ENVIRONMENTAL SCOPING REPORT FOR THE ECC APPLICATION OF:
BORROW PIT AT KM 104 (DIRECTION RUNDU TO DIVUNDU) REQUIRED FOR REHABILITATION WORKS ON TR0804 PHASE 03: BETWEEN RUNDU AND DIVUNDU IN THE KAVANGO EAST REGION.

OCTOBER 2025

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ACRONYMS / ABBREVIATIONS

BID	Background Information Document
DEA	Directorate of Environmental Affairs
ECE	Element Consulting Engineers
EMCN	Enviro Management Consultants Namibia
EMP	Environmental Management Plan
IAPs	Interested and Affected Parties
MEFT	Ministry of Environment, Forestry and Tourism
BP	Borrow Pit

EXECUTIVE SUMMARY

This Environmental Assessment Report supports the application for an Environmental Clearance Certificate (ECC)for the establishment and operation of a borrow pit at kilometre 104 on the Rundu towards Divundu road corridor in the Kavango East Region, Namibia. The borrow pit will provide road construction material (mainly calcrete) for rehabilitation works on Trunk Road TR0804 Phase 03, between Rundu and Divundu. The project was initiated by the Roads Authority of Namibia (RA), with Element Consulting Engineers (ECE) as the engineering consultant and Enviro Management Consultants Namibia (EMCN) as the environmental practitioner.

Project Description

The proposed borrow pit occupies less than two hectares near Ndonga Linena Constituency and will supply material for ongoing road rehabilitation. Activities include vegetation clearance, excavation, hauling, and stockpiling of calcrete. Once extraction is complete, the pit will be rehabilitated to minimize long-term visual and ecological disturbance. Water will be sourced legally under the Water Resources Management Act (No. 11 of 2013), and domestic and dust suppression needs will be carefully managed.

Legal and Policy Framework

The assessment was conducted under the Environmental Management Act (No. 7 of 2007) and EIA Regulations (2012). Other relevant laws include the Forest Act (2001), Soil Conservation Act (1969), National Heritage Act (2004), Water Resources Management Act (2013), and Public Health Act (1919). Listed activity 3.3 (Mining and Quarrying – Resource extraction) applies, thus triggering the need for an ECC.

Environmental Baseline

The borrow pit lies within the northern Kalahari woodland biome, dominated by Burkea africana, Baikiaea plurijuga, Guibourtia coleosperma, and Combretum species on Arenosol and Fluvisol soils. The topography is flat to gently undulating with altitudes of 1000–1100 m above sea level. The climate is semi-arid (BSh), with an average annual temperature of 22.7°C and 694 mm rainfall. Groundwater is moderately productive and safe for small-scale use, while the area's fauna includes common Kalahari mammals, birds, and reptiles, with limited presence of threatened species.

Socio-Economic Context

The project area falls within communal land under traditional authority tenure. Subsistence agriculture and livestock grazing dominate land use, with high unemployment (approx. 48%) and widespread poverty. The project will create temporary local jobs and support regional mobility and economic activity by improving the Rundu–Divundu transport corridor.

Public Participation Process

A comprehensive Public Participation Process (PPP) was undertaken in May 2025. Notices were placed in national newspapers, and individual consultations were held with affected landowners and local authorities. No objections were received, and compensation agreements were concluded with landowners. The community's main concerns included dust, noise, and local employment.

Key Impacts and Mitigation

Potential environmental impacts include:

- Vegetation loss and soil erosion
- Dust and noise generation
- Water use and possible contamination
- Health and safety risks
- Visual and aesthetic impacts

All identified impacts are site-specific, short-term, and reversible with mitigation. The Environmental and Social Management Plan (ESMP) prescribes detailed measures, including:

- Dust suppression through regular watering
- Waste and sewage management
- Controlled storage of hydrocarbons
- Erosion prevention and topsoil conservation
- PPE and occupational safety measures
- Progressive rehabilitation and fauna protection
- Environmental monitoring and reporting by an Environmental Control Officer (ECO)

Conclusions and Recommendations

The Environmental Assessment concludes that the proposed borrow pit operations are environmentally acceptable, provided that mitigation measures and monitoring commitments in the ESMP are strictly implemented. The project will contribute positively to regional infrastructure and socio-economic development with minimal environmental risk.

It is therefore recommended that the Ministry of Environment, Forestry and Tourism (MEFT) issue an Environmental Clearance Certificate (ECC) for the project, subject to compliance with the ESMP and Namibian environmental legislation.

1. INTRODUCTION

The Roads Authority of Namibia (RA) appointed Element Consulting Engineers (ECE) to perform the consulting services for the following project: ENVIRONMENTAL ASSESSMENT REPORT FOR THE EMERGENCY APPOINTMENT OF CHINA HENAN INTERNATIONAL COOPERATION GROUP (CHICO) TO CONTINUE WITH THE PENDING 27KM OF THE 78KM LIGHT REHABILITATION WORKS ON TR0804 PHASE 03: BETWEEN RUNDU AND DIVUNDU IN THE KAVANGO EAST REGION. Enviro Management Consultants Namibia (EMCN) is appointed to undertake an Environmental Assessment process relating to the proposed project.

Rehabilitation works on the trunk road T0804 between Rundu and Divundu in the Kavango East Region are being undertaken in phases. The rehabilitation of this road requires suitable material to reconstruct the road shoulder which has severely deteriorated. Suitable materials are very difficult to obtain in this area of Namibia and the sources are limited. The engineers together with the Roads Authority identified suitable sources at:

- Borrow Pit at km 104 from Rundu to Divundu – Ndonga Linena Constituency

Previous extraction of suitable material for the construction of roads commenced at the borrow pits (BPs) and this application provides for the expansion of existing pit. The natural area around the pit has been impacted negatively in the past. One main objective of this application is that the BP will be fully rehabilitated once the material extraction for the road rehabilitation is completed.

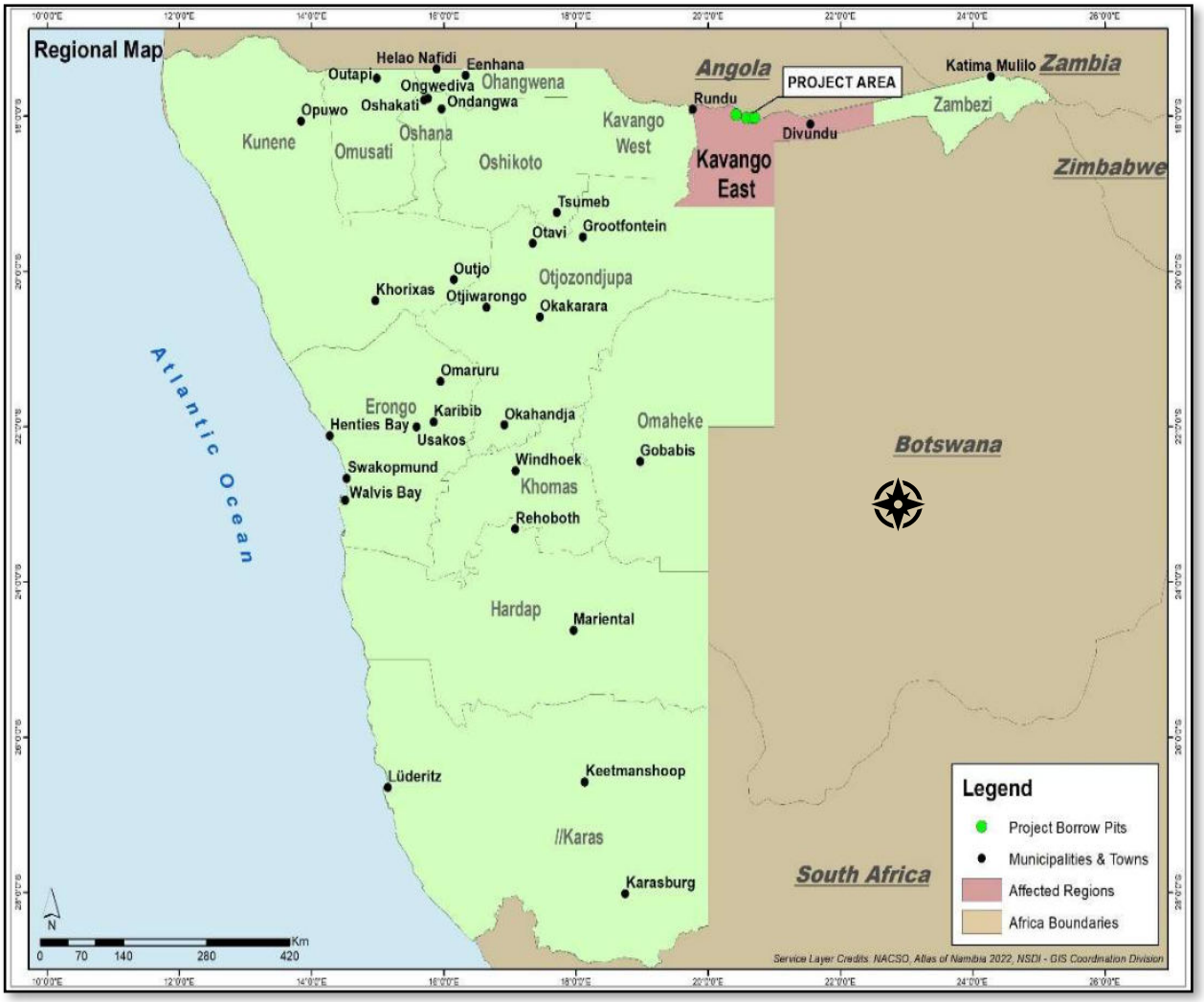


Figure 1: Project Locality

The site is relatively small (in total less than 2 hectares) with location coordinates of:

Borrow Pit at km 104

- Lat: -18.022397
- Long: 20.704090

The material that will be used for the road construction activities is classified as calcrete and is widely used for road construction activities throughout Namibia.

Figure 2: Typical calcrete found an existing borrow pit.

This BP was utilised previously and contain suitable material for the road construction activities. The plan is to use the current materials available which will be extracted by heavy machines and stockpiled. The stockpile material will then be loaded on trucks and hauled to the various project areas.

Figure 3. Photo of the current activities present in the borrow pit km 104.

Figure 4. Existing BP at km 104

2. DETAILS OF THE APPLICANT AND CONSULTANT

2.1 Details of the Applicant

Applicant	Roads Authority of Namibia
Contact Person	Mr. Kennedy Chigumira Regional Engineering Manager Kavango Region
Contact Numbers Email:	+264 81 169 4699 +264 (065) 231 560 chigumirak@ra.org.na

2.2 Details of the Environmental Consultants

The environmental project team from EMCN is led by Mr. Rian du Toit, an Environmental Assessment Practitioner with more than 23 years of working experience in the field of Environmental Management. Table 1 highlights the experience and qualifications of the environmental team.

Table 1: Capability Statement for the Environmental Project Team

Name	Role in the Project	Qualifications and Experience
Rian du Toit	Environmental Assessment Practitioner and Project Manager	Master's degree in the Environmental and Social fields. Mr. du Toit has more than 23 years' experience in the field of environmental management, mostly related to roads, services, transmission lines and mining right applications.
Maike Prickett	GIS Specialist & Socio-Economist	B.Sc. Information Systems & Geography (UNISA) with more than 15 years' experience in the field of GIS and more than 10 years' experience in socio-economic baseline studies, mostly related to roads, railway, agriculture, tourism and mining projects.

3. BORROW PIT ACTIVITIES DESCRIPTION

The BP is relatively small but might increase in size during the materials extraction. Suitable materials are needed for the construction of the road shoulder during the road rehabilitation.

To achieve the above mentioned, suitable material is required from the borrow pit. The pit is opened using various heavy-duty machines and the material is hauled from the pit to the required sections of the road where the material is needed. It is imperative that the material excavated complies with the engineering standards required for the construction of the road and is therefore tested on a regular basis.

3.1 Residues and Emissions During Construction

Due to the type of activities that are associated with the extraction of materials it is very unlikely that any toxic materials will be present on site. However, dust and noise might be a significant negative impact associated with the extraction, crushing, and loading of materials (noise and dust).

Domestic and camp construction wastes generated at the contractor camps can very easily be managed due to the proximity to the existing towns of Rundu and Divundu. Proper waste management principles should be enforced as stipulated by the Environmental and Social Management Plan.

Sewage management is also a great concern at any construction camp. Proper planning of the sewage facilities should be done at the start of such a project to prevent sewage overflow and the contamination of soils and water. The number of workers should be determined, and the sewage facilities planned accordingly.

3.2 Construction Water Requirements

Contractors must obtain the consent of relevant landowners prior to utilizing a water source and Clause B1219 of the Project Specifications (COLTO)[1] contains requirements and standards related to the quality of water used for construction purposes. A water extraction license is required according to the Water Resources Management Act N0.11 of 2013. Water will be used for domestic and dust suppression purposes.

3.3 Alternatives Identified

There are only two alternatives to this project due to the limited suitable materials in this area. Therefore, there are limited sites suitable for the obtainment and processing of geological material. Existing BP areas were identified and chosen due to the already disturbed environment and suitable materials.

The other alternative is the "No-Go" option where the Roads Authority shall not use the present BP material and buy suitable road construction material from a commercial source. However, this is very expensive and might jeopardise the feasibility of the road rehabilitation efforts.

4. ASSUMPTIONS AND LIMITATIONS

It is assumed that the information provided by Consulting Team used for the compilation of this Environmental Report is accurate and relevant to this date. It is also assumed that the secondary data collected for the bio-physical and socio-economic environments are true and correct. These include data sources associated with printed books, data available on the internet and other studies as indicated in this report.

The Contract determined the available time and funds available to complete this project. Communication between the various team members was assured trough regular meetings.

5. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

This section deals with the regulatory requirements that are applicable to this project.

THE NAMIBIAN LEGISLATIVE FRAMEWORK

During the preparation of the Scoping Report, the following legislation and policies were considered:

- Environmental Management Act 7 of 2007 ;
- Environmental Regulations of 2012;
- Roads Authority Environmental Manual of 2014
- Road Ordinance 17 of 1972

[1] Standard Specifications for Bridge Works for State Road Authorities - COLTO

The activities listed in Table 2, as contained in Appendix B of the Republic of Namibia's Environmental Regulations, may be applicable and will require Environmental Clearance.

Table 2: Listed Activities in Terms of the Environmental Management Act

Activity No.	Activity Description
3.3	Mining and Quarrying Activities – Resource extraction, manipulation, conservation, and related activities.

Currently, Environmental Impact Assessments are guided and reviewed by the Directorate of Environmental Affairs (DEA) in the Ministry of Environment, Forestry and Tourism. Guidelines for various projects have been compiled to help improve EIA practice in Namibia.

There are several sector laws in Namibia that have relevance to Scoping and EIAs. The following table provides a summary of the relevant sector legislation.

Statute	Provisions	Project Implications
Forest Act 12 of 2001	Provision for the protection of natural vegetation. No regulations promulgated yet. Section 22(1): It is unlawful for any person to "*cut, destroy or remove:* • any living tree, bush or shrub growing within 100 meters from a river, stream or watercourse on land that is not part of a surveyed erf or a local authority area without a license. • Vegetation which is on a sand dune or drifting sand or on a gully unless the cutting, destruction or removal is done for the purpose of stabilizing the sand or gully.	• Permits should be obtained from Department of Forestry for the removal of protected trees.
National Heritage Act 27 of 2004	Heritage resources to be conserved in development.	All archaeological sites to be identified and protected.
Nature Conservation Ordinance 4 of 1975	Requires a permit for picking (the definition of "picking" includes damage or destroy) protected plants without a permit.	In case there is an intention to remove protected species, then permits will be required.
Preservation of Trees and Forests under the Forest Act, 2001.	Protection to tree species.	The Contractor will require a permit to remove any protected trees.
Soil Conservation Act 76 of 1969	Prevention and combating of soil erosion; conservation, improvement and manner of use of soil and vegetation, and protection of water sources.	Removals of vegetation cover to be avoided and minimized at all costs. Soil pollution to be avoided.

Statute	Provisions	Project Implications
	The Minister may direct owners or land occupiers in respect of *inter alia* water courses. No Regulations exist to this effect.	
Water Resources Management Act 11 of 2013	Section 44 states that no person may abstract or use water, except in accordance with a license issued under this Act. Abstraction of water including open waters, aquifer, brackish or marine water. Section 566 states that any drilling to be conducted or enlargement of an existing borehole can only be conducted under a permit issued under the Act. Section 66 states that a person may not discharge any effluent directly or indirectly to any water resource on or under the ground or construct any effluent treatment facility or disposal site unless in compliance with a permit issued under Section 70 of the Act. Where "effluent" means any liquid discharge as a result of domestic, commercial, industrial or agricultural activities.	Obligation not to pollute surface water bodies. The following permits are required in terms of the Water Act: • water abstraction license that will form part of the contract obligations.
Public Health Act 36 of 1919	Provides for the prevention of pollution of public water supplies.	A general obligation for the Contractor not to pollute the water bodies in the area.
Government Notice No 121 of 1969 as amended as well as Government Notice No. 156 of 1 Aug 1997	This is the general health regulations applicable to this project.	The Contractor will enforce the conditions required to ensure the health and safety of the workers.

An important section 30 from the Road Ordinance 17 (1972) clarifies the obtainment of material required for the construction of the roads in Namibia. It states the following:

For the construction, maintenance, or repair of a proclaimed road the President of Namibia may through his representatives, officers or contractors enter upon any land with any vehicle, tool, material or animal and after the expiry of a period of fourteen days after a written notice of his intention to do so –

(i) has been handed to the owner, lessee or occupier of such land; or
(ii) has been sent to the last known address of such owner, lessee or occupier by registered post; or
(iii) has been left at a conspicuous place on such land

he may without any compensation to the owner, lessee or occupier of the land, remove any material which may be necessary for such construction, maintenance or repair from such land or process it

on such land and thereafter remove it there from and for this purpose he may build and maintain any access roads which he may consider necessary: Provided that –

(a) nothing shall be removed from any garden or other land usually cultivated, nor within two hundred and fifty metres of any house nor within fifty metres of any kraal;

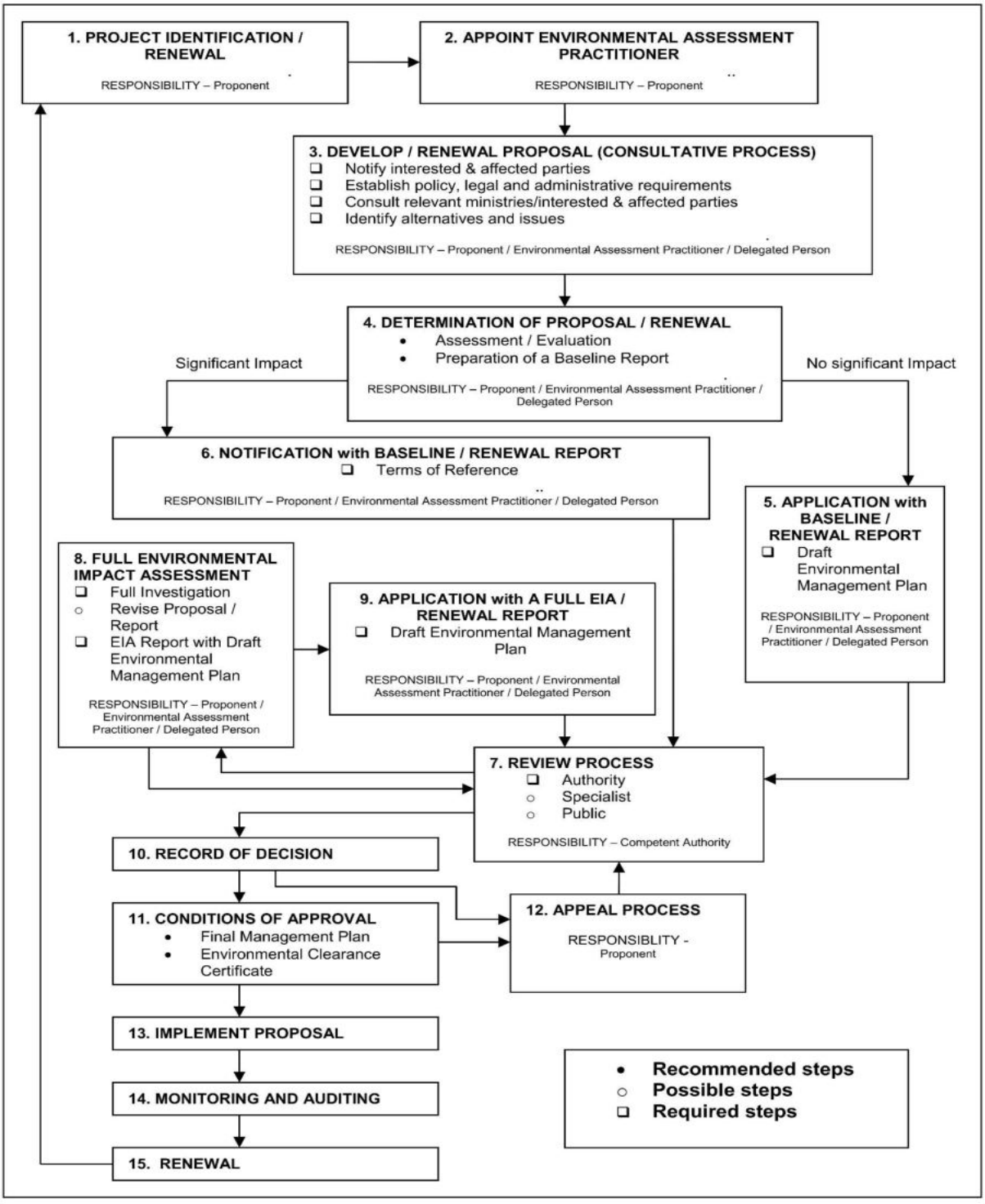
(b) every excavation, including an excavation for a sample and an experimental pit, shall as soon as possible be filled up or fenced off or shall otherwise be made safe for human beings and animals again to the satisfaction of the owner, lessee or occupier of such land or as the President of Namibia directs.

(c) any road provided for this purpose shall be ripped up in such a way that it cannot be washed away
should the owner, lessee or occupier so desire.

(d) the President of Namibia, his representatives, officers, or contractors shall, in exercising these powers take every care to prevent damage, injury, loss or inconvenience to the owner, lessee or occupier concerned:

Provided further that the powers granted to the President of Namibia in terms of this section shall only be exercised within the area of a local authority in consultation with the local authority.
A flowchart indicating the entire Scoping/EIA process is shown in *Figure 11 below:*

Figure 5: EIA Process



6. DESCRIPTION OF BASELINE CONDITIONS

This section describes the bio-physical aspects of the study area to allow for identification of elements of environmental sensitivity and to provide the context for the assessment of significance of impacts related to the proposed project. Some of the secondary data used in this report is obtained from the area around the village of Divundu, but this data is also applicable to the study area.

6.1 Climate

The available data are used to describe the climate averages of the Village of Divundu.

6.1.1 Rainfall and Temperature

Divundu is influenced by the local steppe climate. This climate is BSh according to the Köppen-Geiger climate classification. The average annual temperature is 22.7 °C with about 694 mm of precipitation annually.

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C (°F)	24 °C (75.2) °F	23.6 °C (74.4) °F	23.4 °C (74.1) °F	22.4 °C (72.3) °F	20.3 °C (68.6) °F	17.7 °C (63.8) °F	17.2 °C (62.9) °F	20.7 °C (69.3) °F	24.8 °C (76.6) °F	27.5 °C (81.5) °F	26.3 °C (79.3) °F	24.6 °C (76.3) °F
Min. Temperature °C (°F)	19.6 °C (67.3) °F	19.2 °C (66.6) °F	18.7 °C (65.6) °F	16.6 °C (61.9) °F	13.1 °C (55.6) °F	10.1 °C (50.2) °F	9.2 °C (48.6) °F	12.1 °C (53.7) °F	16 °C (60.9) °F	19.6 °C (67.2) °F	19.9 °C (67.9) °F	19.8 °C (67.7) °F
Max. Temperature °C (°F)	28.7 °C (83.7) °F	28.4 °C (83) °F	28.4 °C (83.1) °F	28.1 °C (82.7) °F	27.2 °C (81) °F	25 °C (76.9) °F	24.7 °C (76.5) °F	28.6 °C (83.5) °F	32.7 °C (90.8) °F	34.7 °C (94.4) °F	32.5 °C (90.4) °F	29.7 °C (85.5) °F
Precipitation / Rainfall mm (in)	189 (7)	148 (5)	107 (4)	24 (0)	1 (0)	0 (0)	0 (0)	0 (0)	1 (0)	12 (0)	71 (2)	141 (5)
Humidity(%)	70%	72%	68%	55%	41%	41%	36%	28%	23%	27%	46%	66%
Rainy days (d)	14	12	11	3	0	0	0	0	0	2	9	13
avg. Sun hours (hours)	9.3	9.1	8.9	9.7	10.1	9.9	10.0	10.3	10.8	11.2	11.1	10.1

Figure 6. Average weather of Divundu

The difference in precipitation between the driest month and the wettest month is 189mm. The average temperatures vary during the year by 10.3 °C. The month with the highest relative humidity is February (72.0 %).

The month with the lowest relative humidity is September (23.05 %). The month with the highest number of rainy days is January (14 days). The month with the lowest number of rainy days is June (0.00 days)[2].

6.2 Air quality

6.2.1 Existing Sources of Air Pollution

The proposed project site is in rural areas where the air quality is not affected by large scale anthropogenic activities. The following sources of air contamination have been identified:

[2] https://en.climate-data.org/africa/namibia/kavango-east-region/divundu-765227/

- Vehicle dust and exhaust gas emissions
- Wind-blown dust from sparsely vegetated surfaces
- Veld fires

6.2.2 Sensitive Receptors

The proposed project is situated between Rundu and Divundu along the B8, but dust reduction is a priority during the BP activities. There are some households surrounding existing BPs.

6.2.3 Wind

The wind rose for Divundu shows how many hours per year the wind blows from the indicated direction. Example ESE: Wind is blowing from East-South-East.

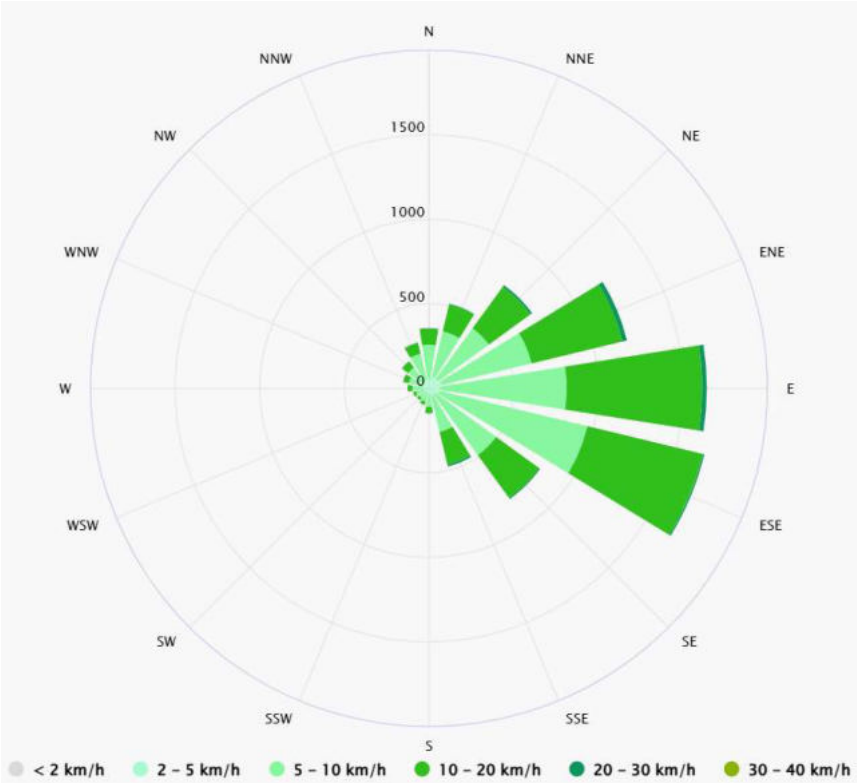


Figure 7: Average Wind Speed and direction in Divundu (Source: Meteoblue)

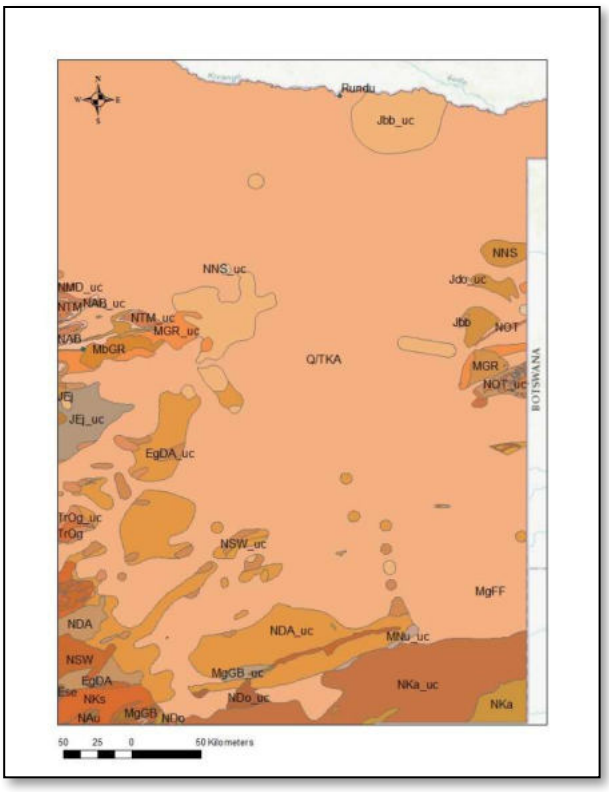
6.3 Topography

The BP is situated on the Central Plateau of Namibia with altitudes varying from 1000m to 1100m above sea-level. The general topography of the areas is characterised by plains with a downward gradient to the north. To the south there is a gradual increase of height stretching from the Okavango River to the central parts of the mainland.

This topographical characteristic also contributes to the forming and existence of the Okavango Delta situated to the south - eastern part of the proposed projects where surface water is channelled to contribute to the Delta. These topographic characteristics do not pose any limitations on the proposed project.

6.4 Geology

The proposed roads lie in the Kalahari Sequence (Q/TKA) which covers large areas of the north western, north, northeast, south east and southern part of Namibia. Part of this sequence is the Basalts found in the Kavango and the Caprivi Strip.



This Sequence is characterised by underlying semi-consolidated mudstone with a gritty appearance.

Thin, brown sandstone and siltstone and white nodular limestone layers are embedded into the geology.

The Andoni Formation caps the Kalahari Sequence and consists of white sand, light green clayey sand, green clay with thin limestone layers and nodules of dolcrete, calcrete and, in the east, silcrete (Miller 1992).

Figure 8: Geology of the project area.

6.5 Vegetation and Soils

"The soil category for the study area is mainly **Arenosols,** but there is also the presence of **Fluvisols**. Arenosols are formed from windblown sand and usually extends to a depth of at least one meter, with sand generally making up more than 70% of the soil. The rest of the soils usually consist of particles of clay and silt.

The sandy texture allows water to drain through the soil rapidly, leaving very little moisture at depths to which most plant roots can reach. Few nutrients are retained in the porous sand. The loose structure of sand means that there is little run-off and water erosion, although it makes the soil susceptible to wind erosion.

Arenosols are by far the biggest soil unit in Namibia, covering much of eastern and north-eastern parts of the country".

"Soils along the margins and valleys of larger river courses in eastern Namibia are called **Fluvisols**. Some are flooded regularly while others along the dry omurambas probably saw flood water hundreds of years ago. Some fluvisols provide nutrient-rich soils for crop cultivation, a quality exploited by many farmers in the Caprivi and Kavango" (Mendelsohn, 2002).

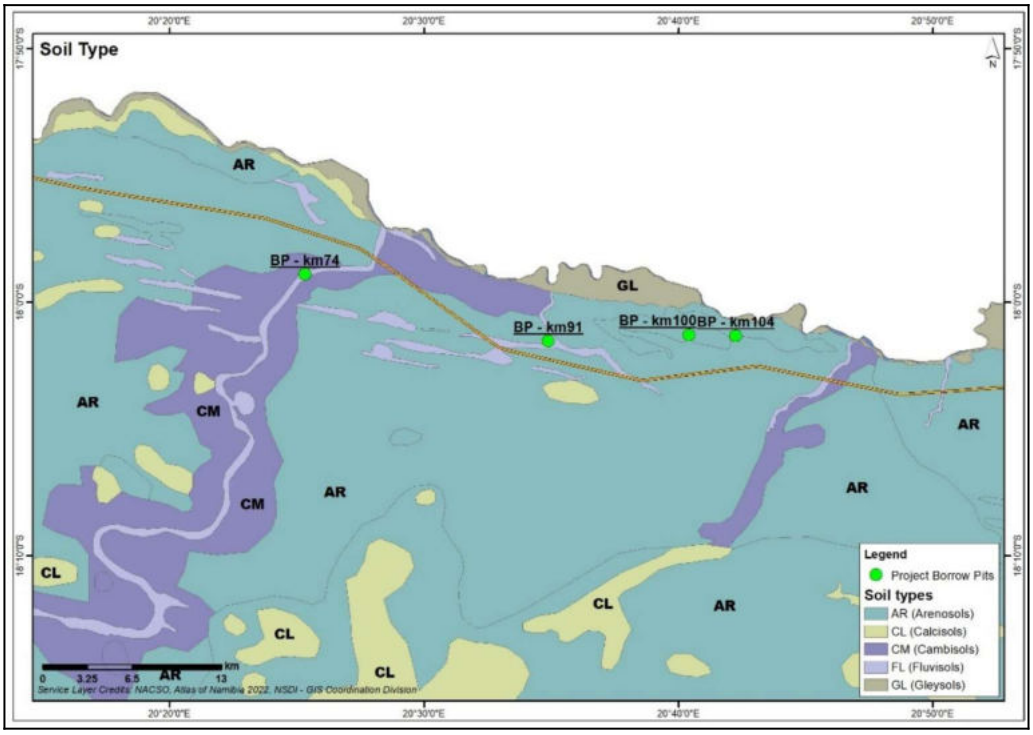


Figure 9. Soils of the project area

The BP is situated in an area classified as the "Broadleaved Tree-and-shrub Savanna Biome which grows largely on deep Kalarhari Sandveld, plant life being dominated by several species of tall trees that can form a moderately thick canopy in places. Several large river systems with their associated floodplains cross through the sub-biome in which there are eight vegetation types". The project area lies in an area where the vegetation types are classified as North-Eastern Kalahari Woodland, Okavango Valley and the Omatako Drainages (Mendelsohn, 2002). These vegetation types are known to be dominated by several species of tall trees such as: *Guibourtia coleosperma* (Ushivi/ False Mopane), *Acacia fleckii* (Sand-veld Acacia), *Acacia tortillas* (Umbrella-thorn), *Burkea africana* (Burkea), and the *Baikiaea plurijuga* (Zambezi Teak), *Combretum collinum* (Variable Combretum), *Philenoptera nelsii* (Kalahari apple-leaf), *Acacia erioloba* (Camelthorn) and *Combretum zeyheri* (Mukenge) that can form moderately thick populations in some places (Mannheimer & Curtis, 2018).

Various fruit baring trees exist in the Kavango area. Some of them like the *Strychnos* spinosa (Spiny Monkey Orange) are of great economic value because these fruits are sold. Other fruit bearing trees like the *Sclerocarya birrea* (Maroela Tree), *Berchemia discolour* (Bird Plum), and *Ficus thonningii* (Wild Fig Tree) are also present in the area (Curtis 2005).

Photo 1

Photo 2

Photo 3

Photo 4

Figure 10. Photos 1 – 4 are some of the trees found around the existing BP area

Woody species characteristic of the Kalahari sand is *Burkea africana*, *Schinziophyton rautanenii, Combretum collinum*, and *Terminalea sericea*.

Grasses such as *Schmidtia kalahariensis*, *Wilommia sarmentosa*, *Sporobolus spicatus*, *Aristida* and *Eragrostus* species dominate the grass cover. The grazing resources are of little value in this area (Mendelsohn 2002).

However these flora species are common in the BP surroundings, the area adjacent to the existing BP has been negatively impacted by human activity.

6.6 Land Use

Borrow Pits 1 to 4 (BP1–BP4) are located within communal lands along the Rundu–Divundu road corridor in the Kavango East Region, falling under traditional authority tenure. The land surrounding BP1 and BP2, situated near Rundu, is characterised by subsistence crop farming and seasonal livestock grazing, with vegetation dominated by broad-leafed woodland and occasional small-scale cultivation.

BP3 lies further southeast in a relatively undisturbed woodland area near Ndonga Linena, where the land is primarily used for extensive grazing, firewood collection, and harvesting of non-timber forest products, though there is limited evidence of permanent human activity.

BP4 is positioned west of Divundu in a mixed-use rural area where subsistence farming is present, and the landscape includes a mosaic of shrubland and disturbed woodland. While some informal fields and footpaths are nearby, the proposed pit location avoids direct interference with cultivated plots. None of the sites are formally titled or within protected areas, and the planned borrow pit activities are expected to result in only temporary disruption to the current land uses.

6.7 Surface and Groundwater

The most important drainage system in the Kavango Region is the Okavango River situated in the northern border of Namibia. Other smaller drainage rivers occur in the Kavango Region and are dominated by the Omatako River, and its estuaries, flowing in a Northern direction towards the Okavango River. The combined Okavango and Cuito Rivers end their journeys inland in the Okavango Delta in Botswana.

Water flows in the perennial rivers vary enormously from year to year, generally response to the amounts of rain falling in their catchment areas. The general surface water characteristics of the area applicable to this project is dominated by very high surface water infiltration with little surface water run-off.

The road is situated on porous aquifers with moderate potential. The water quality over much of the region is categorised as class B: Safe for farms and small communities. The TDS (Total Dissolved Solids) is a good measure to determine the quality of the water and for classification: a TDS of over 5000 mg per litre is not even suitable for livestock and less than 1000 mg/l indicates good quality water. The proposed area is situated in an area with 1001 - 2000 mg/l (Atlas of Namibia, 2022).

6.8 Fauna

The borrow pit sites are located within the northern Kalahari woodlands, which support a moderately rich diversity of terrestrial fauna, including mammals, birds, reptiles, and invertebrates. The project area lies within a broad ecological corridor between the Kavango River system and the woodland savannahs of the Khaudum and Bwabwata National Parks, although the borrow pit

locations themselves are outside formally protected areas.

Mammals

Common mammal species expected in the area include kudu (*Tragelaphus strepsiceros*), warthog (*Phacochoerus africanus*), duiker (*Sylvicapra grimmia*), and porcupine (*Hystrix africaeaustralis)*. Smaller carnivores such as the bat-eared fox (*Otocyon megalotis*) and black-backed jackal (*Canis mesomelas*) may also be present. While large species such as elephant (*Loxodonta africana)* and buffalo (*Syncerus caffer*) are found in nearby national parks, their occurrence around the borrow pit sites is limited due to human settlement and road activity.

Birds

The Kavango East Region is considered a birding hotspot, particularly along riverine and wetland zones. While the borrow pit sites are mostly inland from the river, several bird species may be present or pass through, especially during seasonal migrations. Common species include:

- Helmeted guineafowl (*Numida meleagris*)
- Southern yellow-billed hornbill (*Tockus leucomelas)*
- Woodland kingfisher (*Halcyon senegalensis)*
- Lilac-breasted roller (*Coracias caudatus*)

Birds of prey such as the brown snake eagle (*Circaetus cinereus*) and Bateleur (*Terathopius ecaudatus*) may also be observed, especially in more open woodland near Mukwe and Ndonga Linena.

Reptiles

The borrow pit areas likely support several common reptile species typical of Kalahari sandveld environments. These include Cape skink (*Trachylepis capensis*), Namib rock agama (*Agama planiceps*), puff adder (*Bitis arietans*), and black mamba (*Dendroaspis polylepis*), though human activity has likely reduced encounter rates.

Conservation and Sensitivities

No threatened or endemic species have been directly recorded at the borrow pit sites; however, the proximity to ecologically important corridors necessitates caution. Species listed as vulnerable by the IUCN such as the African ground pangolin (*Smutsia temminckii)* and Temminck's courser (*Cursorius temminckii*) may occur in more undisturbed areas near the project zone. Borrow pit operations must therefore ensure that:

- Vegetation clearance is minimized, particularly around sensitive microhabitats;
- Fauna is not harassed or trapped during extraction activities;
- Speed restrictions and wildlife crossings are implemented along haul roads where needed.

Faunal monitoring during site establishment is recommended, and any sightings of threatened species should be reported to the MEFT's Directorate of Scientific Services.

6.9 Archaeological and Anthropological Resources

The heritage of Namibia is protected in terms of the National Heritage Act of 2004. This legislation obliges a developer to identify any heritage sites before project implementation. In Namibia, the heritage aspects are normally covered in the EA of the project.

The BP area has been heavily impacted on during the last few decades. The only significance with regards to archaeological material can be socio-orientated with regards to graveyards, sacred or ritual trees and places. During the site visit, none of these were noted, but the contractor shall be informed about the possibility of any archaeological or anthropological find to be reported to the Resident Engineer for any required actions. The total area of the four (4) BP is also relatively small (less than 6 Ha).

6.10 Noise

Even though tourism plays an important economic role in this area it is anticipated that noise will not be an important aspect to consider due to the remoteness of the proposed BP. The movement of the hauling trucks will contribute to increased noise levels in the adjacent area of the BP operations and adjacent to haul roads.

6.11 Visual Impacts

The existing BP and surrounding area have not been rehabilitated and are therefore visually degraded. The proposed utilisation of the current material will result in some additional temporary stockpiles further reducing the visual aesthetics of the BP areas.

6.12 Socio-economic background

The Kavango East is an outcome of the split of Kavango Region into two Regions known as Kavango East and Kavango West. The basic statistics in Kavango East with reference to the NSA Report for the Region of Kavango East indicate the Region has six constituencies (Rundu Urban, Rundu Rural, Mashare, Mukwe, Ndiyona and Ndonga Linena), in which Rundu Urban is Main Development Center in the Region and additional developing settlements in other constituencies (Divundu and Ndiyona).

Access to schools, clinics and other important social and economic nodes as well as road user safety and reduction of operating costs are some of the major objectives for the rehabilitation of the B8 road for which the BP material is required. It is therefore important to look at the social structures present in these specific regions.

Improved access to markets, health care services and educational facilities benefit the society as a whole as it improves the potential for economic development. Roads also contribute to a better administration of the territory.

Social development in the project area is essentially marked by the progress made in the sectors of education and health. Decentralisation to the regions of some of the administrative functions, the establishment of magistrate's courts, police stations and other facilities contribute to the general development of the area. Church missions are well established in northern Namibia and play a major role in the social development of a community.

The Kavango East Region is characterised by little or poor access to fundamental social institutions as mentioned above. This proposed project will facilitate in rehabilitating the transport network therefore improving mobility. This is especially true in the rural areas due to the fact that over 43% of the people in the Kavango East Region live in the rural areas.

The distribution of people across Namibia is very unevenly, with the biggest population concentration occurring in the northern parts. It is estimated that the Kavango East region has a population of 218,421 out of a total population of about 3 million people in Namibia. This means that the Kavango East region houses just more than 7% of the total population of Namibia. It is

estimated that 56.9% of the population in this region live in urban areas and the other 43.1% are rural (NSA, 2024).
According to the Labour Force Survey, 48.2% of the people in the region are unemployed. Agriculture, forestry and fishing remains the highest employment sector (23%) in Namibia, followed by accommodation and food service activities (11.4%) and wholesale and retail trade (11.1%) (NSA, 2019). In contrast, the vast majority of workers in the Kavango East Region and all its Constituencies, except Rundu Urban, are subsistence farmers without employees. These farmers mostly produce food for their own survival with little surplus left to sell and earn a significant income. In addition, as these farmers have no paid employees, there is no benefit of job-creation to address the high levels of unemployment in the region.

Crop growing dominates the agricultural sector with livestock farming in second place. There are also some poultry farming activities that contribute to the household incomes[3].

7. PUBLIC PARTICIPATION PROCESS

A Public Participation process was conducted for this project which are in guidance with the requirements of the Environmental Management Act no.7 of 2007 and associated Regulations.

The methodology followed during the public participation process was to make use of existing communications between Element Consulting Engineers / Roads Authority and the relevant stakeholders and interested and affected parties, as well as personal interviews conducted by Enviro Management Consultants Namibia.

The proposed BP areas are exclusively situated on land privately owned; therefore, the land owners were consulted on a personal level and compensation agreements were reached. The proposed project was advertised twice in various newspapers (as indicated below).
The project was advertised in the Market Watch section of the Daily Sun, Republikein and Allgemeine Zeitung on two separate occasions:

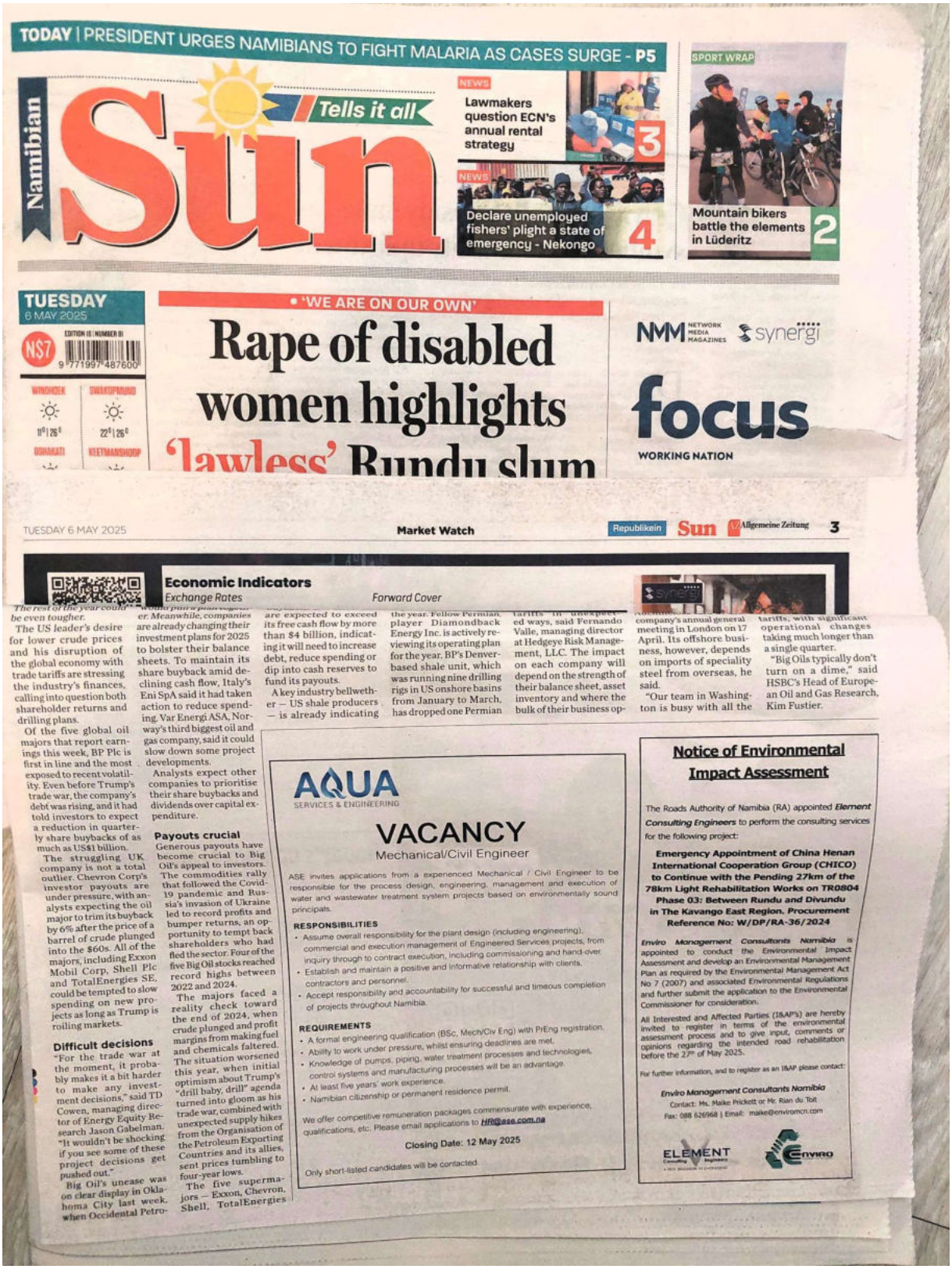
6 May 2025 and,
13 May 2025.

Please find attached the Advertisement that was placed in the various newspapers, the list of I&AP's that were identified and consulted during the public consultation process as well as the Issues and concerns register.
A Background Information Document (BID) was compiled and was available to any persons that registered as an Interested and Affected Party before the closure of the registration period on the 27th May 2025.

[3] https://kavangoeastrc.gov.na/

7.1 Proof of Placement of Notices

Tuesday 6th May 2025



TODAY | PRESIDENT URGES NAMIBIANS TO FIGHT MALARIA AS CASES SURGE - P5

Namibian Sun — Tells it all

NEWS
Lawmakers question ECN's annual rental strategy
3

NEWS
Declare unemployed fishers' plight a state of emergency - Nekongo
4

SPORT WRAP
Mountain bikers battle the elements in Lüderitz
2

TUESDAY 6 MAY 2025
N$7

• 'WE ARE ON OUR OWN'

Rape of disabled women highlights 'lawless' Rundu slum

NMM NETWORK MEDIA MAGAZINES synergi

focus
WORKING NATION

TUESDAY 6 MAY 2025 — Market Watch — Republikein Sun Allgemeine Zeitung — 3

Economic Indicators
Exchange Rates *Forward Cover*

be even tougher.

The US leader's desire for lower crude prices and his disruption of the global economy with trade tariffs are stressing the industry's finances, calling into question both shareholder returns and drilling plans.

Of the five global oil majors that report earnings this week, BP Plc is first in line and the most exposed to recent volatility. Even before Trump's trade war, the company's debt was rising, and it had told investors to expect a reduction in quarterly share buybacks of as much as US$1 billion.

The struggling UK company is not a total outlier. Chevron Corp's investor payouts are under pressure, with analysts expecting the oil major to trim its buyback by 6% after the price of a barrel of crude plunged into the $60s. All of the majors, including Exxon Mobil Corp, Shell Plc and TotalEnergies SE, could be tempted to slow spending on new projects as long as Trump is roiling markets.

Difficult decisions

"For the trade war at the moment, it probably makes it a bit harder to make any investment decisions," said TD Cowen, managing director of Energy Equity Research Jason Gabelman. "It wouldn't be shocking if you see some of these project decisions get pushed out."

Big Oil's unease was on clear display in Oklahoma City last week, when Occidental Petro-

er. Meanwhile, companies are already changing their investment plans for 2025 to bolster their balance sheets. To maintain its share buyback amid declining cash flow, Italy's Eni SpA said it had taken action to reduce spending. Var Energi ASA, Norway's third biggest oil and gas company, said it could slow down some project developments.

Analysts expect other companies to prioritise their share buybacks and dividends over capital expenditure.

Payouts crucial

Generous payouts have become crucial to Big Oil's appeal to investors. The commodities rally that followed the Covid-19 pandemic and Russia's invasion of Ukraine led to record profits and bumper returns, an opportunity to tempt back shareholders who had fled the sector. Four of the five Big Oil stocks reached record highs between 2022 and 2024.

The majors faced a reality check toward the end of 2024, when crude plunged and profit margins from making fuel and chemicals faltered. The situation worsened this year, when initial optimism about Trump's "drill baby, drill" agenda turned into gloom as his trade war, combined with unexpected supply hikes from the Organisation of the Petroleum Exporting Countries and its allies, sent prices tumbling to four-year lows.

The five supermajors — Exxon, Chevron, Shell, TotalEnergies

are expected to exceed its free cash flow by more than $4 billion, indicating it will need to increase debt, reduce spending or dip into cash reserves to fund its payouts.

A key industry bellwether — US shale producers — is already indicating

the year. Fellow Permian player Diamondback Energy Inc. is actively reviewing its operating plan for the year. BP's Denver-based shale unit, which was running nine drilling rigs in US onshore basins from January to March, has dropped one Permian

ed ways, said Fernando Valle, managing director at Hedgeye Risk Management, LLC. The impact on each company will depend on the strength of their balance sheet, asset inventory and where the bulk of their business op-

company's annual general meeting in London on 17 April. Its offshore business, however, depends on imports of speciality steel from overseas, he said.

"Our team in Washington is busy with all the

tariffs, with significant operational changes taking much longer than a single quarter.

"Big Oils typically don't turn on a dime," said HSBC's Head of European Oil and Gas Research, Kim Fustier.

AQUA SERVICES & ENGINEERING

VACANCY
Mechanical/Civil Engineer

ASE invites applications from a experienced Mechanical / Civil Engineer to be responsible for the process design, engineering, management and execution of water and wastewater treatment system projects based on environmentally sound principals.

RESPONSIBILITIES
- Assume overall responsibility for the plant design (including engineering), commercial and execution management of Engineered Services projects, from inquiry through to contract execution, including commissioning and hand-over.
- Establish and maintain a positive and informative relationship with clients, contractors and personnel.
- Accept responsibility and accountability for successful and timeous completion of projects throughout Namibia.

REQUIREMENTS
- A formal engineering qualification (BSc, Mech/Civ Eng) with PrEng registration.
- Ability to work under pressure, whilst ensuring deadlines are met.
- Knowledge of pumps, piping, water treatment processes and technologies, control systems and manufacturing processes will be an advantage.
- At least five years' work experience.
- Namibian citizenship or permanent residence permit.

We offer competitive remuneration packages commensurate with experience, qualifications, etc. Please email applications to HR@ase.com.na

Closing Date: 12 May 2025

Only short-listed candidates will be contacted.

Notice of Environmental Impact Assessment

The Roads Authority of Namibia (RA) appointed ***Element Consulting Engineers*** to perform the consulting services for the following project:

Emergency Appointment of China Henan International Cooperation Group (CHICO) to Continue with the Pending 27km of the 78km Light Rehabilitation Works on TR0804 Phase 03: Between Rundu and Divundu in The Kavango East Region. Procurement Reference No: W/DP/RA-36/2024

Enviro Management Consultants Namibia is appointed to conduct the Environmental Impact Assessment and develop an Environmental Management Plan as required by the Environmental Management Act No 7 (2007) and associated Environmental Regulations and further submit the application to the Environmental Commissioner for consideration.

All Interested and Affected Parties (I&AP's) are hereby invited to register in terms of the environmental assessment process and to give input, comments or opinions regarding the intended road rehabilitation before the 27th of May 2025.

For further information, and to register as an I&AP please contact:

Enviro Management Consultants Namibia
Contact: Ms. Maike Prickett or Mr. Rian du Toit
Fax: 088 626968 | Email: maike@enviromcn.com

ELEMENT Consulting Engineers — Enviro

Dinsdag 6 Mei 2025

Republikein

Jou land. Jou mense. Jou nuus.

NMM synergi

focus

WORKING NATION

Grab your copy today!

TUESDAY 6 MAY 2025 — Market Watch — Republikein Sun Allgemeine Zeitung 3

Economic Indicators

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Closing Date: 12 May 2025

Notice of Environmental Impact Assessment

DIENSTAG, 6. MAI 2025

AZ Allgemeine Zeitung

AKTUELL MITTENDRIN FÜR DICH

SEIT 1916 — 109. JAHRGANG, NUMMER 81 — ISSN 1560-9421

Grenzchaos — Offenlegung — WaZon-Jugend — Das Wetter

AUFTRITT MIT HERZ STATT AUSBILDUNG

40 Seiten Inhalt

NMM synergi

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WORKING NATION

TUESDAY 6 MAY 2025 — Market Watch — Republikein Sun Allgemeine Zeitung 3

Economic Indicators

Exchange Rates — Forward Cover

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ELEMENT — ENVIRO

Tuesday 13th May 2025

MAKE CYCLING SAFE

DID YOU KNOW?
Globally, more than one in four road deaths involves a pedestrian or cyclist. Always wear visible clothes when you walk or cycle.
8th UN Global Road Safety Week
12-18 May 2025

Streets for Life
MakeCyclingSafe
DECADE OF ACTION FOR ROAD SAFETY 2021 - 2030
OUR VISION
"ZERO DEATHS & SERIOUS INJURIES"

NS9

Dinsdag 13 Mei 2025

Republikein

Jou land. Jou mense. Jou nuus.

WHS hof toe oor nuwe

Geliefde dr. Silvi vereer

Henriette Lamprecht

'n Geliefde pediater van Swakopmund wat wyd bekend is vir haar jarelange

2 Republikein Sun Allgemeine Zeitung Market Watch

TUESDAY 13 MAY 2025

NamRa reflects on 2024

Taking stock

Namibia Revenue Agency commissioner Sam Shivute high-

signature of Bank of Namibia governor, Johannes !Gawaxab.

waxab's signature across all denominations.

"The issuance of currency is a sovereign act, enshrined in Article 128(1) of the Namibian Constitution and further articulated in Section 38(1) of the Bank of Namibia Act", !Gawaxab said of the need to launch the modified banknote.

"These legal provisions are the legal scaffolding upon which the stability of our economy rests. However, our mandate goes beyond mere issuance. It encompasses the safeguarding of value, the deterrence of counterfeiting and the maintenance of public trust," he said.

currency circulation, rising from N$5.2 billion in 2023 to N$5.6 billion. "This growth is indicative not only of economic expansion but of the confidence that Namibians place in their currency as a store of value," !Gawaxab said.

Deterring counterfeiting

The modification also aimed to counter instances where the unscrupulous characters would attempt to create fake banknotes.

"In terms of safeguarding our currency from counterfeiting, it is equally significant to note a 10.7% decline in counterfeit

rence is a matter of public trust and institutional credibility," !Gawaxab said.

"When citizens know that the currency they hold is secure, they transact with confidence, and that confidence is the bedrock of economic activity. Therefore, the issuance of secure, high-quality currency is a strategic imperative," he added.

According to !Gawaxab, the

WATCH: Bank of Namibia governor Johannes !Gawaxab says the launch of the N$50 banknote is as a consequence of demand for the denomination, and said it was not merely done for the sake of adding a signature.

has systematically upgraded four key denominations: the N$10, N$20, N$100, and N$200 notes. Today, we complete this cycle with the unveiling of the modified N$50 banknote, which is a proactive response to evolving market demands. Our forthcoming comprehensive review of the national currency, is scheduled to be launched in three months," he said.

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CONSOLIDATED COPPER

About Consolidated Copper Corporation

Consolidated Copper Corp, a mining, development, and exploration company focused on copper operations in Namibia, is seeking a suitably qualified candidate for the position of Junior IT Technician at its Namibian operations under Ongopolo Mining Limited. The successful incumbent will be based full-time at Tschudi Mine near Tsumeb and will be required to travel to other operational sites, including Otjihase Mine, Matchless Mine, and the Walvis Bay Warehouse. The role may also involve providing after-hours and on-call IT support as needed across the various locations.

JUNIOR IT TECHNICIAN

Closing Date: 23 MAY 2025, 7:00PM

To apply or view more details please visit: https://jobportunities.net/jobs_search.aspx or scan the QR Code.
For assistance on the portal, please contact the Tara Nawa team at +264 (0)64 402403.

JobPortunities Digital Recruitment

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TODAY | WINDHOEK MAYOR CALLS FOR FUNDING MODEL AMID HOUSING CRISIS - P4

Namibian Sun Tells it all

Bill blocking foreign land ownership back on the table 3

President urges traditional leaders to act on GBV 4

Hollard reign supreme in 2025 WPP cycling series 3

TUESDAY 13 MAY 2025

N$7

• BOARD SAYS 61% IS BELOW THE STANDARD

Windhoek High sues govt over principal appointment

Punish rapists severely and deny them parole – LPM

2 Republikein Sun Allgemeine Zeitung Market Watch TUESDAY 13 MAY 2025

NamRa reflects on 2024

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WATCH: Bank of Namibia governor Johannes !Gawaxab says the launch of the N$50 banknote is as a consequence of demand for the denomination, and said it was not merely done for the sake of adding a signature.

Deterring counterfeiting

VACANCY

JUNIOR IT

DIENSTAG, 13. MAI 2025

AZ Allgemeine Zeitung

SEIT 1916 109. JAHRGANG, NUMMER 86 ISSN 1560-9421

AKTUELL MITTENDRIN FÜR DICH

Arbeiter zuerst

Autonomie

AZ-Beilage

tourismus

52 Seiten Inhalt

Das Wetter

Windhoek

Walvis Bay

Präsidentin Nandi-Ndaitwahs erste Auslandsreise nach Angola

2 Republikein Sun Allgemeine Zeitung Market Watch TUESDAY 13 MAY 2025

NamRa reflects on 2024

» Taking stock

Notice of Environmental Impact Assessment

VACANCY

CONSOLIDATED COPPER

About Consolidated Copper Corporation

JUNIOR IT TECHNICIAN

Closing Date: 23 MAY 2025, 7:00PM

7.2 Press Notice

This is the press notice placed in the various newspapers:

Notice of Environmental Impact Assessment

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ELEMENT Consulting Engineers

A FIFTH DIMENSION TO ENGINEERING

ENVIRO

7.3 Table of registered and consulted I&AP's

List of Interested and Affected Parties Consulted					
Name & Surname	Organisation	Position	Tel.	E-mail	Means
Hon Lauremtius Mukoya	Ndiyona Constituency	Concillor	081 710 9920	lmukoya@kavangorc.gov.na	Personal visit
Hon. Michael Kampota	Ndonga Linena Constituency	Councillor		mskampota@kavangorc.gov.na	Personal visit
Mbambo Cleophas Shinkanda		Landowner	081 701 7573		Personal visit
Muyenga Pontianus		Landowner	081 416 3307	muyengap@gmail.com	Personal visit
Joseph Sumpu		Landowner	081 751 3595	jnsumpu@gmail.com	Personal visit
Johannes Sisingi Haingura		Landowner	081 660 7399	sisingi.haingura@gmail.com	Personal visit

Comments received during the public participation process:

1. The various Interested and Affected Parties were consulted (as indicated above) and non of them had any objections towards the widening of the existing borrow pit.
2. Compensation was paid to the affected parties by the Roads Authority.
3. There were no comments received from any other party during the notice period in the newspapers.

Please find the comment sheets and compensation agreements as an annexure at the end of this document (Appendix D).

8. ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The Scoping Report will look at the Construction and Operational Phases of the project to determine the significance of the expected environmental impacts associated with the upgrade of the existing gravel road to a low volume seal. The following activities are generally associated with the construction of a road. These activities are kept in mind during the environmental impact assessment process.

- **Camp site establishment**
  - Demarcation of the camp site
  - Protection of vegetation and natural features
  - Protection of fauna
  - Protection of cultural historical aspects
  - Topsoil conservation
  - De-bushing and de-stumping
  - Structures construction: bulk water, sewage, electricity and accommodation
  - Parking and other required demarcated areas

- **Site infrastructure**
  - Crusher plants
  - Construction of service, haul and access roads
  - Gates and fences

- **Site management**
  - Rubble and waste rock
  - Solid waste
  - Liquid waste
  - Hazardous waste
  - Pollution control
  - Implements and equipment
  - Air quality
  - Noise control
  - Fire control
  - Health and Safety

- **Earthworks**
  - Excavations and trenches
  - Cut and fill
  - Shaping and trimming

- **Stockpiles, storage and handling**
  - Topsoil
  - Spoil
  - Vehicles and equipment
  - Fuel
  - Hazardous substances

8.1 Environmental Impact Assessment Process Methodology

One of the objectives of this study is to identify and quantify the potential positive and negative impacts which the proposed BP operations will have on the receiving biophysical and socio-economic environment. A checklist is designed to help users identify the likely significant environmental effects of proposed projects during scoping. It is to be used in conjunction with the Checklist of Criteria for Evaluating the Significance of Impacts. There are two stages:

- **First**, identifying the potential impacts of projects.

- **Second** selecting those which are likely to be significant and therefore require most attention in the assessment.

A useful way of identifying the potential impacts of a project is to identify all the activities or sources of impact that could arise from construction, operation or decommissioning of the project, and to consider these alongside the characteristics of the project environment that could be affected, to identify where there could be interactions between them. The two parts of the Scoping Checklist have been developed to assist in this process.

Start with the checklist of questions set out below. Complete Column 2 by answering:

- yes - if the activity is likely to occur during implementation of the project.
- no - if it is not expected to occur.
- ? - if it is uncertain at this stage whether it will occur or not.

For each activity for which the answer in Column 2 is "Yes" or "?", refer to the second part of the Scoping Checklist which lists characteristics of the project environment which could be affected, and identify any which could be affected by that activity. Information will be used about the surrounding environment to complete this stage. Note the characteristics of the project environment that could be affected, and the nature of the potential effects in Column 4.

Finally, use Checklist of Criteria for Evaluating the Significance of Impacts to help complete Column 5. This will identify those impacts which are expected to be significant. The questions are designed so that a "yes" answer will point towards a significant impact. It is often difficult to decide what is or is not significant, but a useful simple check is to ask whether the effect is one that is of sufficient importance that it ought to be considered and have an influence on the development consent decision.

Table 3: Environmental Scoping Checklist

PART 1 OF THE SCOPING CHECKLIST: QUESTIONS ON PROJECT CHARACTERISTICS				
1. Will construction, operation or decommissioning of the Project involve actions that will cause physical changes in the locality (topography, land use, changes in water bodies, etc)?				
No.	**Questions to be considered in the Scoping**	**Yes/No/?**	**Which Characteristics of the Project Environment could be affected and how?**	**Is the effect likely to be significant? Why?**
1.1	Permanent or temporary change in land use, land cover or topography including increases in intensity of land use?	Yes	The borrow pit operations will temporarily alter the land use, land cover and, for the borrow pits - topography of the area.	Low significance because of possible mitigation measures that can be implemented. Rehabilitation of the BP will improve aesthetic aspect.
1.2	Clearance of existing land, vegetation and buildings?	Yes	Clearing of vegetation for construction operations influencing the vegetation, soils and topography. It is very unlikely that any buildings will be cleared.	Clearing of vegetation is always regarded as significant when it comes to BP operations. However, mitigation measures can reduce the significance of the impact.
1.3	Creation of new land uses?	Yes	BP enlargement will change land use from natural to disturbed.	Might be significant due to some protected flora species.
1.4	Pre-construction investigators eg boreholes, soil testing?	Yes	Materials testing are required to obtain construction materials which will affect the topography and vegetation cover.	The areas of disturbance are very small. Holes are dug to excavate samples and closed after sampling. Low significance.
1.5	Construction works?	Yes	During construction aspects such as social, soil, surface water, vegetation and geology can be affected.	Existing BP areas will be used which have already been cleared.
1.6	Demolition works?	No		
1.7	Temporary sites used for construction works or housing of construction workers?	Yes	A temporary construction camp will probably be constructed where water and waste management are the most important activities that need to be mitigated.	Should these activities not be managed, it might have a negative impact on the soils, water and health and safety of the contractor workers. No permanent changes to the area are predicted.
1.8	Above ground buildings, structures or earthworks including linear structures cut and fill or excavations?	Yes	The above ground earthworks will be regarded as primarily for the BP activities.	It is anticipated that the impact will be significant due to the excavation of materials.

1.9	Underground works including mining or tunnelling?	No		
1.10	Reclamation works?	No		
1.11	Dredging?	No		
1.12	Coastal structures egg seawalls, piers?	No		
1.13	Offshore structures?	No		
1.14	Production and manufacturing processes?	No		
1.15	Facilities for storage of goods or materials?	Yes	The storage of machines, gravel, crushed stone and sand.	The storage of goods or materials can be mitigated therefore limiting the significance.
1.16	Facilities for treatment or disposal of solid wastes or liquid effluents?	Yes	Sewage effluent from the camp sites need to be treated or disposed.	This might have a significant negative impact on Health / Safety as well as soils and water if not managed effectively.
1.17	Facilities for long term housing of operational workers?	No		
1.18	New road, rail or sea traffic during construction or operation?	Yes	Construction of an access road to the BP and traffic increase due to movement of construction vehicles.	Medium significance, existing access roads to BPs.
1.19	New road, rail, air, water borne or other transport infrastructure including new or altered routes and stations, ports, airports etc?	No		
1.20	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No		
1.21	New or diverted transmission lines or pipelines?	No		
1.22	Impoundment, damming, culverts, realignment or other changes to the hydrology of watercourses or aquifers?	No		

1.23	Stream crossings?	No		
1.24	Abstraction or transfers of water from ground or surface waters?	Yes	Water will be extracted for the construction phase of the project.	Water from boreholes or adjacent river will be used and the significance will be medium due to the scarcity of available water.
1.25	Changes in water bodies or the land surface affecting drainage or run-off?	No		
1.26	Transport of personnel or materials for construction, operation or commissioning?	Yes	Surface characteristics.	No significance.
1.27	Long term dismantling or decommissioning or restoration works?	No		
1.28	Ongoing activity during decommissioning which could have an impact on the environment?	No		
1.29	Influx of people to an area is either temporarily or permanently?	No		
1.30	Introduction of alien species?	No		
1.31	Loss of native species or genetic diversity?	No		
1.32	Any other actions?	No		
2. Will construction or operation of the Project use natural resources such as land, water, materials or energy, especially any resources which are non-renewable or in short supply?				
No.	**Questions to be considered in Scoping**	**Yes/No/?**	**Which Characteristics of the Project Environment could be affected and how?**	**Is the effect likely to be significant? Why?**
2.1	Land especially undeveloped or agricultural land?	Yes	During operation, geological materials will be used for the filling and layer works. Soils will be affected and might therefore impact negatively on the agricultural / communal land.	Materials will permanently be removed. Significance will be low because the current / new material is not used for anything else.

2.2	Water?	Yes	Water is used for domestic and crushing purposes.	The available water will be used for construction. The significance will be medium due to the low volumes available.

3. Will the Project involve use, storage, transport, handling or production of substances or materials which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health?

No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
3.1	Will the project involve use of substances or materials which are hazardous or toxic to human health or the environment (flora, fauna, and water supplies)?	Yes	Hydrocarbons always pose a risk to the environment.	Water and soils are normally affected by spillages of hydrocarbons. The significance might be medium without mitigation measures.
3.2	Will the project result in changes in occurrence of disease or affect disease vectors (eg insect or water borne diseases)?	No		
3.3	Will the project affect the welfare of people eg by changing living conditions?	?	There is always a risk of altered quality with regards to living conditions of the adjacent people and the environment. This is with reference to HIV/AIDS.	The significance of such risks can be mitigated, ensuring low impact significance.
3.4	Are there especially vulnerable groups of people who could be affected by the project eg hospital patients, the elderly?	Yes	There are some rural households around existing BPs. Noise and dust might impact on these residents.	Medium negative significance due to the prevailing wind blowing from the east, therefore mitigating some of the impact.
3.5	Any other causes?	No		

4. Will the Project produce solid wastes during construction or operation or decommissioning?

No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
4.1	Spoil, overburden or mine wastes?	Yes	Spoils will be generated during construction affecting the aesthetics appeal of the area.	No. This activity can be mitigated very successfully. Low significance.
4.2	Municipal waste (household and or commercial wastes)?	Yes	Domestic waste will be generated.	Medium significance should it not be properly managed.

4.3	Hazardous or toxic wastes (including radioactive wastes)?	Yes	Used oils and old batteries.	Mitigation measures are important to manage the handling and disposal of used oils and old batteries.
4.4	Other industrial process wastes?	No		
4.5	Surplus product?	No		
4.6	Sewage sludge or other sludge from effluent treatment?	Yes	Sewage is produced at the temporary construction camp.	Sewage is always a very important impact that might have a negative impact on soils, water and health and safety.
4.7	Construction or demolition wastes?	No		
4.8	Redundant machinery or equipment?	No		
4.9	Contaminated soils or other material?	Yes	There is always a possibility that contamination of soils can occur during operation due to spillage of oils / diesel.	No. The scale of contamination is very limited and can be mitigated.
4.10	Agricultural wastes?	No		
4.11	Any other solid wastes?	No		
5. Will the Project release pollutants or any hazardous, toxic or noxious substances to air?				
No.	**Questions to be considered in Scoping**	**Yes/No/?**	**Which Characteristics of the Project Environment could be affected and how?**	**Is the effect likely to be significant? Why?**
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources?	Yes	Gasses such as Nox and Sox are deposited in the air from the machines.	The quantity of these gasses will not impact significant negatively on the environment.
5.2	Emissions from production processes?	No		
5.3	Emissions from materials handling including storage or transport?	No		
5.4	Emissions from construction activities including plant and equipment?	Yes	Construction vehicles, power plants and the crusher plant will generate gaseous emissions.	The impacts might be low significant and can mitigated.
5.5	Dust or odours from handling of materials including construction materials, sewage and waste?	Yes	Dust from material handling and transport.	Yes. Dust might be a nuisance to receptors.

5.6	Emissions from incineration of waste?	No		
5.7	Emissions from burning of waste in open air (eg slash material, construction debris)?	Yes	Burning of waste will negatively affect the air quality.	The significance will be low negative.
5.8	Emissions from any other sources?	No		

6. Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation?

No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
6.1	From operation of equipment eg engines, ventilation plant, crushers?	Yes	The material extraction and production equipment produces noise and vibrations	The significance might be medium due to some receptors living in the vicinity of the operations.
6.2	From industrial or similar processes?	No		
6.3	From construction or demolition?	Yes	Material extraction will produce noise.	Low significance due to low receptor density.
6.4	From blasting or piling?	No		
6.5	From construction or operational traffic?	Yes	The hauling trucks will produce noise and vibration.	No. The impact is very local and is not significant.
6.6	From lighting or cooling systems?	No		
6.7	From sources of electromagnetic radiation (consider effects on nearby sensitive equipment as well as people)?	No		
6.8	From any other sources?	No		

7. Will the Project lead to risks of contamination of land or water from releases of pollutants on the ground water into sewers, surface water, groundwater, coastal waters or the sea?

No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
7.1	From handling, storage, use or spillage of hazardous or toxic materials?	Yes	Spillage of oils and other hydrocarbon may affect the water and soil.	With no mitigation the significance might be medium.
7.2	From discharge of sewage or other effluents (whether treated or untreated) to water or the land?	Yes	Effluent at the BP site might impact negatively on the surface water, soils and health and safety of the workforce.	Should the sewage not be properly managed the negative impact might be significant.
7.3	By deposition of pollutants emitted to air, onto the land or into water?	Yes	Gasses from the machines.	No. The volumes of emissions are limited.
7.4	From any other sources?	No		
7.5	Is there a risk of long term build-up of pollutants in the environment from these sources?	No		

8. Will there be any risk of accidents during construction or operation of the Project which could affect human health or the environment?

No.	Questions to be considered in Scoping	Yes/ No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous or toxic substances?	No		
8.2	From events beyond the limits of normal environmental protection eg failure of pollution controls systems?	No		
8.3	From any other causes?	Yes	The health and safety of road users might be affected by construction vehicles.	Might be significant if proper road traffic management is not conducted during the construction phase.
8.4	Could the project be affected by natural disasters causing environmental damage (eg floods, earthquakes, landslip, *etc)?*	No		

9. Will the Project result in social changes, for example, in demography, traditional lifestyles, employment?				
No.	**Questions to be considered in Scoping**	**Yes/ No/?**	**Which Characteristics of the Project Environment could be affected and how?**	**Is the effect likely to be significant? Why?**
9.1	Changes in population size, age, structure, social groups etc?	No		
9.2	By resettlement of people or demolition of homes or communities or community facilities eg schools, hospitals, social facilities?	No		
9.3	Through in-migration of new residents or creation of new communities?	No		
9.4	By placing increased demands on local facilities or services eg housing, education, health?	No		
9.5	By creating jobs during construction or operation or causing the loss of jobs with effects on unemployment and the economy?	Yes	The local and larger community will benefit from the construction phase.	The significance might be positive low due job creation and increased mobility.
9.6	Any other causes?	No		
10. Are there any other factors which should be considered such as consequential development which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality?				
No.	**Questions to be considered in Scoping**	**Yes/No/?**	**Which Characteristics of the Project Environment could be affected and how?**	**Is the effect likely to be significant? Why?**
10.1	Will the project lead to pressure for consequential development which could have significant impact on the environment eg more housing, new roads, new supporting industries or utilities, etc?	No		
10.2	Will the project lead to development of supporting facilities, ancillary development or development stimulated by the project which could have impact on the environment eg: • supporting infrastructure • housing development • extractive industries • supply industries • other?	No		

10.3	Will the project lead to after-use of the site which could have an impact on the environment?	?	Some small scale economic activities might be developed during operation of the crusher.	Low positive.
10.4	Will the project set a precedent for later developments?	No		
10.5	Will the project have cumulative effects due to proximity to other existing or planned projects with similar effects?	No		

PART TWO OF THE SCOPING CHECKLIST: CHARACTERISTICS OF THE PROJECT ENVIRONMENT

For each project characteristic identified in Part 1 consider whether any of the following environmental components could be affected.

Question - Are there features of the local environment on or around the Project location which could be affected by the Project?

- There are no areas protected by law in the vicinity of the proposed sites.
- There is a low possibility of features of high historic or cultural importance.
- Surface drainage patterns will be addressed through proper engineering design.

Question - Is the Project in a location where it is likely to be highly visible to many people?
This BP area is not used extensively; therefore, the locations are not highly visible to many people.

Question - Is the Project located in a previously undeveloped area where there will be loss of Greenfield land?
Partially. The existing BP might be enlarged.

Question - Are there existing land uses on or around the Project location which could be affected by the Project?

There are existing BPs, but they might be enlarged.

Question - Are there any plans for future land uses on or around the location which could be affected by the Project?
No. The area will probably remain agricultural / communal.

Question - Are there any areas on or around the location which are densely populated or built-up, which could be affected by the Project?

No, the area is rural residential with low population density.

Question - Are there any areas on or around the location which are occupied by sensitive land uses which could be affected by the Project?

No.

Question - Are there any areas on or around the location which contain important, high quality or scarce resources which could be affected by the Project?

There are no scarce resources found around the project that could be influenced by the construction or operational phases of this project, but there are some flora species (trees) that are protected by Forestry Legislation.

Question - Are there any areas on or around the location of the Project which are already subject to pollution or environmental damage e.g. where existing legal environmental standards are exceeded, which could be affected by the project?

No. The area has been subject to agricultural and rural residential activities.

Question - Is the Project location susceptible to earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions e.g. temperature inversions, fogs, severe winds, which could cause the project to present environmental problems?

No. The area is very flat with limited floods, erosion or impacts on the climatic conditions.

Question - Is the Project likely to affect the physical condition of any environmental media?

Yes, geological material will permanently be removed from the BPs. The topography will permanently be altered.

Question - Are releases from the Project likely to have effects on the quality of any environmental media?

- The air quality might deteriorate due to dust generation during operation.
- The quality of soil might deteriorate without proper management.
- Acidification of soils or waters will probably not occur.
- There will be some noise generated during the operational phase of the crusher but will be limited to the site.
- The air quality will return to normal once operations stop.

Question - Is the Project likely to affect the availability or scarcity of any resources either locally or globally?

- The project will use fossil fuels in liquid (diesel).
- Water will be used for dust suppression, construction and domestic use.
- The quarrying activity extracts geological materials on a non-renewable basis.

Question - Is the Project likely to affect human or community health or welfare?

- The quality of air will be affected due to crusher operation activities and material hauling. Even though this is the case, human health might not be problematic.
- No mortality or morbidity might be experienced by human receptors.

In the Scoping checklist, the significance must be indicated. To facilitate this procedure, the following questions were considered during the rating:

Questions that were considered to determine significance:

1. Will there be a large change in environmental conditions?
2. Will new features be out-of-scale with the existing environment?
3. Will the effect be unusual in the area or particularly complex?
4. Will the effect extend over a large area?
5. Will there be any potential for trans frontier impact?
6. Will many people be affected?
7. Will many receptors of other types (fauna and flora, businesses, facilities) be affected?
8. Will valuable or scarce features or resources be affected?
9. Is there a risk that environmental standards will be breached?
10. Is there a risk that protected sites, areas, features will be affected?
11. Is there a high probability of the effect occurring?
12. Will the effect continue for a long time?
13. Will the effect be permanent rather than temporary?
14. Will the impact be continuous rather than intermittent?
15. If it is intermittent, will it be frequent rather than rare?
16. Will the impact be irreversible?
17. Will it be difficult to avoid, or reduce or repair or compensate for the effect?

8.2 Environmental Impact Assessment Summary

The following environmental impacts were identified during the assessment procedure as described above. The impacts are classified as either positive or negative and the significance ratings as low, medium and high.

No.	Activity	Aspect / Impact	Positive / Negative	Significance
1.1	Permanent or temporary change in land use, land cover or topography including increases in intensity of land use?	The quarry operations will permanently alter the land use, land cover and, for the borrow pits - topography of the area.	Negative	Low
		Areas zoned as undetermined or agricultural will change to borrow pits (land use).	Negative	Medium
1.2	Clearance of existing land, vegetation and buildings.	Clearing of vegetation for construction operations influencing the vegetation, soils and topography. It is very unlikely that any buildings will be cleared.	Negative	Medium
1.3	Creation of new land uses.	The existing land use will change from undetermined / agricultural to borrow pit (land use).	Negative	Low
1.4	Pre-construction investigators egg boreholes, soil testing?	Materials testing are required to obtain construction materials which will affect the topography and vegetation cover.	Negative	Low
1.5	Construction activities.	During construction aspects such as social, soil, surface water, vegetation and geology can be affected.	Negative	Low
1.7	Temporary sites used for construction works or housing of construction workers?	A temporary construction camp will probably be constructed where water and waste management are the most important activities that need to be mitigated. Soil, water pollution as well as health and safety concerns.	Negative	Low
1.8	Above ground buildings, structures or earthworks including linear structures cut and fill or excavations.	The above ground earthworks will be regarded as primarily for the BP activities. Change of land use, topographical and aesthetic aspects. Health and safety is also an aspect to consider.	Negative	Medium

1.15	Facilities for storage of goods or materials.	Pollution of soils and water.	Negative	Low
1.16	Facilities for treatment or disposal of solid wastes or liquid effluents?	Sewage effluent from the camp sites need to be treated or disposed. Soil and water pollution as well as health and safety.	Negative	Medium
1.18	New road, rail or sea traffic during construction or operation?	Construction of an access road to the BP and traffic increase due to movement of construction vehicles. Health and Safety risks as well as degradation of air quality.	Negative	Low
1.24	Abstraction or transfers of water from ground or surface waters?	Water will be extracted for the construction phase of the project. Deterioration of water availability.	Negative	Low
1.26	Transport of personnel or materials for construction, operation, or commissioning?	Health and safety (road users and workers), air quality (noise and dust).	Negative	Low
2.1	Land especially undeveloped or agricultural land?	During **operation**, geological materials will be used for the filling and layer works. Soils will be affected and might therefore impact negatively on the agricultural / communal land.	Negative	Low
2.2	Water?	Water is used for domestic and construction purposes. Water availability may decline.	Negative	Low
3.1	Will the project involve use of substances or materials which are hazardous or toxic to human health or the environment (flora, fauna, and water supplies)?	Hydrocarbons always pose a risk to the environment. Soil and water pollution.	Negative	Medium
3.3	Will the project affect the welfare of people eg by changing living conditions?	There is always a risk of altered quality with regards to living conditions of the adjacent people and the environment. This is with reference to HIV/AIDS.	Negative	Low
3.4	Are there especially vulnerable groups of people who could be affected by the project eg hospital patients,	There are some rural households around the existing BPs. Noise and dust might impact on these residents.	Negative	Medium

	the elderly?			
4.1	Spoil, overburden or mine wastes?	Spoils will be generated during construction affecting the aesthetics appeal of the area.	Negative	Low
4.2	Pollution on site (domestic and construction waste).	Pollution of the natural environment (soil and water).	Negative	Medium
4.3	Hazardous or toxic wastes (including radioactive wastes)?	Used oils and old batteries can contribute to pollution of soils, water, and fire risk.	Negative	Low
4.6	Sewage sludge or other sludge from effluent treatment?	Sewage is produced at the construction camp. Pollution potential to water and soil as well as health and safety risk.	Negative	Medium
4.9	Contaminated soils or other material.	There is always a possibility that contamination of soils can occur during operation due to spillage of oils / diesel.	Negative	Low
5.4	Emissions from combustion of fossil fuels from stationary or mobile sources.	Gasses such as Nox and Sox are deposited in the air from the machines.	Negative	Low
		The movement from vehicles will generate noise, dust and gaseous emissions.	Negative	Low
5.7	Emissions from burning of waste in open air (eg slash material, construction debris)?	Burning of waste will negatively affect the air quality.	Negative	Low
6.1-6.5	From operation of equipment e.g., engines, ventilation plant, crushers?	The mining of borrow pits and production equipment produces noise and vibrations resulting in air quality deterioration.	Negative	Medium
7.1	From handling, storage, use or spillage of hazardous or toxic materials?	Contamination of land or water from releases of pollutants on the ground water into sewers, surface water, or groundwater.	Negative	Low
7.2	From discharge of sewage or other effluents (whether treated or untreated) to water or the land?	Contamination of land or water from releases of pollutants on the ground water into sewers, surface water, or groundwater.	Negative	Low
7.3	By deposition of pollutants emitted to	Contamination of land or water from releases of	Negative	Low

	air, onto the land or into water?	pollutants on the ground water into sewers, surface water, or groundwater.		
9.5	By creating jobs during construction or operation or causing the loss of jobs with effects on unemployment and the economy?	The local and larger community will benefit from the construction phase and may extend due to infrastructure and new facilities at the BP.	Positive	Low

The following environmental and social management plan addresses all of the above mentioned impacts to such an extent that all identified negative impacts will be reduced to near negligible.

The project area is very small, and the activities planned for the excavation and processing of the material is very localised restricting negative impacts to the surrounding areas.

9. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

The Minimum Requirements for the Environmental and Social Management Programme (ESMP) are attached in this document. It sets out as the minimum generic standards applicable to such a project. A detailed site specific ESMP should be drafted before commencement of the Construction phase.

The ESMP is intended to bridge the gap between the Environmental Assessment (EA) and the implementation of the project, particularly with regards to implementing the mitigation measures recommended in the Environmental Assessment (EA). Monitoring, auditing and taking corrective actions during implementation are crucial interventions to successfully implement the ESMP.

The ESMP detail actions to ensure compliance with regulatory bodies and further ensures that environmental performance is increased through mitigation measures on impacts as they occur.

ESMP implementation is a cyclical process that converts mitigation measures into actions and through cyclical monitoring, auditing, review and corrective action, ensures conformance with stated ESMP aims and objectives. Through monitoring and auditing, feedback for continual improvement in environmental performance must be provided and corrective action taken to ensure that the ESMP remains effective.

9.1 ESMP Administration

The ESMP must be part of the Tender and Contract documentation. Copies of the ESMP shall be kept at the site office and will be distributed to all senior contract personnel. All senior personnel shall be required to familiarize themselves with the contents of this document.

9.2 Roles and Responsibilities

The implementation of the ESMP requires the involvement of several stakeholders, each fulfilling a different but vital role to ensure sound environmental management during each phase.

Engineer and Engineer's Representative (ER)

The Engineer shall delegate powers to the Engineer's Representative (ER) in respect of implementation of the ESMP. The Engineer has the responsibility to ensure that the Employer's responsibilities are executed in compliance with relevant legislation and the ESMP. The Engineer also has the responsibility to approve the Contractor's appointment of the Environmental Control Officer (ECO).

Any on-site decisions regarding environmental management are ultimately the responsibility of the Engineer. The ER shall have the following responsibilities in terms of the implementation of this ESMP:

- Controlling that the necessary environmental authorizations and permits have been obtained by the Contractor.
- Advising the Contractor and the Contractors ECO in finding environmentally responsible solutions to problems.

- Taking appropriate action if the specifications are not followed.
- Ordering the removal of person(s) and/or equipment not complying with the ESMP specifications.
- Issuing penalties for non-compliance to mitigation measures pertained in the ESMP.
- Advising on the removal of person(s) and/or equipment not complying with the specifications.
- Auditing the implementation of the ESMP and compliance with authorization on a monthly basis.
- Undertaking a continual review of the ESMP and recommending additions and/or changes to the document after completion of the contract.

Environmental Control Officer (ECO)

The Environmental Control Officer (ECO) will be a competent person from the staff of Contractor to implement the on-site environmental management of this ESMP by the Contractor. The ECO shall be on site daily and the ECO's duties will include the following:

- Regular site inspections of all construction areas with regard to compliance with the ESMP.
- Evaluate and verifying adherence to the ESMP.
- Advising the Contractor in finding environmentally responsible solutions to ESMP non-compliance activities.
- Organise and facilitate environmental awareness training for all new personnel coming onto site.

9.3 Environmental Awareness Training

Before any work is commenced on the Site, the Contractor shall ensure that adequate environmental awareness training of senior site personnel takes place and that all construction workers receive an induction presentation on the importance and implications of the ESMP. The Contractor shall liaise with the Engineer during establishment phase to fix a date and venue for the training and to agree on the training content.

The Contractor shall provide a suitable venue and ensure that the specified employees attend the course. The Contractor shall ensure that all attendees sign an attendance register and shall provide the ER with a copy of the attendance register. The presentation shall be conducted, as far as is possible, in the employees' language of choice.

As a minimum, training should include:

- Explanation of the importance of complying with the ESMP.
- Discussion of the potential environmental impacts of construction activities.

- The benefits of improved personal performance.
- Employees' roles and responsibilities, including emergency preparedness.
- Explanation of the mitigation measures that must be implemented when carrying out their activities.
- Explanation of the specifics of this ESMP and its specification (no-go areas, etc.)
- Explanation of the management structure of individuals responsible for matters pertaining to the ESMP.
- The contractor shall keep records of all environmental training sessions, including names, dates and the information presented.

9.4 Public Participation

An on-going process of public participation shall be maintained during construction to ensure the continued involvement of interested and affected parties (I&APs) in a meaningful way. Public meetings to discuss progress and any construction issues that may arise shall be held at least every two months and more regularly if deemed necessary by the ER. These meetings shall be arranged by the ECO and shall be facilitated by the Contractor. The Contractor shall present a progress report at each public meeting. All I&APs that participated in or were informed during the EIA shall be invited to each of the public meetings.

9.5 Environmental Auditing

Environmental auditing should be conducted at least once every three months during the construction phase. These environmental audits will be conducted by an environmental consultant with the required experience and sub-contracted by the Engineer.

Benefits derived from the audit process include:

- identification of environmental risks observed during a site visit;
- development or improvement of the environmental management system;
- suggested improvements to the ESMP;
- inspecting the required permits and licenses;
- increase in staff awareness with regards to the environment and the ESMP;
- inspect environmental incident reports, environmental monitoring and recording documentation. These documents will be compiled and filed by the ECO.

Commonly, the audit of a site will cover all environmental management procedures, operational activities & systems, and environmental issues.

9.6 Documentation, Record keeping and Reporting Procedures

The Contractor shall develop and implement an effective document handling and retrieval system for all ESMP documentation on site. This will ensure that there is adequate ESMP documentation

control and will facilitate easy document access and evaluation. ESMP documentation should include (but are not limited to):

- ESMP implementation activity specifications;
- training records;
- site inspection reports;
- monitoring reports; and
- auditing reports.

The Environmental Control Officer is responsible for ensuring that the registration and updating of all relevant ESMP documentation is carried out. The ECO is responsible for ensuring that the latest versions of documents are used to conduct tasks which may impact the project environment.

9.7 Environmental Mitigation Measures / Environmental Management Plan

The following mitigation measures are sufficient to reduce or avoid negative impacts associated with the construction of a road. It is based on the activities mentioned in this report that will occur during the construction phase of the project:

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
9.7.1 MANAGEMENT AND MONITORING	To ensure that the provisions of the ESMP are implemented during construction.	a. The independent environmental consultant shall monitor that all aspects of the ESMP are implemented during the construction phase of the project. b. The environmental consultant shall conduct site inspections and attend meetings. The site meeting agenda shall make provision for reporting on non-compliance issues related to the ESMP.	Environmental consultant together with the ECO.
9.7.2 COMMUNICATION AND STAKEHOLDER CONSULTATION	To ensure that all stakeholders are adequately informed throughout construction and that there is effective communication with and feedback to the consultant and client.	a. The Contractor shall appoint an ECO from the construction team to take responsibility for the implementation for all provisions of this ESMP and to liaise between the contractor, community, and the Engineer. The ECO must be appointed at least 14 days after the site-handover. b. The Contractor shall at every site meeting report on the status of the implementation of all provisions of the ESMP. c. The contractor shall implement the environmental awareness training as stipulated in Section 9.3 above. d. The Contractor shall liaise with the social and environmental consultants regarding all issues related to community consultation and negotiation as soon as possible after construction commences.	Contractor/ Environmental Consultant to monitor.
9.7.3 HEALTH AND SAFETY	To ensure health and safety of workers and the public at all times during construction	a. The Contractor shall submit a strategy to ensure the least possible disruption to traffic and potential safety hazards during operation. b. The strategy should include a schedule of work indicating when and how road crossings (construction at existing intersections) will be made. The schedule should be updated and distributed to all stakeholders. c. The Contractor shall also liaise with the Traffic Authorities in this regard. d. Proper traffic and safety warning signs must be placed at the BP site as required by the Road Traffic and Transport Act, 1999 (Act 22 of 1999) and the Road Traffic and Transport Regulations promulgated in terms of the Act.	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		e. The Contractor must adhere to the regulations pertaining to Health and Safety, with special reference to the provision of protective clothing. Failing to issue workers with the proper PPE, the Contract may be suspended until corrective actions were taken. f. Dust protection masks shall be provided to task workers if they complain about dust. g. Surface dust will be contained by wetting dry surfaces periodically with a water bowser, sprinkler system or any suitable method. This applies to all individual construction areas on site and to the sections of the road affected. h. Sprinkler systems shall be installed on the crusher to reduce dust from crusher operations. i. Restrict the highs of which the crushed materials is dropped. j. Crusher operation times shall be restricted from sun rise to sun set. k. Haul truck speed will be limited to only 30km/hours when driven on gravel roads. l. The hauling vehicles shall be covered when laden as to reduce dust while hauling. m. Potable water shall be available to workers to avoid dehydration. This water shall be of acceptable standards to avoid any illness. At least 3 litres of drinking water per person per day shall be made available during construction. n. The contractor shall enforce all relevant Health and Safety Regulations for the specific activities associated with this project. o. The Contractor shall implement a HIV/AIDS awareness programme as part of Health and Safety. p. Maintain a First-Aid kit on site and emergency protocol.	
9.7.4 CONSERVATION OF THE NATURAL AND HISTORICAL	To minimise damage to soil, vegetation and historical resources during the construction phase. This	a. Detailed instructions and final arrangements for protection of sensitive areas, keeping of topsoil and rehabilitation of disturbed areas shall be made, in line with the guidelines in this document. The ECO shall be consulted before any new areas are disturbed which have not yet been visited. b. No off-road driving shall be allowed, except on the agreed haul and access roads.	Contractor will ensure the mitigation measures are enforced at his own

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
ENVIRONMENT	includes soil crusting, soil erosion and unnecessary vegetation destruction. Management of water (domestic and construction).	c. A prescribed penalty will be deducted from the Contractor's payment certificate for every mature tree removed without approval. d. No trees may be felled or live wood in the project area removed by any member of the construction team, including sub-contractors. Contravention of this arrangement is liable for a prescribed penalty. e. A prescribed penalty will be deducted from the Contractor's payment certificate if it is shown that trees and/or branches have been broken down wilfully and unnecessarily, or that any plants have been collected illegally, by any of the staff or sub- contractors. f. Trees that need to be trimmed should be done so with the right equipment and aesthetical acceptable. The use of a saw fit for its purpose is obligatory and the branches of trees will not be broken off by the use of other machinery. g. The protected Aloe species shall not be removed. The areas where these plant occur shall be avoided. h. Where topsoil is available, this must be stockpiled separately in 1,00 m high piles and this used to cover the damaged areas outside the road reserve such as access roads to borrow pits, and clearing and grubbing areas. i. Where compaction has taken place in disturbed areas, these areas must be ripped and covered with topsoil separately kept for this purpose. This aspect shall be provided for in the schedule of quantities – covered by the Standard Specification of the contract. j. Poaching or collecting of wild animals is prohibited. k. The killing of any animal (reptile, bird or mammal) is prohibited, unless for legal hunting purposes. l. A prescribed penalty will be deducted from the contractor's payment certificate if it is shown that any of his staff or sub-contractors are involved in trapping, hunting or any kind of collecting of wild animals in the vicinity of the work sites. Such activities shall be reported to Nampol for prosecution. m. Pipelines for the pumping of construction water shall as far possibly run within the road reserve and along existing tracks and other roads. n. Water will not be allowed to be wasted. This includes water required for construction and domestic purposes.	expense. The ECO will monitor.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
9.7.5 BORROW PIT MANAGEMENT AND REHABILITATION	To ensure proper soil management (combat soil erosion and promote biological activities). Preserve and manage natural vegetation. To ensure health and safety around the borrow pits (decommissioning phase). To stimulate ecological processes after decommissioning (to stimulate vegetation and other biological activities). To establish borrow pits which is aesthetically pleasing after decommissioning.	a. The removal of material at borrow-pit sites shall be focused where the least significant vegetation exists. If material is only available around significant mature trees (more than 500 cm circumference – 1 meter above ground), clusters of trees should be preserved while suitable material is excavated around them. A 3-meter buffer must be conserved around the cluster of mature trees. The ER shall visit all proposed borrow-pit areas and indicate where and how material may be removed, before works commence. A **cluster constitutes 5 or more trees in proximity (within 20m radius).** b. The Contractor shall use safety tape to mark these tree clusters as to avoid confusion or miss-understandings. c. The Engineer shall draft a plan for the proposed borrow pit. This plan must indicate the required resources; borrow pit boundaries and sensitive areas that may not be mined (indication of the mature trees). d. The borrow pit areas will be clearly marked by using brightly painted markers. These markers will demarcate the area where materials might be removed and stored. e. All borrow-pits must be rehabilitated. f. The contractor shall liaise with the applicable local headmen OR residents regarding whether their borrow-pits shall be shaped as water reservoirs during rehabilitation. g. At those borrow-pits not to be shaped as reservoirs, topsoil (the top layer containing organic material) shall be stockpiled separately and the stockpile maintained for use at the end of the contract to rehabilitate the borrow pits. h. The topsoil shall be marked as to inform the machine operators that the material is top soil and should be left alone for rehabilitation purposes. i. The borrow pits shall be rehabilitated by trimming the sides to a slope not steeper than 20° **(1:5)** and evenly spreading the topsoil over the slopes to allow for the growth of new vegetation. j. All spoil material at the borrow pits shall be neatly shaped and covered with overburden (if available). k. Access to borrow pits shall be controlled (using gates or manned positions).	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		l. The borrow pit floor shall be levelled evenly as part of rehabilitation. m. A Borrow Pit Rehabilitation Plan shall be compiled by the Contractor indicating the rehabilitation schedule (time-frames) for the various borrow pits to be rehabilitated. n. After the borrow pit has been rehabilitated, the Rehabilitation Checklist will be completed and signed by the relevant parties.	
9.7.6 WASTE AND POLLUTION MANAGEMENT	To avoid contribution to potential surface and groundwater pollution. To avoid contribution to potential soil pollution. To ensure that sound waste management practices are adhered to during construction.	a. General waste generated during construction will be disposed of on a regular basis at an approved waste disposal site. A temporary waste site may be demarcated for temporary storage of waste, but this area will be identified and clearly marked. b. The temporary domestic waste site will be fenced off with access control to the area. c. Adequate separate containers for hazardous and domestic waste will be provided on site and at the construction camp. d. The workforce will be sensitised to dispose waste in a responsible manner and not to litter. e. Waste bins will be placed in and around the construction site to facilitate proper waste management. f. No hazardous or domestic waste may remain on site after completion of the project. g. The construction of properly designed sewage facilities is required at the camp site. The sewage should either be removed on a regular basis and dumped at an approved sewage facility or where it is not possible, the sewage should be managed to such an extent that is does not cause any negative effects on the bio-physical or social environments. Proof of disposal shall be kept as record in the ECO file for environmental performance assessment purposes. No free-flowing sewage is acceptable. h. Toilet facilities will be available in the following ratio: 2 toilets for every 20 females and one toilet for every 20 males. The toilets should be such that these can be transported for various site selections and to be emptied at an approved sewage site. No person should have to walk more than 1km for the use of a toilet.	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		i. A demarcated vehicle service area will be provided. This area will have an impermeable floor, oil trap and dedicated wash bay area. All used water will first run through the oil trap before the effluent is allowed to exit. The oil trap will be cleaned on a regular basis to ensure its efficiency. j. Servicing of vehicles is only permitted in the demarcated vehicle service area, except for large immobile vehicles which may be repaired on site, on condition that oils and lubricants are prevented from spilling through the use of drip trays or other suitable containers. k. Drip trays will be available for all vehicles that are intended to be used during construction. These trays will be placed underneath each vehicle while the vehicles are parked. The drip trays will be cleaned every morning and the spillage handled as hazardous waste. l. Machines operating during the day that show signs of excess leaking (verified by ECO or Engineer) should be withdrawn from the task and repaired by the contractor. m. Accidental spills will be cleaned immediately. The contaminated soil will be suitably disposed of in a container suitable for hazardous waste. n. Used oil / lubricants, and other hazardous materials shall be stored in separate containers (metal or plastic). These containers shall be stored in an area with an impermeable floor and bunded walls. The materials and used oils / lubricants shall be disposed of at an approved waste disposal site or for collection by an oil recycling company such as WESCO Salvage (this company collects significant quantities of oil from central locations throughout the country). o. Fuel tanks on site will be properly bunded. The volume of the bunded area will be enough to hold 1.5 times the capacity of the storage tanks. The floor of the bunded area will be impermeable (welded plastic sheets, concrete or clay) and the sides high enough to achieve the 1.5 times holding capacity. There will be a valve installed in the bunded area to allow rainwater drainage. p. Foam fire extinguishers will be near fuel kept on site. There will be trained personnel to handle this equipment. At least two extinguishers will be placed at every fuel storage area.	

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
9.7.7 REHABILITATION OF CONSTRUCTION SITE, SERVITUDES AND CLEARED AREAS (WHICH INCLUDES STOCKPILES)	To rehabilitate the site office, work sites, servitude areas, tracks and other areas disturbed during construction as close to their original state as reasonably possible.	a. All bunded areas, equipment, waste, temporary structures, stockpiles etc. must be removed from the camp and construction sites. b. All disturbed areas shall be reshaped to their original contours; as close as possible to the natural conditions before construction commenced, including the road reserve, detours, construction camps, and temporary access routes. c. All cuttings must be shaped with a slope to provide a natural appearance, without having to destroy significant vegetation on top of the slope (this applies to big trees as mentioned in the ESMP only).	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.

9.8 Monitoring Plan

The monitoring plan outlined below ensures that the mitigation measures proposed for the Rundu–Divundu borrow pit operations are effectively implemented and that environmental compliance is maintained throughout the project lifecycle. Monitoring will be conducted by the appointed Environmental Control Officer (ECO) in coordination with the site manager and Roads Authority representative.

Table 4: Monitoring Plan Table

ENVIRONMENTAL ASPECT	MONITORING PARAMETER	METHOD	FREQUENCY	RESPONSIBLE PARTY
Dust generation	Visible dust levels; water application records	Visual inspection; site logbook	Daily during dry season	Contractor / ECO
Noise levels	Complaints from nearby communities	Community liaison; noise meter (if needed)	Weekly or as needed	Contractor / ECO
Waste management	Presence of litter; waste storage/disposal records	Visual site inspection; waste log	Weekly	Contractor
Soil erosion	Evidence of gullies, run-off, or sedimentation	Site walkovers; photographic record	After rainfall events	ECO
Fauna encounters	Wildlife sightings or incidents	Incident log; worker interviews	Monthly	ECO
Hydrocarbon handling	Integrity of storage areas; presence of spills	Visual inspection; maintenance records	Weekly	Contractor / Site Mechanic
Site rehabilitation	Vegetation regrowth; surface stability	Site visits; photographic monitoring	Post-closure	ECO / Roads Authority

ENVIRONMENTAL ASPECT	MONITORING PARAMETER	METHOD	FREQUENCY	RESPONSIBLE PARTY
Health and Safety	PPE usage; accident reports	Toolbox talks; incident reports	Daily checks; weekly reports	Contractor / Safety Officer

All monitoring findings will be compiled in monthly environmental performance reports submitted to the project proponent and, if requested, to the MEFT. Any non-compliance incidents will be logged with corrective actions specified and tracked to completion.

9.9 Non-Compliance

A) Procedures

The Contractor shall comply with the environmental specifications and requirements on an on-going basis and any failure on his part to do so will entitle the ER to impose a penalty. In the event of non-compliance, the following recommended process shall be followed:

- The Engineer shall issue a notice of non-compliance to the Contractor through the ECO, stating the nature and magnitude of the contravention.
- The Contractor shall act to correct the non-conformance within 24 hours of receipt of the notice, or within a period that may be specified within the notice.
- The Contractor, through the ECO, shall provide the ER with a written statement describing the actions to be taken to discontinue the non-conformance, the actions taken to mitigate its effects and the expected results of the actions.
- In the case of the Contractor failing to remedy the situation within the predetermined time frame, the Engineer shall impose a monetary penalty based on the conditions of contract.
- In the case of non-compliance giving rise to physical environmental damage or destruction, the Engineer shall be entitled to undertake or to cause to be undertaken such remedial works as may be required to make good such damage and to recover from the Contractor the full costs incurred in doing so.
- In the event of a dispute, difference of opinion, etc. between any parties with regard to or arising out of interpretation of the conditions of the ESMP, disagreement regarding the implementation or method of implementation of conditions of the ESMP, etc. any party shall be entitled to require that the issue be referred to specialists for determination.
- The Engineer shall at all times have the right to stop work and/or certain activities on site in the case of non-compliance or failure to implement remedial measures.

B) Offences and Penalties

Where the Contractor inflicts non-repairable damage upon the environment or fails to comply with any of the environmental Specifications, he shall be liable to pay a penalty fine over and above any other contractual consequence.

The Contractor is deemed NOT to have complied with this specification if:

- within the boundaries of the site, site extensions and haul/access roads there is evidence of contravention of these environmental Specification;
- environmental damage due to negligence;

- the Contractor fails to comply with corrective or other instructions issued by the Engineer within a specific time;

Penalties for the activities detailed below, will be imposed by the Engineer on the Contractor and/or his Subcontractors:

a.	Actions leading to erosion	A penalty equivalent in value to the cost of rehabilitation plus 20%
b.	Oil spills or hydrocarbon spillages	A penalty equivalent in value to the cost of clean-up operation plus an N$ 5000 fine.
c.	Damage to indigenous vegetation	A penalty equivalent in value to the cost of restoration plus N$ 5 000
d.	Damage to sensitive environments	A penalty equivalent in value to the cost of restoration plus N$ 5 000
e.	Damage to cultural sites	A penalty to a maximum of N$100 000 shall be paid for any damage to any cultural/ historical sites
f.	Damage to trees	A penalty to a maximum of N$15 000 shall be paid for each tree removed without prior permission, or a maximum of N$5 000 for damage to any tree, which is to be retained on site.
g.	Damage to natural fauna	A penalty to a maximum of N$5 000 for damages to any natural occurring animals.
h.	Any persons, vehicles, plant, or thing related to the Contractors operations within the designated boundaries of a “no-go” area	N$4 000
j.	Litter on site	N$5 000
k.	Deliberate lighting of illegal fires on site	N$ 5 000
l.	Any person, vehicle, item of plant, or anything related to the Contractors operations causing a public nuisance.	N$1 000
m.	Constant leakages from the sewage system.	N$ 15 000

Penalties may be issued per incident at the discretion of the Engineer. The Engineer will inform the Contractor of the contravention and the amount of the fine, and will deduct the amount from monies due under the Contract.

For each subsequent similar offence, the fine may, at the discretion of the Engineer, be doubled in value to a maximum value of N$ 30, 000.

Payment of any fines in terms of the contract shall not absolve the offender from being liable from prosecution in terms of any law. In the case of a dispute in terms of this section, the Engineer shall determine as to what constitutes a transgression in terms of these Environmental Mitigation Measures and the Non-compliance section of this document.

10. CONCLUSION AND RECOMMENDATIONS

The environmental investigation to determine the sensitivity of the impacts associated with this project was done according to the legal requirements of the Environmental Management Act No. 7 of 2007 and associated Regulations of 2012.

Even though there are some negative impacts associated with operation of the BPs, the significance of these impacts is considered to be low to medium and these negative impacts could further be reduced or avoided by proper implementation of the Environmental and Social Management Plan.

This project does not pose significant environmental risks because existing BPwill be used with some possible expansions. Waste management, pollution prevention and control as well as effective borrow pit rehabilitation will prevent any significant long-term negative effects associated with this project.

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APPENDIX A

BASIC RULES OF CONDUCT

The following list represents the basic Do's and Don'ts towards environmental awareness, which all participants in this project must consider whilst carrying out their tasks. These are not exhaustive and serve as a quick reference aid.

NOTE: ALL new site personnel must attend an environmental awareness presentation. Please inform your foreman or manager if you have not attended such a presentation or contact the ECO.

DO:

- Use the toilet facilities provided;
- Report dirty or full facilities;
- Clear your work areas of litter and building rubbish at the end of each day;
- Use the waste bins provided and ensure that litter will not blow away;
- Report all fuel or oil spills immediately & stop the spill continuing;
- Dispose of cigarettes and matches carefully (littering is an offence);
- Confine work and storage of equipment to within the immediate work area;
- Use all safety equipment and comply with all safety procedures;
- Prevent contamination or pollution of soil, streams and water channels;
- Ensure a working fire extinguisher is immediately at hand if any "hot work" is undertaken e.g. Welding, grinding, gas cutting etc;
- Report any injury of an animal;
- Drive on designated routes only;
- Prevent excessive dust and noise.

DO NOT:

- Remove or damage vegetation without direct instruction;
- Make any fires;
- Injure, trap, feed or harm any animals - this includes birds, frogs, snakes, lizards etc;
- Enter any fenced off or marked area.
- Allow cement or cement bags to blow around;
- Speed or drive recklessly;
- Allow waste, litter, oils or foreign materials on the ground or in any steams;
- Swim in the dam;
- Litter or leave food laying around;
- Waste water;
- Use vehicles that are leaking oil or any hydrocarbon substance.

APPENDIX B

REHABILITATION CHECKLIST FOR THE FINALIZATION OF BORROW PITS

Borrow Pit Name and Number: _____ Date: _____

It is essential that a borrow pit meet the requirements set out in the approved EMP before closure. After the requirements are met, the borrow pit can be signed off and regarded as rehabilitated. After the borrow pit has been signed off, the contractor or any other party may not be allowed to engage in any activities in or around the signed off borrow pit. This includes, but is not limited to activities such as further excavations, dumping of overburden or spoils, sloping, etc.

Criteria for rehabilitation according to the EMP:

Item Number	Description	Comments	Complied Yes / No
1	Gradient of the borrow pit walls are less than 20 degrees (1:5).		
2	The walls is covered with overburden/top soil with a thickness of more than150 mm.		
3	The floor of the borrow pit is level and no material is found within the pit.		
4	The compacted areas are ripped to a minimum depth of 300mm.		
5	No man made topographical high or low points are found in or around the borrow pit. These might include berm walls, excavation holes, stock piles, etc.		
6	The site is clear of any illegal dumping of foreign or other materials in and around the borrow pit.		
7	All invasive vegetation has been removed from site.		

When the answer to **all of the above** statements are “Yes" then the R.E. or authorized person can sign off the borrow pit and regard it as closed.

Signed off by: Environmentalist: _____

_____ _____

Residing Engineer / Authorized Person Land- Owner

APPENDIX C

CURRICULUM VITAE OF COMPILER

APPENDIX D
PUBLIC PARTICIPATION – REGISTRATION AND COMPENSATION