and cultural/socioeconomic) associated with the proposed cemetery development in order to address them adequately at the inception (planning and design) and construction phases of the project to ensure a development that economically viable, social just and environmentally friendly.

As part of the regulated EIA process, the consultant is required to do the followings

- Conduct an Environmental Scoping study
- Consult relevant stakeholders and Interested and Affected Parties (I&APs).
- Obtain consent from the concerned Local Authority (Walvis Bay Municipality)
- Compile an Environmental Scoping report & Environmental Management Plan (EMP)
- Apply for the Environmental Clearance Certificate from the Ministry of Environment, Forestry, and Tourism.

1.2 Scope of the study

This scoping study was carried out in accordance with the Environmental Management Act No. 7 of 2007 and its EIA Regulations (GG No. 4878 GN No. 30). It indicates the description of the environment that may be affected by the activity and the way the activity may affect the environment. Information relating to the receiving environment and its social surroundings has been sourced through the following methods:

- Site visit to collect primary data and provide a detailed description of the proposed activity.
- Identification of all policies, legislation and guidelines that are relevant to the proposed development.
- Identification of existing environmental (both ecological and socio-economic) conditions of the receiving environment in order to identify potentially sensitive areas.
- Discussions, meetings and site visits with various authorities.
- Opinions and concerns raised by I&APs and stakeholders; and
- Evaluation of the need and desirability of the proposed development.
- Notification and consultation of I&APs regarding the proposed development and provide them with reasonable opportunity to participate during the process.
- Identification of potential environmental impacts the proposed development will have on the natural & urban environment and assess their significance; and
- Outlining management and mitigation measures in an EMP to minimize and/or mitigate potentially negative impacts, which cannot be avoided.

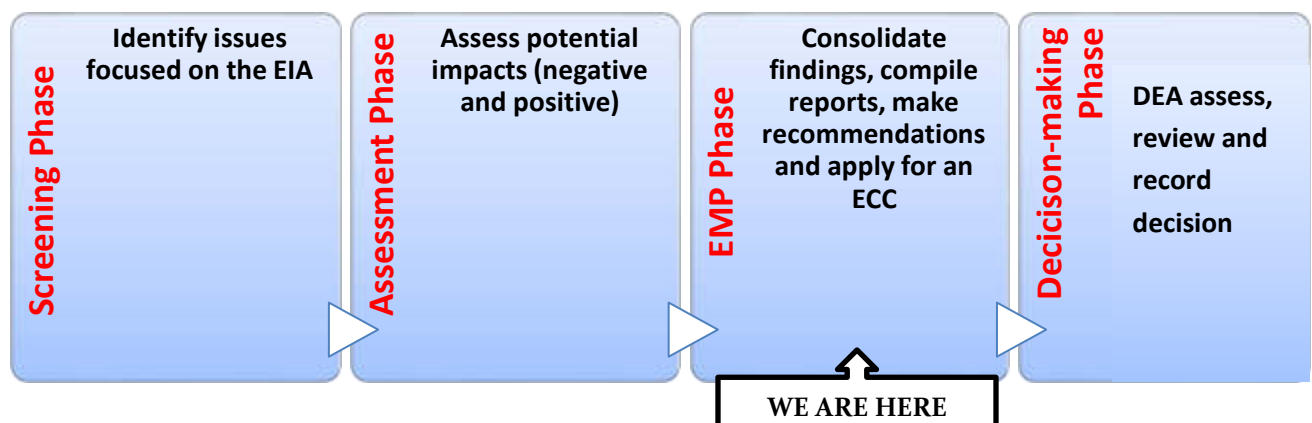


Figure 1: Assessment process

1.3 Terms of Reference

The terms of reference for the proposed project are based on the requirements set out by the Environmental Management Act (No. 7 of 2007) and its EIA Regulations (GN No 30 of 2012). This scoping report will be submitted to the Environmental Commissioner, as required by Section 27(3) of the Environment Management Act No 7 of 2007.

The following is vital as part of the scope of work:

a) Environmental impacts (biophysical)

- Impact on flora and fauna
- Impact on surface water and ground water
- Impact on land capability
- Solid waste disposal
- Impact of the proposed and required infrastructure and services

b) Socio-economic impacts

- Impact on traffic
- Impact on local economy
- Impact on existing land uses
- Impact on municipal services
- Impact on existing communities

1.4 The Environmental Assessment Practitioner (EAP)

Green Gain Consultants cc was established in 2012 and is based in Walvis Bay with skilled and experienced EAP's. The EAP's involved in this Environmental Assessment are as follow.

Table 1: EAP members assigned to the project

Environmental Assessment Practitioner (EAP): Green Gain Consultants cc	
Physical address	Office No.7, 12 th Road, Heidi' Ecke Building, Walvis Bay
Postal address	P.O Box 5303, Walvis Bay
Contact numbers	0813380114 or 0811422927
Email address	info@greengain.com.na
Lead EAP	Mr. J.K. Amushila
Assistant EAP	Ms. L. Hailaula

2. LEGAL FRAMEWORK

2.1 Environmental Requirements

An important component of an Environmental Assessment process is the review of applicable and relevant legislation pertaining to the proposed activities. The legislative and regulatory foundation for protection and management of the environment and its natural resources is governed by the Namibian Constitution. Article 95(i) of the constitution clearly emphasizes the promotion of the welfare of the people, whereby the maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future. The Environmental Management Act (EMA) No.7 of 2007 and the Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1995) set the guiding policy/ legal framework for environmental management in Namibia. The intended activity (Cemetery establishment) is listed under the EMA regulation of 2012 as amended.

Table 2: Listed Activities

Listed Activity in terms of the EMA, No. 07 of 2007	Description of activity that requires an EIA
11. Other Activities 11.1 Construction of cemeteries , camping, leisure and recreation sites.	The proposed Cemetery is listed under this section

2.2 Applicable Legislation

To protect the environment and ensure that the proposed cemetery development operates in an environmentally responsible manner. There are several significant pieces of environmental legislation that need to be considered during this study.

Table 3: Legislation framework relevant to the project

LEGISLATION	PROVISION	PROJECT IMPLICATION
Constitution of the Republic of Namibia	The articles 91 (i) and 95(i) commits the state to actively promote and sustain environmental welfare of the nation by formulating and institutionalizing policies to accomplish the sustainable objectives which include: <ul style="list-style-type: none"> - Guarding against overutilization of biological natural resources, - Limiting over-exploitation of non-renewable resources, - Ensuring ecosystem functionality, - Maintain biological diversity. 	Through implementation of the environment management plan, the proponent shall be advocating for sound environmental management as set out in the Constitution.
Environmental Management Act No. 7 of 2007	The purpose of this Act is to promote the sustainable management of the environment and the use of natural resources by establishing principles for decision-making on matters affecting the environment; to provide for a process of assessment and control of projects which may have significant effects on the environment; and to provide for incidental matters. The Act gives legislative effect to the Environmental Impact Assessment Policy. Moreover, the act also provides procedure for adequate public participation during the environmental assessment process for the interested and affected parties to voice their opinions and concern about the proposed project.	Cemetery establishment is one of the listed activities
The Regional Councils Act (No. 22 of 1992)	• This Act sets out the conditions under which Regional Councils must be elected and administer each delineated region. From a land use and project planning point of view, their duties include, as described in section 28 “to undertake the planning of the development of the region for which it has been established with a view to physical, social and economic characteristics, urbanization patterns, natural resources, infrastructure, land utilization pattern and sensitivity of the natural environment”.	The relevant Regional Council is a stakeholder and was consulted during the EA process. The project site falls under the !Kharas Regional Council
Local Authorities Act (No. 23 of 1992)		The Lüderitz Town Council is the responsible Local Authority of the area in which the proposed development will be located.

	<ul style="list-style-type: none"> • The main objective of this Act is to initiate, supervise, manage and evaluate development. 	
Water Act 54 of 1956	<p>The Water Resources Management Act 11 of 2013 is presently without regulations; therefore, the Water Act No 54 of 1956 is still in force:</p> <ul style="list-style-type: none"> • Prohibits the pollution of water and implements the principle that a person disposing of effluent or waste has a duty of care to prevent pollution (S3 (k)). • Provides for control and protection of groundwater (S66 (1), (d (ii))). <p>Liability of clean-up costs after closure/abandonment of an activity (S3 (l)).</p>	Protection of wetlands, surface and groundwater sources and prevention of pollution of such sources.
Water Resources Management Act 2004	<p>This act provides provision for the control, conservation and use of water for domestic, agricultural, urban and industrial purposes. In addition, the Act clearly gives provision that pertain with license or permit that required abstracting and using water as well as for discharge of effluent. The effluent of human waste under this framework is the focus; hence mobile toilets are earmarked to be used to avoid any seepage into existing water course, infiltration into soil and etc.</p>	
National Heritage Act No. 27 of 2004	<p>The Act provide for the protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish a National Heritage Council; to establish a National Heritage Register; and to provide for incidental matters.</p>	Any material of heritage importance that maybe discovered at the site must be reported to the NHC.
Labour Act No. 11 of 2007	<p>135 (f): “the steps to be taken by the owners of premises used or intended for use as factories or places where machinery is used, or by occupiers of such premises or by users of machinery in connection with the structure of such buildings of otherwise in order to prevent or extinguish fires, and to ensure the safety in the event of fire, of persons in such building”.</p>	All labor related issues must be handled in accordance with this Act.
Soil Conservation Act (No 76 of 1969)	<p>The Act makes provision for the prevention and control of soil erosion and the protection, improvement and conservation of soil, vegetation and water supply sources and resources,</p>	Duty of care must be applied to soil conservation and management measures must be included in the EMP.

	<p>through directives declared by the Minister.</p>	
<p>Public and Environmental Health Act, 2015</p>	<p>Section 119 of this Act prohibits the existence of a nuisance on any land owned or occupied by the proponent. The term nuisance is important for the purpose of this EIA, as it is specified, where relevant in Section 122 as follows:</p> <p>any dwelling or premises which is or are of such construction as to be injurious or dangerous to health or which is or are liable to favour the spread of any infectious disease;</p> <p>any dung pit, slop tank, ash pit or manure heap so foul or in such a state or so constructed as to be offensive or to be injurious or dangerous to health;</p> <p>any area of land kept or permitted to remain in such a state as to be offensive, or liable to cause any infectious, communicable or preventable disease or injury or danger to health; or</p> <p>Any other condition whatever which is offensive, injurious or dangerous to health.</p>	<p>The proponent has the mandate to prevent any public health.</p>
<p>Atmospheric Pollution Prevention Ordinance No. 11 of 1976</p>	<p>This Ordinance generally provides for the prevention of the pollution of the atmosphere and for matters incidental thereto. The Ordinance deals with administrative appointments and their functions; the control of noxious or offensive gases; atmospheric pollution by smoke, dust control, motor vehicle emissions; and general provisions.</p> <p>Part IV of this ordinance deals with dust control. The Ordinance is clear in requiring that any person carrying out an industrial process which is liable to cause a nuisance to persons residing in the vicinity or to cause dust pollution to the atmosphere, shall take the prescribed steps or, where no steps have been prescribed, to adopt the</p>	<p>Control all activities that might cause air pollution.</p>

	<p>best practicable means for preventing such dust from becoming dispersed and causing a nuisance.</p> <p>Of applicability to the envisaged project, is dust generated by vehicles or equipment as well as dust generated during mining. The risk of dust generation is high at the envisaged site. This deals with air pollution as it affects occupational health and safety, and no consideration is given to the natural environment.</p>	
<p>Urban and Regional Planning Act No. 5 of 2018</p>	<p>This Act aims to consolidate the laws relating to urban and regional planning; to provide for a legal framework for spatial planning in Namibia; to provide for principles and standards of spatial planning; to establish the urban and regional planning board; to decentralize certain matters relating to spatial planning; to provide for the preparation, approval, and review of the national spatial development framework, regional structure plans, and urban structure plans; to provide for the preparation, approval, review, and amendment of zoning schemes; to provide for the establishment of townships; to provide for the alteration of boundaries of approved townships, to provide for the disestablishment of approved townships; to provide for the change of name of approved townships; to provide for the subdivision and consolidation of land; to provide for the alteration, suspension a,nd deletion of conditions relating to land; and to provide for incidental matters.</p>	<p>Town Planning procedures should be applied on the proposed development site, upon issuing of the ECC.</p>

3. DESCRIPTION OF THE INTENDED ACTIVITIES

3.1 The existing situation

The existing cemeteries are strategically located to serve different town suburbs and are located close to residential areas. The locality of the cemeteries is believed to have been influenced by religious and cultural circumstances.



Figure 2: locality of existing cemeteries

3.1.1 About the existing cemeteries

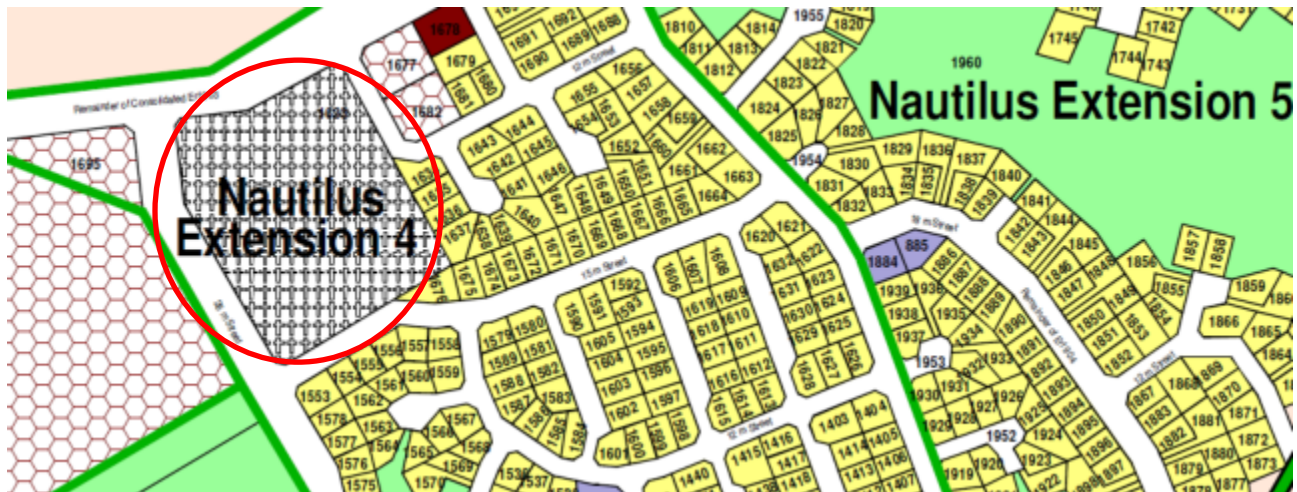
a). Nautilus cemetery

The Nautilus cemetery is located in Nautilus extension 4 and is the current active cemetery for the town. It measures approximately 2ha of which about 80% of the space has already been used up. However, the remaining portion is underlain by a hard granite rock, therefore it is very hard to excavate with manual digging.



Figure 3: Overview of Nautilus cemetery

As depicted in the Figure above, the cemetery is located within the developed township of Nautilus Extension 4 consisting mainly of residential properties.



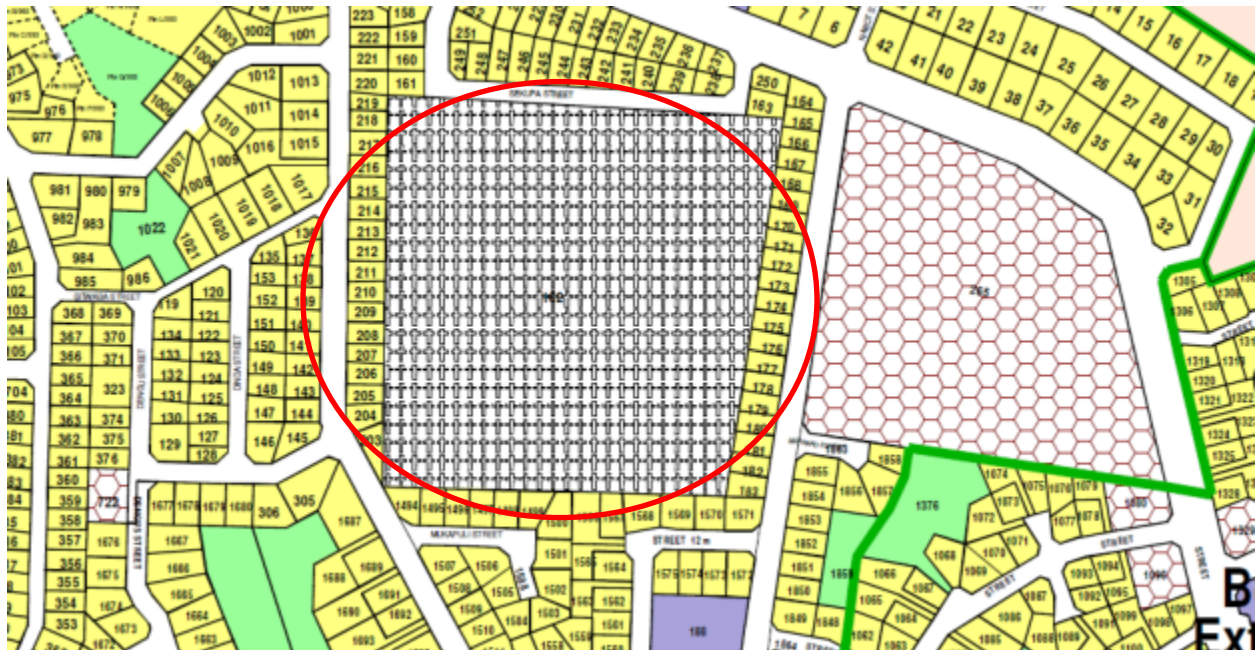
b). Benguela Cemetery

The Benguela cemetery is located in Benguela Proper in the town CBD. It measures approximately 4ha in extent. The site is completely full and is no longer used for burial purposes.



Figure 4: Overview of Benguela cemetery

The site is surrounded by a built-up area, mainly residential and business properties, hence there is no possibility for the extension of the cemetery boundaries.



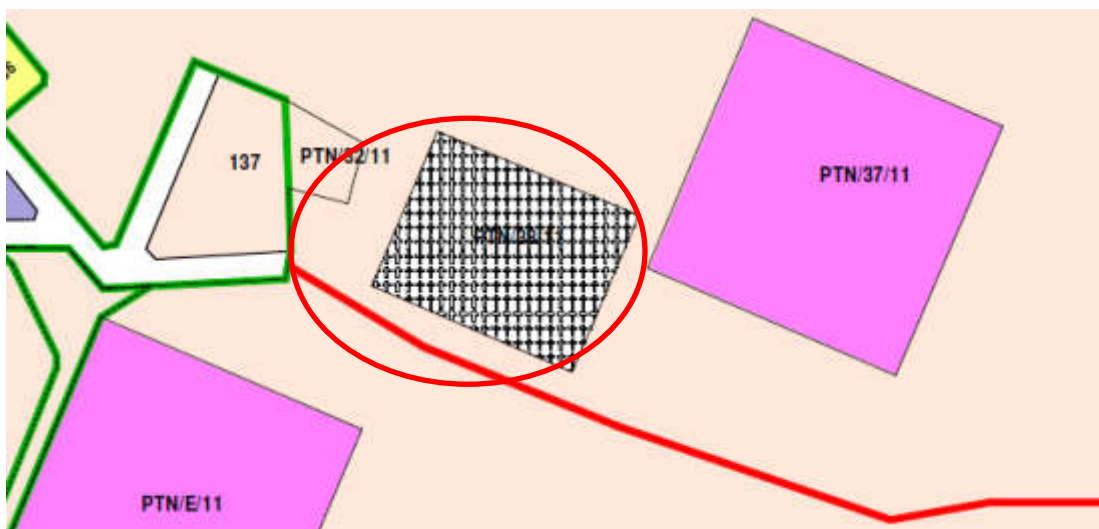
c). Town Cemetery

The town cemetery is located on the remainder of Portion 41 of Lüderitz Town and Townlands No. 11, along the main road (B4) from Lüderitz to Aus. The site extent measures approximately 2ha of which about 99% of the space has already been used up.



Figure 5: Overview of town cemetery

Although the site is surrounded by open spaces, these spaces are not suitable for burial purposes. On the southern side of the site is a valley where current burials are taking place, however this space is limited given the presence of a watercourse and due to its proximity, the busy road. The remaining parts are covered with granite outcrops.



3.1.2 Burial spaces and statistics

Benguela and Town Cemeteries have already reached full capacities, while Nautilus cemetery has only a small remaining portion which is not really suitable for burial purposes due to the hard underlying rock which is not easily penetrable. The limited burial spaces in town have forced the Town Council to start burying outside the boundaries of the Town Cemetery. However, this option will not be available for long since there is no longer enough suitable space around the cemetery for burial spaces.

Below is the burial statistic for Lüderitz between 2018 and 2020. This shows an average of 44 burials per year between 2018 and 2019. The information for 2020 is in complete.

Year	Adults	Children	Total
2018	21	20	41
2019	37	11	48
Jan-March 2020	2	2	4
			93

3.2 Proposed new cemetery

Three alternative sites were identified within the Lüderitz Townlands for the possible establishment of a new cemetery. The intended cemetery size is about 2 ha which will be sufficient for the next fifty (50) years based on the current town burial statistics.

3.2.1 Locality



Figure 6: Proposed cemetery alternative sites

3.2.2 Site descriptions

Site A

The site is located east of the town CBD, adjacent to the new NHE houses. The site can be found at the following coordinates -26.628367" S; 15.182661" E.



The site is big enough to accommodate a Cemetery with an extent of 2ha. The site has a gentle slope with few outcrops. The local occurring soil is a mixture of alluvial sand and hard gravel which is easily penetrable. The site has little to no vegetation cover.

Public Opinion

The site was considered not ideal by some residents due to its proximity to the residential areas. However, it is the preferred site by Council and some residents. This is because the site has more ideal characteristics compared to other alternative sites.

Alternative Site B

The site is located about 2km northeast of the town CBD and can be found at the following coordinates - 26.6145" S; 15.188428" E. The site is located along the main road to Agade Beach and within its close proximity.



Figure 7: Locality of Site B

The site extent is larger enough to accommodate a Cemetery measuring 2ha or bigger. The site has a generally flat slope and is located in a valley. There are no outcrops within the site boundaries, but it is covered by sparsely disturbed vegetation of dwarf succulents.

Public Opinion

The site is considered NOT suitable by the majority of the residents due to its proximity to the public beach (Agade beach) and its economic potential for industrial developments.

Alternative Site C

The third alternative site considered is the expansion of the boundaries of the existing Benguela Cemetery to the east as depicted in Figure 5 below. The site coordinates are -26.656214° S; 15.165625° E.



Figure 8: Locality of Site C

The site is large enough to establish a cemetery measuring up to 2ha. The topography of the site is elevated and gently onside. However, the site is underlined by the typical hard rock of Lüderitz which is not easily penetrated by means of manual digging. The site has many outcrops and has little to no vegetation.

Public Opinion

Although this would have been an ideal site, given its proximity to the existing cemetery, the underlying rock makes it not suitable for cemetery establishment.

3.3 Site selection process

a). Physical observation

The consultant and the Municipality officials conducted a site visit around the two proposed sites to determine their suitability. Aspects that were considered during site investigations were: *size, topography, vegetation cover, drainage, and adjacent developments.*

b). Soil suitability investigation

The Municipality also conducted investigations of the soil profiles on both proposed sites. The soil investigations included digging of five pits within each proposed site. Selection pits was done randomly as indicated in the diagram below.



Figure 9: Pictures of trial pits

As depicted in the pictures below, digging of trial pits was done using a Front-End-Loader at a depth of 1.8m and a dimension of 1.2m. The purpose of this investigation was to determine the suitability of the local occurring soil for burials. Important factors that were considered were: penetrability of the soil profiles (topsoil and subsurface), underlying rock types and the presence of perched water table.

4. DESCRIPTION OF THE RECEIVING ENVIRONMENT

4.1 Baseline information

4.1.1 About the town

Lüderitz is a coastal town of the southern Namibia and is one of the oldest towns in Namibia, dating back to the late 19th century. The town falls within the !Nami=nus constituency, formerly known as Lüderitz Constituency in !Kharas Region. As of 2021, the town's population was estimated at about 23,772 people of which about 14,000 resides in formal areas while 9,772 resides in informal areas.

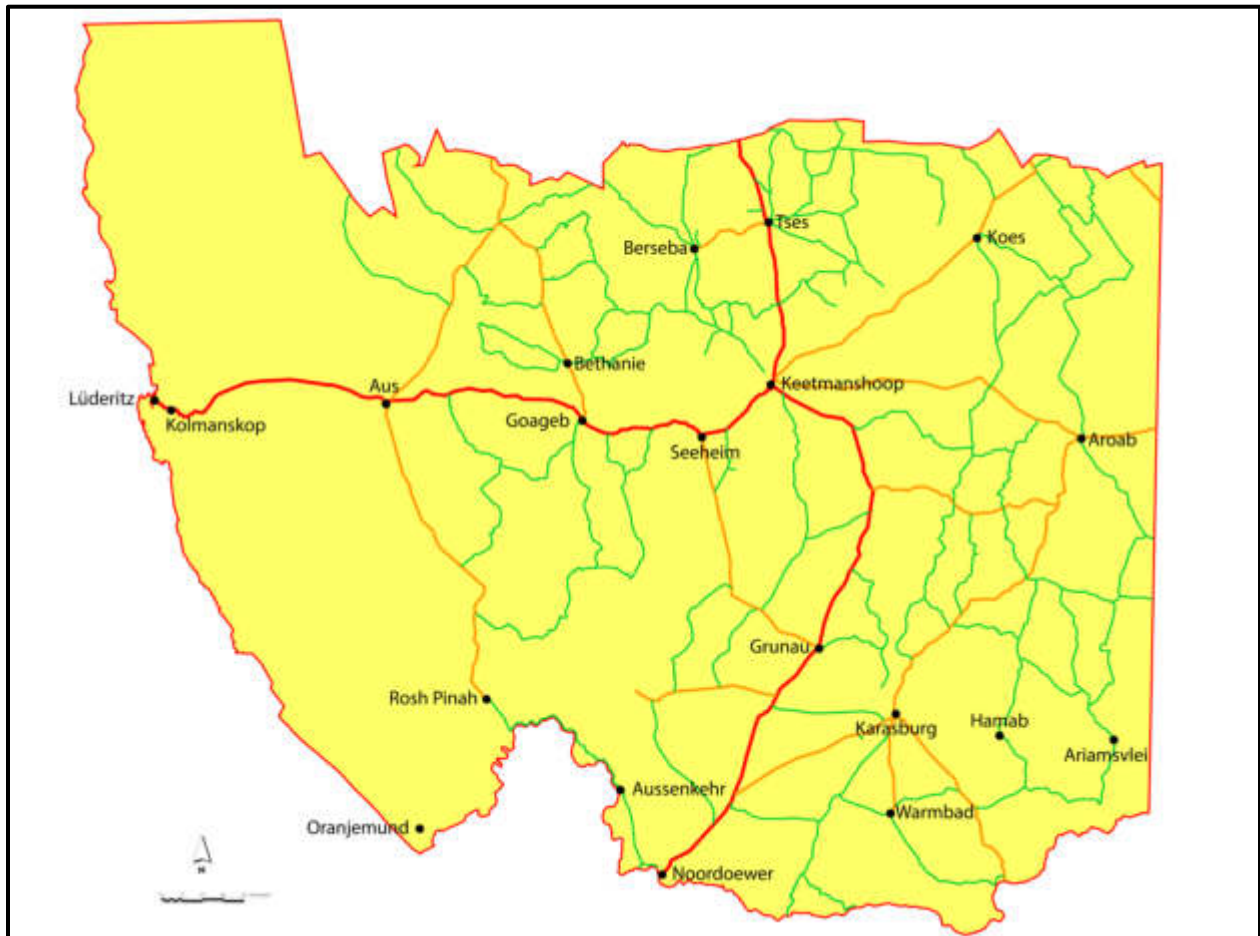


Figure 10: Location of Lüderitz

4.1.2 Administration

Lüderitz town is governed by a Town Council consisting of seven (7) Councilors who are elected every 5 years headed by the Worship Mayor. The Town Council administration is headed by the Chief Executive Officer and is made up of three (3) departments namely Finance, Administration and HR, Economic Development and Community Affairs and Infrastructure and Technical Services. The solid waste management is under the auspices of the Health/Cleansing Division under the Department of Human Resource & Co-operate Affairs as part of the solid waste management services.

Cemetery services is part of the community services rendered by the Municipality. It is administered by the Section: Parks and Cemeteries under the Department of Infrastructures and Technical Services. The Section: Parks and Cemeteries is headed by a foreman who reports to the Manager: Technical Services and a team of five staff members. Services offered includes, among others, digging and closing of graves, cleaning of graveyards and ablution facilities, watering, planting and general maintenance of trees and gardens in and around the cemetery and other public open spaces.

4.1.3 Land use

The Lüderitz town covers an area of 990 km² of which about 70% has so far been utilized/built-up. The town is surrounded by the Tsau //Khaeb National Park which falls under the management of the Ministry of Environment, Forestry and Tourism. Due to the diamond mining in the Tsau //Khaeb National Park, most of its area is off limits to the public and tourists. The Tsau //Khaeb National Park covers approximately 26,000 km² and falls mainly within the Succulent Karoo Biome which is characteristic of high species diversity and endemism.

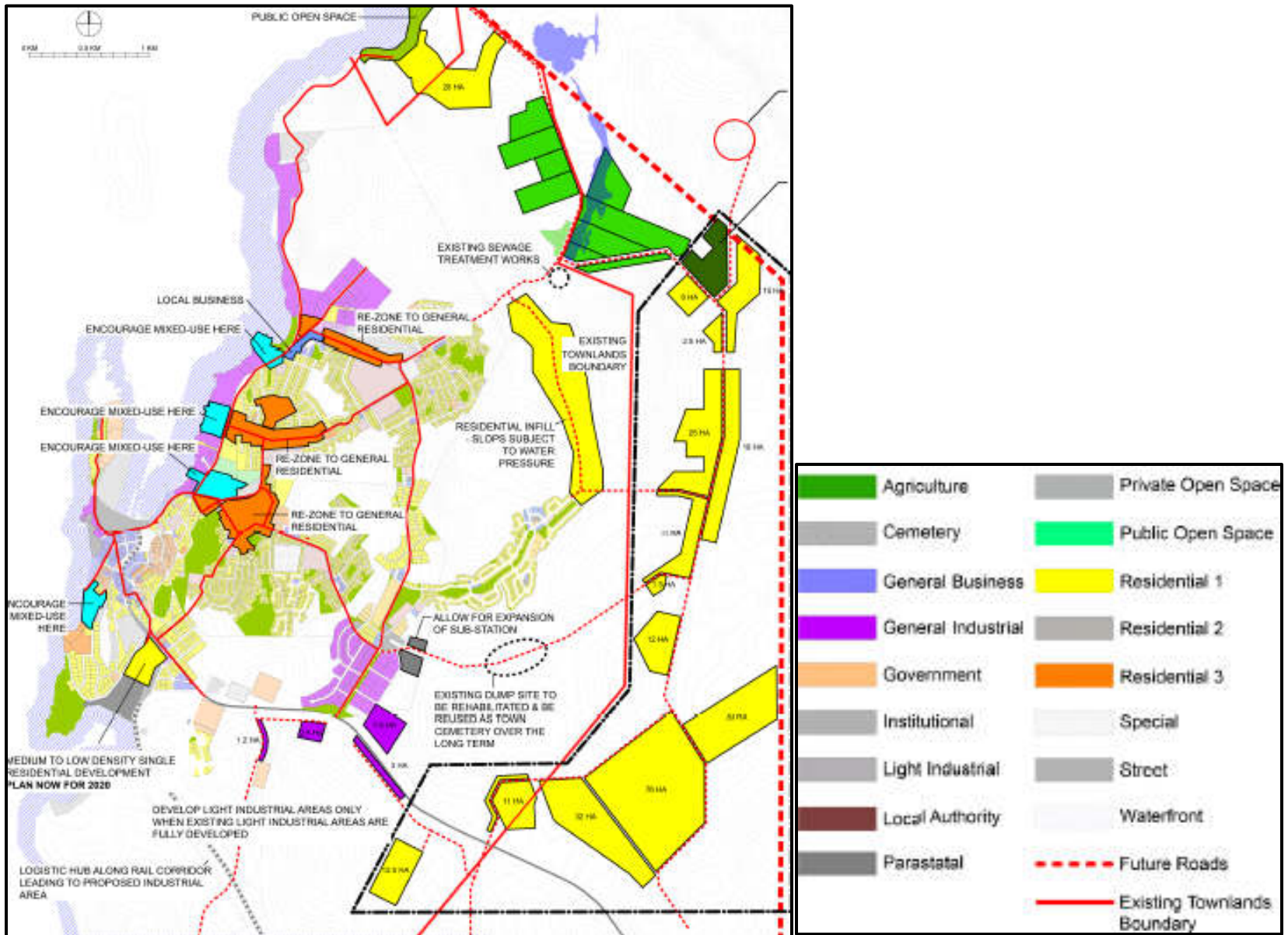


Figure 11: Proposed Lüderitz Urban Structure Plan; source

4.1.4 Archaeological and Heritage Context

Lüderitz falls within a historical diamond mining area and some artefacts of historical importance may still be located in the area. The most important historic buildings of the town are the closest to the port and its access route. Other archaeological sites in Lüderitz consist mainly of small surface scatters of stone artefacts and artifact debris, as well as small shell middens composed mainly of various limpet species, with osteological evidence of penguin, fish and seals on the more recent sites. Some of these sites are also associated with the nomadic pastoralist pottery dating to within the last 2000 years. In addition, several small rock shelter sites have been investigated and a number of burial sites have been excavated. It is unlikely that the proposed project area will have any significant archaeological resources due to the fact that no major historical activity took place within close proximity to the sites ((Kinahan, 2016; Lüderitz Town Council, 2021).

4.1.5 Social and Economic Development

The economy of Lüderitz depends heavily on the local fishing industry, which provides more than 80% of the employment and comprises of commercial fishing as well as subsistence fishing. The town also benefits from mining and trading which is imported and exported through the Port of Lüderitz. The local tourism industry has seen growth over the past few decades. The expansion of the waterfront, increased passenger liners, the international speed-week event and the Crayfish Festival and other tourism activities have contributed to this growth. Various bed and breakfast establishments, a three-star hotel, tour operators and restaurants offer an attractive package of amenities, activities and luxury accommodation for tourists, visitors and travelers.

The town has good infrastructure and can provide water, power and other basic services to all residents, industries and new businesses. Financial, telecommunication, logistics, transport and services infrastructure are modern. Various supermarkets, commercial banks, insurance, hospitality and other service-driven business make-up the Lüderitz economy.

Only one road, the B4 main road, provides access to Lüderitz from central Namibia. The town is also served with an airport located about 2 km east of town. The railway line to Lüderitz has mostly been upgraded, but a section of 42 km between the Sandverhaar and Buchholzbrunn sidings east of Aus still needs to be rehabilitated.

4.2 Biophysical Environment

a) Climate

Lüderitz has a desert climate, with moderate temperatures throughout the year. The arid conditions are because of dry descending air and upwelling of the cold Benguela Current. As a result, thick fog is a regular occurrence in Lüderitz. This is due to the influence of the Benguela Current and forms a major source of water for the flora in the Namib Desert. The average annual precipitation is 17 mm.

Windy and cold conditions occur due to the cold South Atlantic current on the coast. Winds generated from the high-pressure cell over the Atlantic Ocean blow from a southerly direction when they reach the Namibian coastline. As the Namibian interior is warm (particularly in summer), localized low-pressure systems are created which draws the cold southerly winds towards the inland desert areas. These winds manifest themselves in the form of strong prevailing south to south-westerly winds, which range from an average of 20 knots (37 km/h) during winter months to as high as 60 knots (120 km/h) during the summer. Daily fluctuations in wind speed are characterized by calmer winds in the morning with strong wind from late morning to later afternoon. During winter, the east winds generated over the hot Namib Desert have a strong effect on temperature, resulting in temperature more than 30 °C and tend to transport significant volumes of sand.

There is virtually no rainfall during the year. Rainfall in winter is largely light showers with irregular hard drops, in summer the rainfall is interrelated to sporadic thunderstorms and is short-lived timeframe although it can be substantial.

b) Topography and drainage

The elevation of Lüderitz range between consists of both highland and generally flat areas. The eastern part of the town is dominated by the Namib Desert Sand Dunes with alluvial, sand, gravel and calcrete found in some areas further to the east of the town.

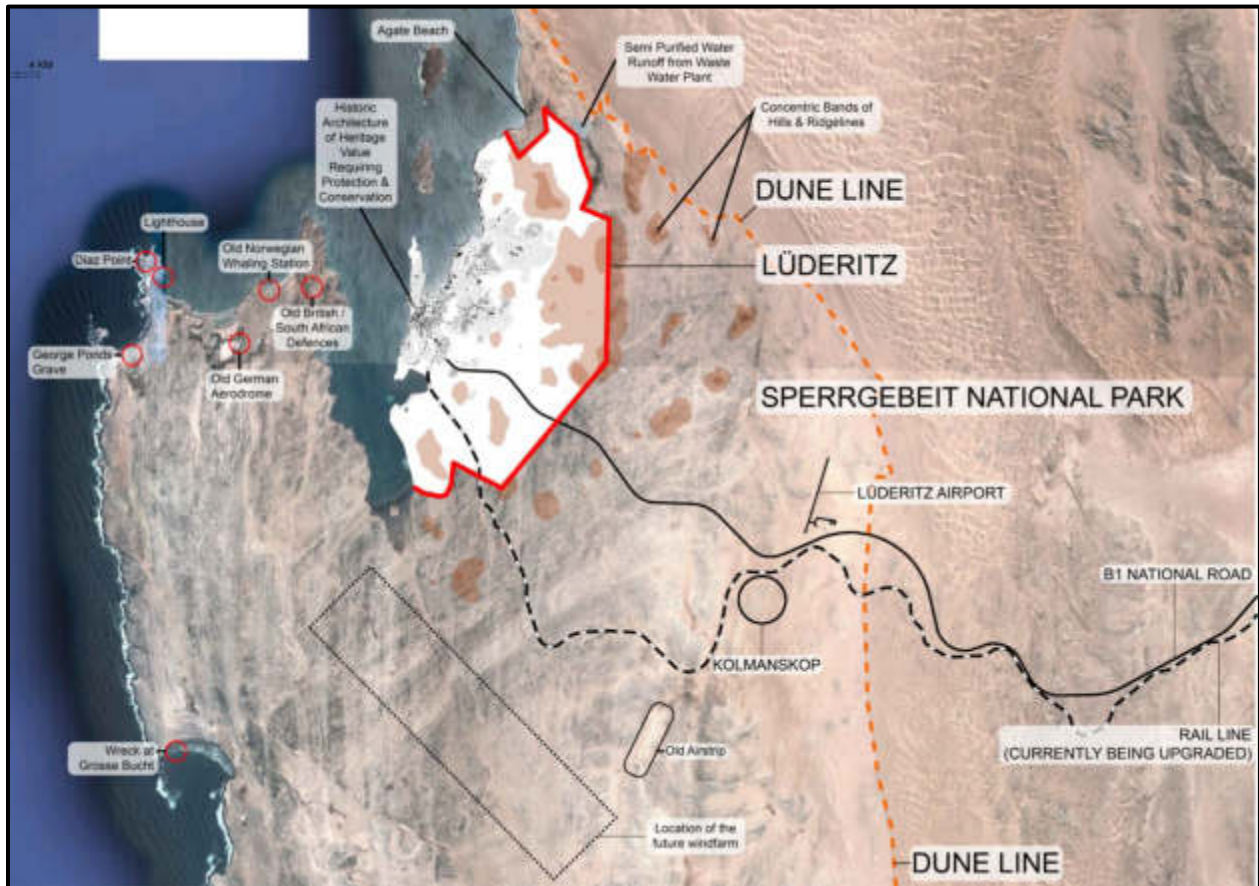


Figure 12: Landscapes around Lüderitz

c) Soil and geology

The area is very rocky with limited soils. The soil is derived from weathering of rocks, hence, the soil in this area is weakly developed and shallow. During the semi-arid phase, erosion diminished, and calcareous soils formed on stable surfaces. These soils are today exposed as extensive calcrete surfaces that cover most of the plains and valleys of the Namib and Sperrgebiet Lüderitz area is geologically located on the Namaqua Metamorphic Complex. The underlying rocks are covered by wind-blown diamondiferous sand of Quaternary Age (Mendelsohn et al., 2002).

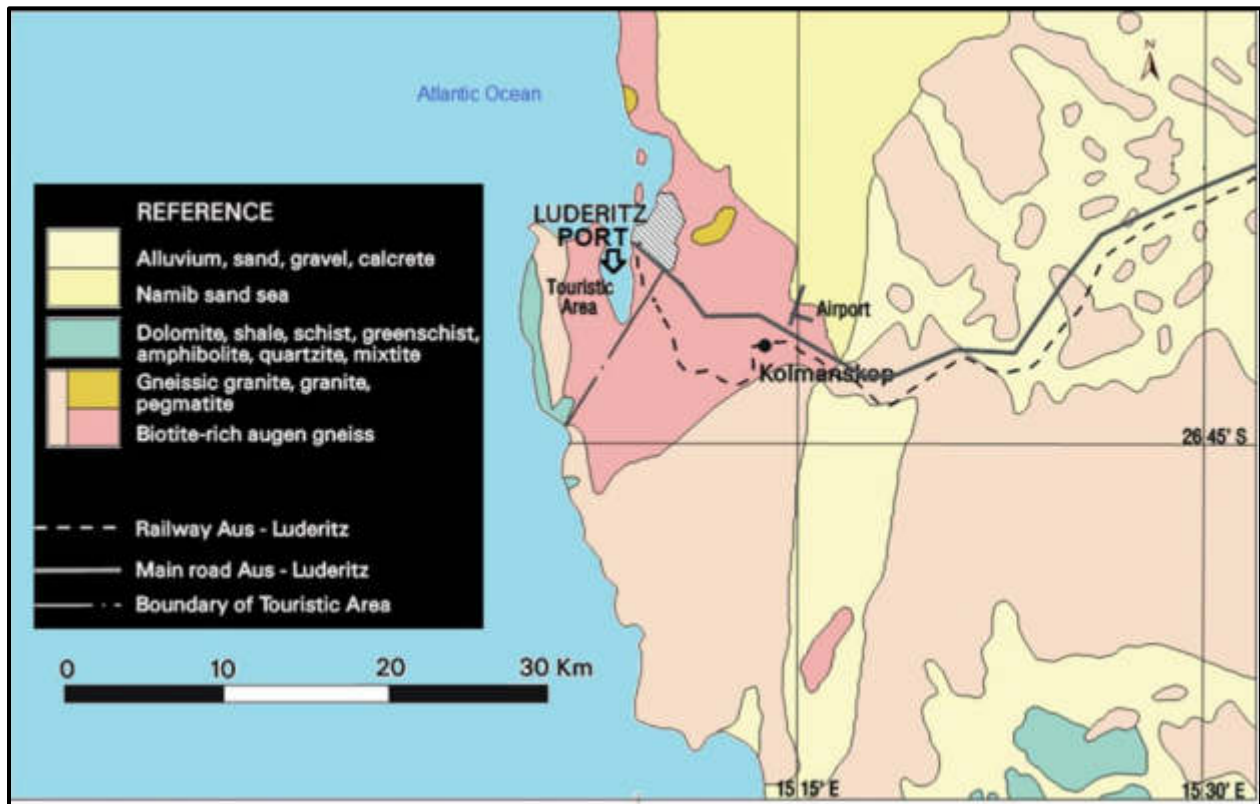


Figure 13: Local geology

e) Flora

The Lüderitz area falls within the Lüderitz Peninsula Dwarf Shrubland vegetation type which has a size of 93.2 km², inclusive of the Lüderitz urban environment, and comprises of 0.43% of the Sperrgebiet. Vegetation cover will generally be sparse because the soil will not be able to provide plants with sufficient water or nutrients. The area surrounding the existing dumpsite has little to no vegetation. Plants in the area rely heavily on fog as their water source. According to (MEFT, 2014) some 1050 species are known to occur in the Tsau//Khaeb (Sperrgebiet) near Lüderitz, that contributes to nearly 25% of the entire flora of Namibia on less than 3% of land area of the country.

f) Fauna

According to (MEFT, 2014), Lüderitz environs and nearby parks has a rich but poorly studied diversity of animal life. These include 80 terrestrials, some 35 coastal and marine birds have been recorded and about 120 terrestrial bird species have been recorded, almost 100 reptile's species and 16 frog species and a great number of insects and other invertebrates, probably 90% or more of the invertebrates yet undescribed to science. Approximately 25 species of cetaceans occur along the Namibian coast. This includes migratory, resident and semi-resident species. Under Namibian law, all whales and dolphins are protected species and may not be harvested. Bottlenose dolphins, Heaviside dolphins and dusky dolphins occur in the area. Less frequently, Humpback whales and the Southern Right whale are also encountered (Pulfrich, 2010).

4.3 The need and desirability of the development

The “**need**” for the project:

- a) Cemeteries servicing the Lüderitz town have presently reached full capacity. Hence, there is a need for a new cemetery to address the need for more burial spaces.
- b) The project is planned at a time and place in a developing sector of the town and can be considered a natural opportunity associated with the growth of the town
- c) The activities will enable the Municipality to ensure timely and adequate municipal service to the local community & residents.
- d) Cemeteries are a place of historical significance to the local community; can they also hold significance for families with loved ones buried in the area and can be a place of memorial for deceased loved ones.

The “**desirability**” of the project:

- a) Since the site is in an “expansion zone”, the approval of this application would not compromise the integrity of the existing approved SDF agreed to by the relevant environmental authority. The project has therefore also been approved by the Municipality.
- b) The approval of this application would not compromise the integrity of the existing environmental management priorities for the area.
- c) The location factors favor this land-use (associated with the activity applied for) as it is in the correct zone as required by the SDF as well as the fact that the location is situated within a development orientated area with much potential for growth.
- d) The activity and the land use associated with the activity applied for will not impact on sensitive natural and cultural areas.
- e) The operation will be designed, constructed and operated according to the required standards set by the authorities and should not impact on people’s health and wellbeing (e.g., in terms of noise, odours, visual character and sense of place, etc.).
- f) It is not anticipated that the activity will result in unacceptable opportunity costs.

a)

5. PUBLIC PARTICIPATION

5.1 Introduction

The Environmental Assessment Guidelines specifies that a Public Participation Process must be conducted as an integral part of the EIA study. Public Consultation is defined as a “process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, specific matters” (S1). Section 21 of the Regulations details steps to be taken during a given public consultation process and these have been used in guiding our process.

In addition, the public consultation process also grants I&AP’s an opportunity to review and comment on all the documents produced throughout the Environmental Assessment process. This is done in accordance with the Environmental Management Act’s EIA Regulations. Consultation with the relevant stakeholders and I&APs regarding the proposed development was facilitated as outlined below.

5.2 Notification of Stakeholders and I&APs

Section 21 of the EIA Regulations details steps to be taken during the public consultation process and these steps have been used to guide this process. Consultation with I&APs regarding the proposed developments was facilitated through the following methods:

- Public Notifications were placed in the local newspapers and public notices. The notices were advertised in The Namib Times for 01 and 08 October 2021 and New Era for 01 and 08 October 2021. The notice provided a brief description of the proposed development, its locality and it invites the public to register as I&APs. **(Appendix B)**
- Potential I&APs were invited to attend a public meeting. The public meeting took place on the 19th November 2021 at Lüderitz Secondary School at 16. **(Appendix B)**
- Identified key stakeholders were served with invitation letters to attend the meeting and were encouraged to submit comments toward the envisaged project.
- A Background Information Document (BID) was compiled that contained essential information regarding the proposed development. The BID was sent to all registered I&APs and stakeholders.

5.3 Public and stakeholder's meetings

The public consultation process that was followed includes direct consultations with relevant local stakeholders. In addition, a public meeting was held at Lüderitz Secondary School Hall on the 18 November 2021. Residents were invited to the meeting via different communications platforms such as radio invitations by the Town Council officials and through newspaper advertisements and public notices that were placed around town.



Figure 16: Scene from the public meeting

The summary of issues raised during the public meeting and the received from is outline in the Issue response report (See Appendix A).

6. ASSESSMENT OF PROJECT IMPACTS

6.1 Introduction

The EIA Regulations require “a description of the significance of any significant effects, including cumulative effects, which may occur as a result of the undertaking of the activity”. The term “environment” is used to describe the total integrated environment, which includes aspects of the natural, economic, and social environment. The environmental impact assessment has included all phases of the project namely: the planning; construction and operational phases.

- **Planning phase**
 - Land use
 - Geology and Topography
 - Availability of services
 - Increased motorized traffic
 - Heritage sites
 - Water resources
 - Ecology & biodiversity

- **Construction phase**
 - Generation of noise, dust, and vibrations
 - Generation of spoil material and waste
 - Traffic and Neighborhood disruptions
 - Visual impact
 - Construction camp and materials stockpiles

- **Operational phase**
 - Availability of services and waste management
 - Increased motorized traffic
 - Visual impacts
 - Impacts on neighboring land
 - Social and economic impacts for the local area

6.2 Method of Assessment

The overall significance of the identified environmental impacts associated with the project will be evaluated according to its nature, extent, duration, intensity, and probability.

Table 4: Criteria used for the rating of impacts

CRITERIA	DESCRIPTION			
	National (4)	Regional (3)	Local (2)	Site (1)
EXTENT	The whole country	!Kharas region and neighbouring regions	Within a radius of 2 km of the proposed site	Within the proposed site
DURATION	Permanent (4) Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient	Long-term (3) The impact will continue/last for the entire operational life of the development but will be mitigated by direct human action or by natural processes thereafter.	Medium-term (2) The impact will last for the period of the construction phase, where after it will be entirely negated	Short-term (1) The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase
INTENSITY	Very High (4) Natural, cultural and social functions and processes are altered to extent that they permanently cease	High (3) Natural, cultural and social functions and processes are altered to extent that they temporarily cease	Moderate (2) Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way	Low (1) Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected
PROBABILITY	Definite (4) Impact will certainly occur	Highly Probable (3) Most likely that the impact will occur	Possible (2) The impact may occur	Improbable (1) Likelihood of the impact materialising is very low
SIGNIFICANCE	Is determined through a synthesis of impact characteristics. Significance is also an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.			

Table 5: Criteria for the total rating of classified impacts

Low impact (4 -6 points)	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
Medium impact (7 -9 points)	Mitigation is possible with additional design and construction inputs.
High impact (10 -12 points)	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.
Very high impact (13 - 20 points)	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a “very high impact” is likely to be a fatal flaw.
Status	Denotes the perceived effect of the impact on the affected area.
Positive (+)	Beneficial impact
Negative (-)	Deleterious or adverse impact.
Neutral (/)	Impact is neither beneficial nor adverse
It is important to note that the status of an impact is assigned based on the status quo – i.e., should the project not proceed. Therefore, not all negative impacts are equally significant.	

6.3 Identified Environmental Impacts of the proposed Cemetery

The environmental issues identified in 6.1 are assessed in the table below in terms of significance assessment methodology in 5.2. The ratings are observed “before” mitigation measures are implemented.

Table 6: Potential Impacts during Construction phase

ASPECT	POTENTIAL IMPACTS	SIGNIFICANCE RATING (BEFORE MITIGATION)				SIGNIFICANCE (WITH MEASURES)	MEASURES
		Extent	Duration	Intensity	Probability		
1. BIOPHYSICAL	Loss of vegetation through site clearance	1	1	1	1	4	✓ The site has no vegetation cover
	Contamination of soil from spills and leaks from construction vehicles.	1	1	1	2	4	✓ All spills and leaks should be contained, and contaminated sand should be collected and disposed of at Municipal dumpsite. ✓ Machineries and vehicles with leaks should be covered with drip trays.
	Reduce aesthetics view of the place due to presence of waste streams and construction materials.	1	1	1	1	4	✓ Construction waste should be collected regularly. ✓ Construction materials should stack-up in closed areas.
	Exposure of soil to wind erosion	1	1	1	1	4	✓ Excavation should be limited to the construction site.
	Diversion of the natural drainage and increased sedimentation	1	1	1	1	4	✓ The area is not located in main drainage area.

							✓ Allow free flow of storm water (if applicable).
	Potential damage to undiscovered cultural sites in the area	1	1	1	1	4	✓ The site and surrounding is not known to contain any archeological items
2. SOCIO-ECONOMIC	<p>Occupational health and Safety risks</p> <p>-Injuries can occur due to incorrect lifting of heavy equipment and materials, falling from heights,</p>	1	1	1	1	4	<p>✓ Employees will be briefed on the nature of their work.</p> <p>✓ Employees will be equipped with appropriate Personal Protective Equipment (PPE).</p> <p>✓ The health and safety standards specified in the Health and Safety Regulations of the National Labour Act 11 of 1992 should be complied with.</p>
	Increase in traffic within the area during construction.	1	1	1	1	4	✓ Vehicle should be driven by authorized drivers
	Generation of spoil material and waste	1	1	1	1	4	✓ Waste be collected disposed of at the Municipal dumpsite.
	Generation of dust, noise and vibration.	1	1	1	1	4	✓ Construction work should be limited to daytime. No operation during odd hours.

Table 7: Potential Impacts during the operation phase

ASPECT	POTENTIAL IMPACTS	SIGNIFICANCE RATING (BEFORE MITIGATION)				SIGNIFICANCE (WITH MEASURES)	MEASURES
		Extent	Duration	Intensity	Probability		
1. BIOPHYSICAL	Impact on biodiversity (+ve) Trees and cemetery structures will provide habitat to small animals and will provide soil cover.	1	1	1	1	4	✓ Plant trees around the cemetery
	Possible contamination of soil, groundwater.	1	1	1	1	4	<ul style="list-style-type: none"> ✓ All spills and leaks should be contained, and contaminated sand should be collected and disposed of at Municipal dumpsite. ✓ Machineries and vehicles with leaks should be covered with drip trays.
	Reduce aesthetics view of the place due to presence of waste streams and construction materials.	1	1	1	1	4	<ul style="list-style-type: none"> ✓ Construction waste should be collected regularly. ✓ Construction materials should stack-up in closed areas.
	Exposure of soil to wind erosion	1	1	1	1	4	✓ Excavation should be limited to the construction site.
	Diversion of the natural drainage and increased sedimentation	1	1	1	1	4	<ul style="list-style-type: none"> ✓ The area is not located in main drainage area. ✓ Allow free flow of storm water (if applicable).
	Potential damage to undiscovered cultural sites in the area	1	1	1	1	4	✓ The site and surrounding is not known to contain any archeological items

2. SOCIO-ECONOMIC	Occupational health and Safety risks -Injuries can occur due to incorrect lifting of heavy equipment and materials, falling from heights,	1	1	1	1	4	<ul style="list-style-type: none"> ✓ Employees will be briefed on the nature of their work. ✓ Employees will be equipped with appropriate Personal Protective Equipment (PPE). ✓ Comply with the health and safety standards specified in the Health and Safety Regulations of the National Labour Act 11 of 1992.
	Increase in traffic within the area during events	1	1	1	1	4	<ul style="list-style-type: none"> ✓ Ensure traffic regulations during burial events
	Land use impacts during cemetery operation	1	1	1	1		<ul style="list-style-type: none"> ✓ Develop cemetery regulations
	Waste generation i.e., building rubble, excess sand.	1	1	1	1	4	<ul style="list-style-type: none"> ✓ Waste be collected disposed of at the Municipal dumpsite.
	Criminal activities in the area The cemetery can also be hiding ground for criminals						<ul style="list-style-type: none"> ✓ Provide gates and ensure access control at all times.
	Generation of dust, noise and vibration.	1	1	1	1	4	<ul style="list-style-type: none"> ✓ Construction work should be limited to daytime. No operation during odd hours.

6.4 Decommissioning phase

The decommissioning of the proposed cemetery is not envisaged in the immediate future. However, should the decommission of the cemetery become imminent after construction and operation phase, a separate environmental impact assessment should be carried out. The cemetery should then be decommissioned in line with the World Health Organisation (WHO) standards and the relevant national and international legislations such as the Public Health Act, Soil conservation Act etc.

7. CONCLUSION AND RECOMMENDATIONS

7.1 Conclusion

The objective of the EIA study was to identify the potential environmental impacts for the proposed developments to the existing environment. It is believed that this objective has been achieved and adequately documented in this Scoping report. All possible environment aspects have been adequately assessed and necessary control measures have been formulated to meet statutory requirements. Thus, implementing this project will not have any significant negative impacts. The following conclusions were made from this assessment.

- The preferred alternative site is Site A, hence the assessment and recommendation of this EIA study is based on this site. Should there be any deviation from this, Council will inform the MEFT after which an EIA will be amended accordingly.
- Inputs from I&APs were carefully considered in this study and incorporated in the Scoping report and EMP.
- The cemetery will be developed based on many factors such as the environmental, socioeconomic, religious and cultural aspects.

7.2 Recommendations

Based on the information provided in the report, the EAP recommends that the development should be authorized because the negative impacts can be mitigated to a satisfactory level. It is further recommended that the Lüderitz Town Council should:

- Apply Town Planning procedures for the subdivision and zoning of the proposed site for the new cemetery in line with the Urban Planning Act 2011.
- The Lüderitz Town Planning Scheme be amended to feature the new cemetery
- Apply the various mitigation measures outlined in the EMP
- Council should inform the member of the public prior to the commencement of the construction of the new cemetery.
- Council should establish buffer zone by means of a greenbelt between the cemetery and existing townships to mitigate

To this end, it is therefore recommended that an Environmental Clearance Certificate be granted for the proposed establishment of a cemetery in Lüderitz.

8. REFERENCES

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9. APPENDICES

- 9.1 APPENDIX A: PROOF OF CONSULTATION**
- Issues Response Report
 - Attendance Register
 - Newspaper Adverts
- 9.2 APPENDIX B: EMP**