

The Environmental Commissioner
Ministry of Environment, Forestry and Tourism (MEFT)
Cnr. Of Dr. Kenneth David Kaunda Street
& Robert Mugabe Avenue
Private Bag 13306
Windhoek

08 February 2023

Dear Mr. Mufeti

RE: ECC Renewal for the existing Oluzizi Service Station in Outapi, Omusati Region

Environam Consultants Trading (ECT) was appointed by Oluzizi Luxury Investments Number Two Cc (client) to undertake the necessary activities to enable a renewal application for an Environmental Clearance with the Environmental Commissioner as prescribed by the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012).

Oluzizi Service Station was constructed in 2014, and has been in operation since then. An EIA was conducted for the development in 2013 and an ECC was subsequently issued for the site. Unfortunately, the original certificate issued cannot be found to date, nor is any copy of the ECC available. This document(s) seems to have been misplaced or lost. Records of the ECC should however be in MEFT's archives.

Our client is thus submitting an updated EMP and an application to renew the ECC for the site, in order to comply with the EMA Act of 2007, and its regulations of 2012.

Yours faithfully,



Colin P Namene
Managing Director

ENVIRONMENTAL IMPACT ASSESSMENT

PROPOSED NEW FUEL RETAIL FACILITY AT OUTAPI OMUSATI REGION



Oluzizi Service Station

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June 2013

PROPONENT:

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Appendices

Appendix A - Environmental Management Plan

List of Abbreviations

EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMA	Environmental Management Act
EMS	Environmental Management System
ESA	Environmental Scoping Assessment
I&Aps	Interested and Affected Parties
PPPPs	Projects, Plans, Programmes and Policies
LRP	Lead Replacement Petrol
ULP	Unleaded Petrol
SANS	South African National Standards
mbgl	meters below ground level



PROJECT DETAILS

TEAM MEMBERS

NAME	POSITION	COMPANY
M. Shippiki	Environmental Hydrogeologist	Matrix Consulting Services
C. Ailonga	Environmental Specialist	Matrix Consulting Services

CLIENT: **Puma Energy Namibia (Pty) Ltd**
P.O. Box 3594 Windhoek

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REPORT STATUS: **FINAL**



1. BACKGROUND AND INTRODUCTION

Oluzizi Service Station has commissioned an Environmental Impact Assessment (EIA) for the proposed construction and operation of Oluzizi Service Station (17.50654°S; 14.99315°E) in Outapi, in the Omusati Region.

Matrix Consulting Services was appointed to undertake the Environmental Impact Assessment of the proposed fuel retail facility. This study will enable decision makers to make an informed decision regarding the development and make sure it does not have significant impacts on the environment and that they are mitigated. The environmental scoping assessment was conducted to comply with Namibia's Environmental Assessment Policy and the Environmental Management Act.

1.1. Project Rationale

As a result of the increasing development in the area, the need for a new fuel retail facility rose due to an increasing number of motorists frequenting the area. The facility will alleviate the fuel shortage experienced by motorists in the area.

The proposed retail fuel facility will also provide the much-needed modern fuelling point with all its associated modern services, especially to motorists in the surrounding area and long distance motorists.

Potential spin-offs:

- ❖ **Employment:** The creation of approximately 10 new jobs is expected. It is estimated that the new jobs will improve the livelihoods of the new workers and their families. Given the unemployment rate of 36% in the region, this in itself is regarded as a significant benefit to the socio-economic situation in the region (Poverty profile 2007).
- ❖ **Skills development:** As the construction and operation of the development requires specialised work and skills it can be expected that experts will be training locals in certain skills during development and operation.
- ❖ **Contribution to economic development** (e.g. supply of materials and goods for construction purposes; new businesses, employment etc.).
- ❖ **Technology transfer to Namibia:** The new facility includes state-of-the-art technology. The construction, operation, maintenance and support of these new technologies will expose local artisans and industries to these technologies. This can have a positive effect on the area.
- ❖ **General enhancement of the quality of life in Outapi and the surrounding area,** especially the immediate businesses and residence; and
- ❖ **Expansion of trade and industrial activity in the area.**



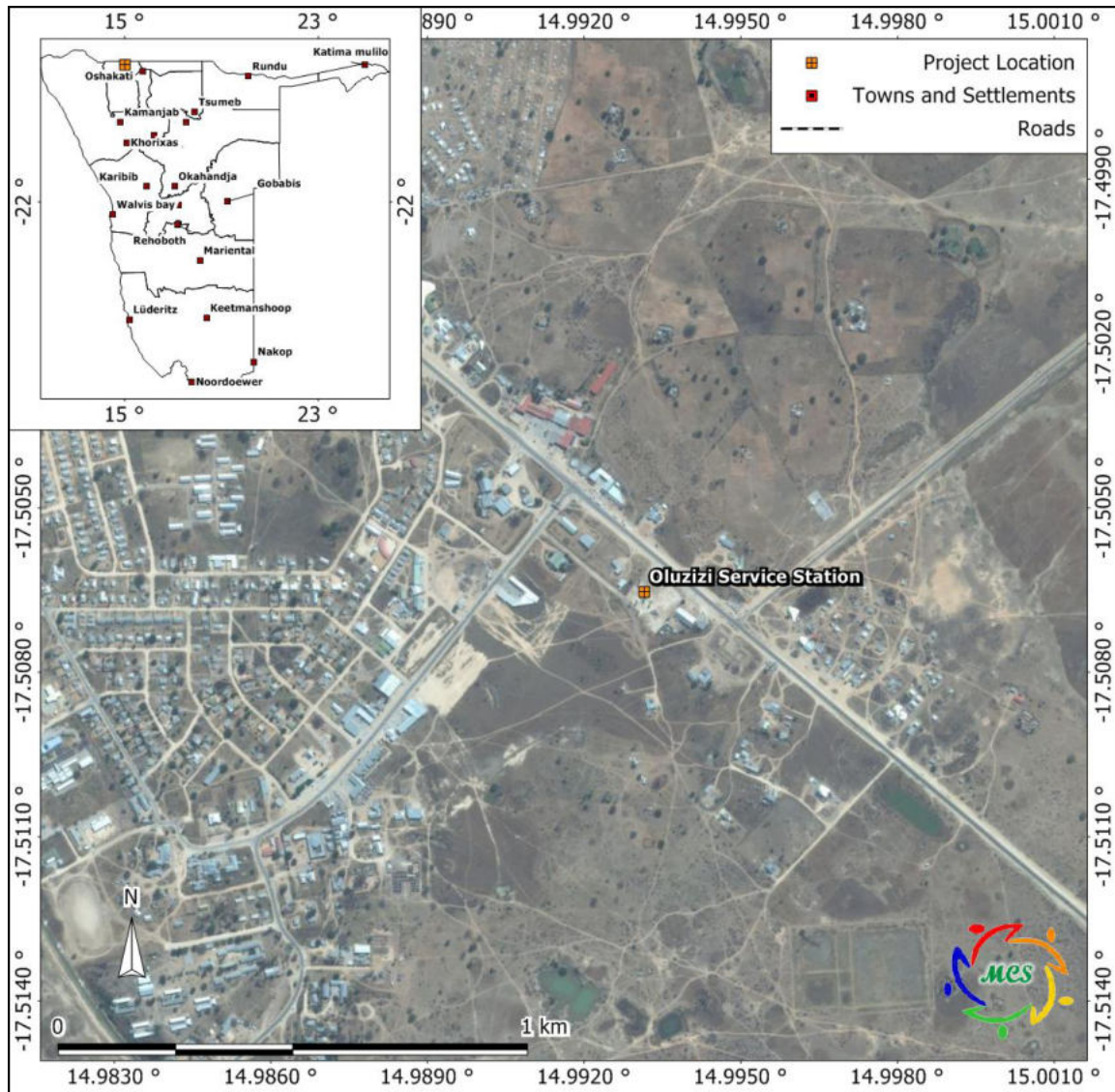


Figure 1: Project location (17.50654°S; 14.99315°E)

1.2. Project Phases

The project is made up of 3 phases, namely the construction, operation and possible decommissioning. Activities involved in all phases are as follows:

Construction Phase:

- ❖ Excavation for the pipeline trenches and the tank pits.
- ❖ Transport and installation of the storage tanks and relevant material.
- ❖ Installation of fuel pipelines.
- ❖ Constructions of dispensing pump islands and installation of the pumps.
- ❖ Construction of spill control measures.
- ❖ Installation of associated electrical supply.
- ❖ Construction of associated buildings and other infrastructure.

Operational Phase:

- ❖ Filling of the underground storage tanks with fuel from road transport tankers.

- ❖ Dispensing of fuel into vehicles and other approved containers from the underground storage.

Decommissioning Phase:

- ❖ Removal of all infrastructure not reused during future use of land; and
- ❖ Rehabilitation of the land.

2. TERMS OF REFERENCE

Oluzizi Service Station has commissioned an Environmental Impact Assessment (EIA) for the proposed fuel retail facility, in Outapi. The proposed fuel retail facility will be located at 17.50654°S; 14.99315°E.

Matrix Consulting Services was appointed to undertake the Environmental Impact Assessment of the proposed fuel retail facility. This study will enable decision makers to make an informed decision regarding the development and make sure it does not have significant impacts and that they are mitigated. The environmental impact assessment was conducted to comply with the Environmental Assessment Policy (1995) and the Environmental Management Act (2007).

3. ENVIRONMENTAL STUDY REQUIREMENTS

According to the Environmental Management Act no. 7 of 2007, the proponent requires an environmental clearance from the Ministry of Environment and Tourism (Department of Environmental Affairs) to undertake of the construction of a fuel retail facility. The certificate means that the Ministry of Environment and Tourism is satisfied that the activity in question will not have an unduly negative impact on the environment. It may set conditions for the activity to prevent or to minimise harmful impacts on the environment.

The proposed development is listed as a project requiring an environmental assessment as per the following listed points in the environmental policy:

- ❖ Transportation of hazardous substances & radioactive waste.
- ❖ Storage facilities for chemical products.
- ❖ Industrial installation for bulk storage of fuels.

4. DESCRIPTION OF ALTERNATIVES

4.1 No-Go Alternative

The no-development alternative is the option of not establishing the fuel retail facility. Should the proposed development not take place, development in the area and the region at large is hindered due to the lack of fuel facilities, resulting in possible fuel shortage in the area. The proposed modern fuel retail facility will also provide the much-needed modern fuelling point with all its associated modern services, to motorists in the area and long distance motorists. The No-development option is thus not considered to be a feasible alternative at this stage.

4.2 Site Alternative

The site is located within an area, which is generally suitable for this type of operation. The environmental footprint is expected to be minimal as the project location is already disturbed and earmarked for development. The possible impacts at the project location, both environmental and socio-economic, are of such a nature that they can be mitigated through good practice.



5. SCOPE OF WORK

The scope of the EIA aims at identifying and evaluating potential environmental impacts emanating from the construction, operations and possible decommissioning of the proposed fuel retail facility. Relevant data have been compiled by making use of secondary sources and from project site visits. Potential environmental impacts and associated social impacts will be identified and addressed in this report.

The environmental impact assessment report aims to address the following:

- a) Identification of potential positive and negative environmental impacts.
- b) Provide sufficient information to determine if the proposed project will result in significant adverse impacts.
- c) Identification of “hotspots” which should be avoided where possible due to the significance of impacts.
- d) Evaluation of the nature and extent of potential environmental impacts
- e) Identify a range of management actions which could mitigate the potential adverse impacts to required levels.
- f) Provide sufficient information to the Ministry of Environment to make an informed decision regarding the proposed project.
- g) Conduct a public participation exercise.
- h) Present and incorporate comments made by stakeholders.

6. METHODOLOGY

The following methods were used to investigate the potential impacts on the social and natural environment due to the construction and operation of the fuel retail facility:

- a) Information about the site and its surroundings was obtained from existing secondary information and site visits.
- b) Neighbours, interested and affected Parties (I&APs) were consulted and their views, comments and opinions are presented in this report.

7. STATUTORY REQUIREMENTS

The EIA process is undertaken in terms of Namibia’s Environmental Management act no. 7 of 2007 and the Environmental Assessment Policy of 1995, which stipulates activities that may have significant impacts on the environment. Listed activities require the authorisation from the Ministry of Environment and Tourism (DEA). Section 32 of the Environmental Management Act requires that an application for an environmental clearance certificate be made for the listed activities. The following environmental legislation is relevant to this project:

❖ *The Namibian Constitution*

The Namibian Constitution has a section on principles of state policy. These principles cannot be enforced by the courts in the same way as other sections of the Constitution. But they are intended to guide the Government in making laws which can be enforced.

The Constitution clearly indicates that the state shall actively promote and maintain the welfare of the people by adopting policies aimed at management of ecosystems, essential ecological processes and biological diversity of Namibia for the benefit of all Namibians, both present and future.



❖ ***Environmental Management Act No.7 of 2007***

This Act provides a list of projects requiring an Environmental assessment. It aims to promote the sustainable management of the environment and the use of natural resources and to provide for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters.

The Act defines the term “*environment*” as an interconnected system of natural and human-made elements such as land, water and air; all living organisms and matter arising from nature, cultural, historical, artistic, economic and social heritage and values.

The Environmental Management Act has three main purposes:

- (a) to make sure that people consider the impact of activities on the environment carefully and in good time
- (b) to make sure that all interested or affected people have a chance to participate in environmental assessments
- (c) to make sure that the findings of environmental assessments are considered before any decisions are made about activities which might affect the environment

Line Ministry: Ministry of Environment and Tourism

❖ ***Water Resources Management Act of Namibia (2004)***

This act repealed the existing South African Water Act No.54 of 1956 which was used by Namibia. This Act ensures that Namibia’s water resources are managed, developed, protected, conserved and used in ways which are consistent with fundamental principles depicted in section 3 of this Act. Part IX regulates the control and protection of groundwater resources. Part XI, titled Water Pollution Control, regulates discharge of effluent by permit.

Line Ministry: Ministry of Agriculture, Water and Forestry

❖ ***Environmental Assessment Policy of Namibia (1995)***

Environmental Assessments (EA’s) seek to ensure that the environmental consequences of development projects and policies are considered, understood and incorporated into the planning process, and that the term ENVIRONMENT (in the context of IEM and EA’s) is broadly interpreted to include biophysical, social, economic, cultural, historical and political components.

All listed policies, programmes and projects, whether initiated by the government or the private sector, should be subjected to the established EA procedure as set out in Figure 2.

Line Ministry: Ministry of Environment and Tourism



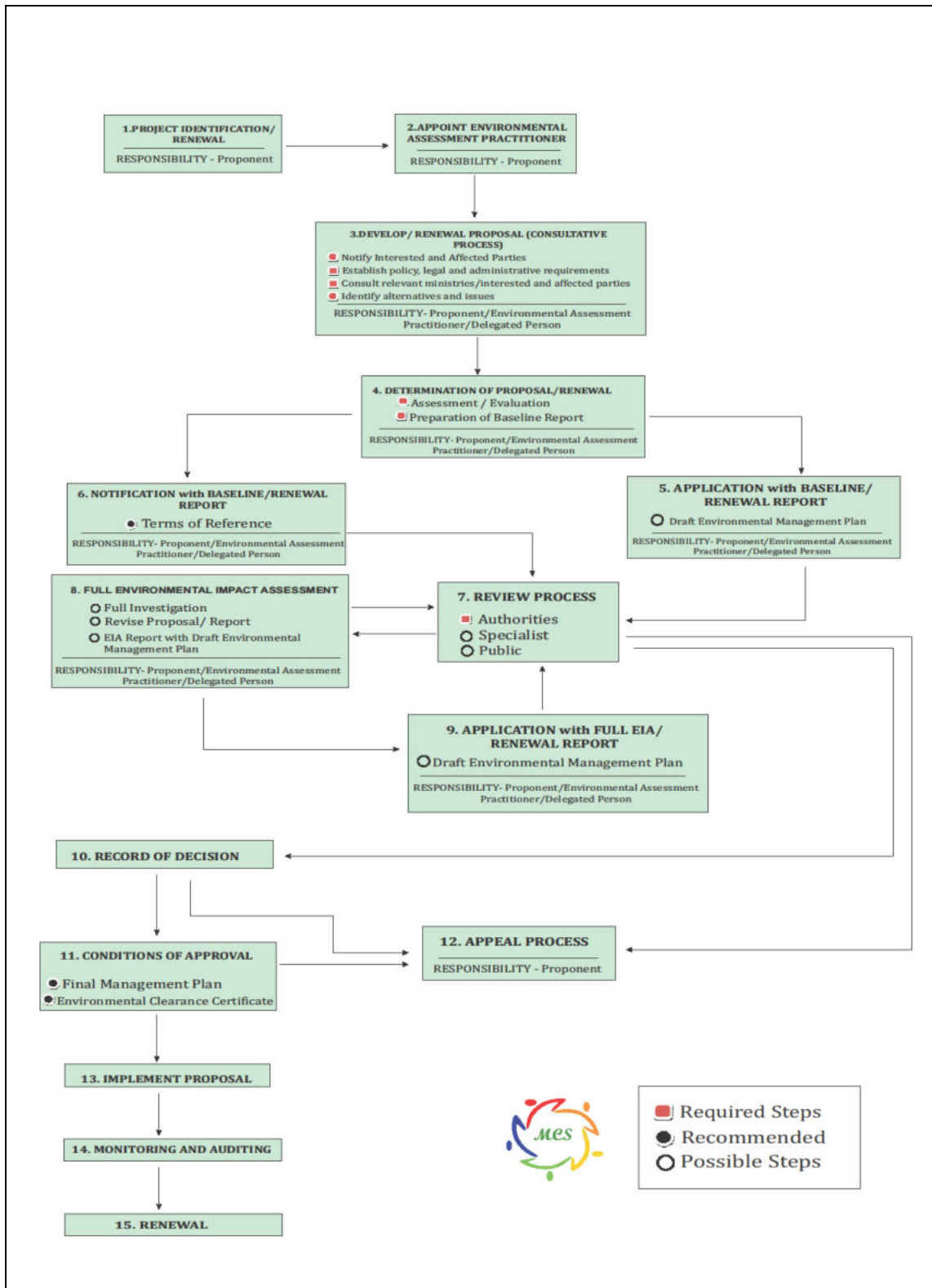


Figure 2: Environmental Assessment Procedure of Namibia (Adapted from the Environmental Assessment Policy of 1995)

❖ **Draft Pollution Control and Waste Management Bill**

The proposed project of the fuel retail facility at Outapi, only applies to Parts 2, 7 and 8 of the Bill.

Part 2 stipulates that no person shall discharge or cause to be discharged any pollutant to the air from a process except under and in accordance with the provisions of an air



pollution licence issued under section 23. It further provides for procedures to be followed in licence application, fees to be paid and required terms of conditions for air pollution licences.

Part 7 states that any person who sells, stores, transports or uses any hazardous substances or products containing hazardous substances shall notify the competent authority, in accordance with sub-section (2), of the presence and quantity of those substances.

Part 8 calls for emergency preparedness by the person handling hazardous substances, through emergency response plans.

❖ ***Atmospheric Pollution Prevention Ordinance of Namibia No. 11 of 1976)***

The Ordinance prohibits anyone from carrying on a scheduled process without a registration certificate in a controlled area. A certificate must be issued if it can be demonstrated that the best practical means are being adopted for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process. Best practice would be to notify the line Ministry about emissions but it is not a legal requirement.

Line Ministry: Ministry of Health and Social Services

❖ ***Hazardous Substances Ordinance No. 14 of 1974***

The Ordinance applies to the manufacture, sale, use, disposal and dumping of hazardous substances, as well as their import and export and is administered by the Minister of Health and Social Welfare. Its primary purpose is to prevent hazardous substances from causing injury, ill-health or the death of human beings.

Line Ministry: Ministry of Health and Social Services

8. INSTALLATIONS

The proposed three (3) underground storage tanks (UST):

- ❖ 1 x Tank – 23 m³ unleaded petrol (ULP),
- ❖ 1 x Tank – 23 m³ lead replacement petrol (LRP),
- ❖ 1 x Tank – 23 m³ diesel UST,

The three tanks will be installed with suitable associated reticulation pipelines and dispensing points. Four pump islands and a canopy will also be constructed and installed at the facility. In addition, a COC pump installation will be constructed on the eastern corner of the facility. See Figure 3 for a site layout map.

This facility will be constructed and operated according to relevant SANS standards (or better), with special emphasis on SANS 10089:1999, SANS 100131:1977, SANS 100131:1979, SANS 100131:1982, SANS 100131:1999.



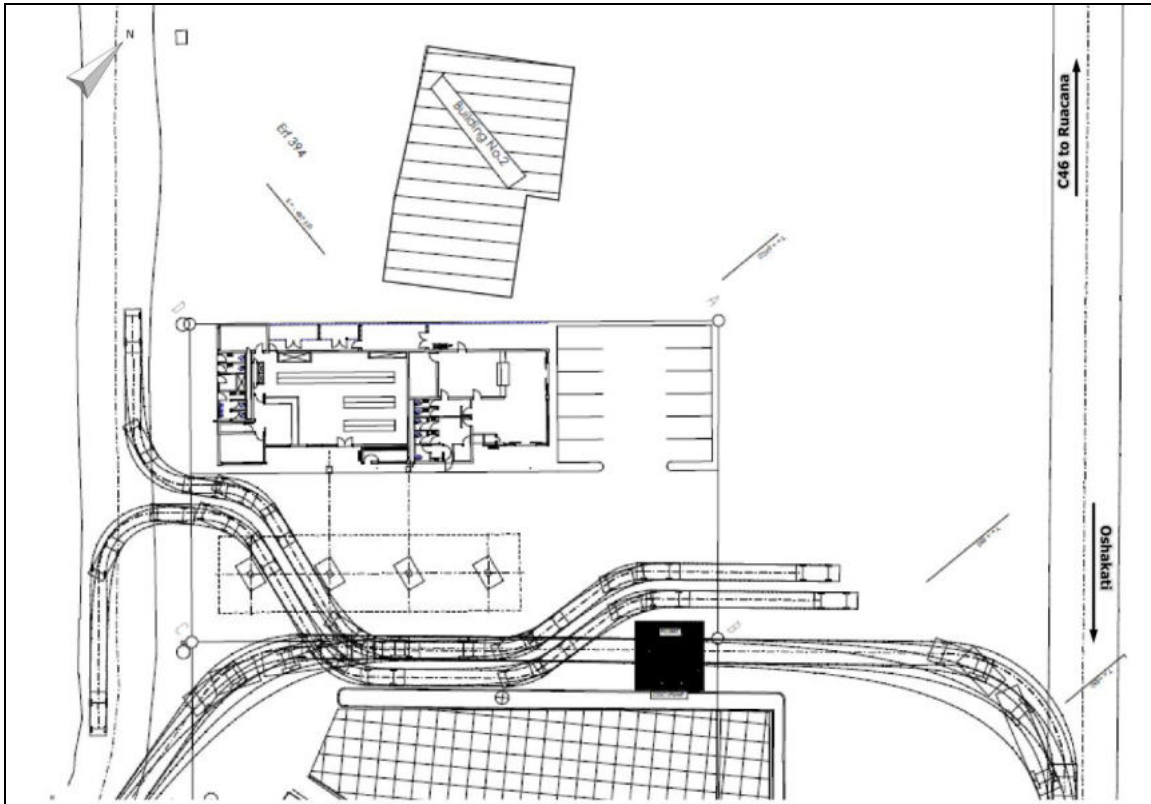


Figure 3: Proposed layout of the facility

9. GENERAL ENVIRONMENT OF THE STUDY AREA

This section lists the most important environmental characteristics of the study area and provides a statement on the potential environmental impacts on each.

9.1 Location and Land Use

The project site (17.50654°S; 14.99315°E) is located along the Main Road C46, in Outapi (Outapi Constituency), in the Omusati Region. The town of Outapi is situated approximately 90km northwest of Oshakati. See Figure 1.

The site is surrounded by local businesses. Northwest of the site is Oshoolela Garage. The main road C46 is situated northeast of the site, followed by Pena Trading Enterprises. Southeast of the site is newly developed shopping complex, followed by BH Hardware & Spares. Southwest of the site is Namibia Fish Consumption Promotion Trust. Land use in the area is classified as commercial.



View directly northwest of the site

View northeast of the site



View southeast of the site

View southwest of the site



9.2 Topography and Surface Water *(Mandelsohn et al, 2003)*

The site is relatively flat with a gentle slope towards the north-northwest. The landscape is classified as being in the Kalahari Sandveld region, which is characterized with paleo dunes and pans. The site is located within the Cuvelai catchment of the Etosha (Etosha-N River) Pan, an ephemeral river, draining in a southern direction into the Etosha Pan.

Local drainage in the area is poorly developed and runoff usually collects in depressions (oshanas, pans and omurambas). However, drainage from the site itself is relatively well developed due to the gentle slope that exists at the site. As a result, runoff from the site itself takes place north-northwest. Surface water in these depressions is often used for animal watering. Proper drainage systems should be developed at the site to control the flow of surface water to avoid flooding (e.g. erection of culverts). A storm water management system should form part of the engineering designs.

The artificial manmade Olushandja Dam situated approximately 35m east of the site. The dam is positioned in a former ephemeral oshana, stretching 20km in a north-south direction and 2km in a west-east direction.

9.3 Climate (Mandelsohn et al, 2003)

Table 1. Climate Data

Average annual rainfall (mm/a)	350-400
Variation in annual rainfall (%)	40-50
Monthly annual evaporation (mm/a)	2800-3000
Relative humidity (10%)	10-80
Water deficit (mm/a)	1501-1700
Average annual temperatures (°C)	>22

9.4 Hydrogeology

Surface geology at the site consists of a thin Kalahari Group cover. The Kalahari Group consists mainly of unconsolidated formations, but some degree of consolidation may be present. The subsurface geology consists of red mudstones, siltstones, sandstones, grit and conglomerate of the Ecca group - Omingonde formation (Tro_uc).

Groundwater flow would be mostly through primary porosity in the Kalahari cover but flow along fractures, faults (secondary porosity) and other geological structures present within the underlying formations might take place where consolidated layers are present.

Groundwater flow from the site can be expected in a southerly direction; however local drainage patterns may vary due to groundwater abstraction. According to the Department of Water Affairs database (DWA), 30 known boreholes and/or wells exist within a 5km radius from the site. A large part of these holes are located north of the site. The local water table depth in the area is expected to be less than 20mbgl and water quality is considered good. The shallow rest water levels and good quality water observed in the area is usually due to the presence of shallow perched aquifers. This area does not fall within a Water Control Area.

9.5 Outapi Water Supply

Water supply to Outapi is derived from the Namwater Ruacana-Oshakati canal scheme. The area generally has poor quality groundwater and therefore relies mostly on water from the pipelines. Some boreholes and wells are present in the area. The groundwater tapped by these boreholes and wells are mostly from perched aquifers that have generally acceptable quality water, thus insufficient to meet the Outapi town water demand.

See Figure 4 below, for the hydrogeological map indicating the local geology, groundwater points, rivers and Namwater pipelines.



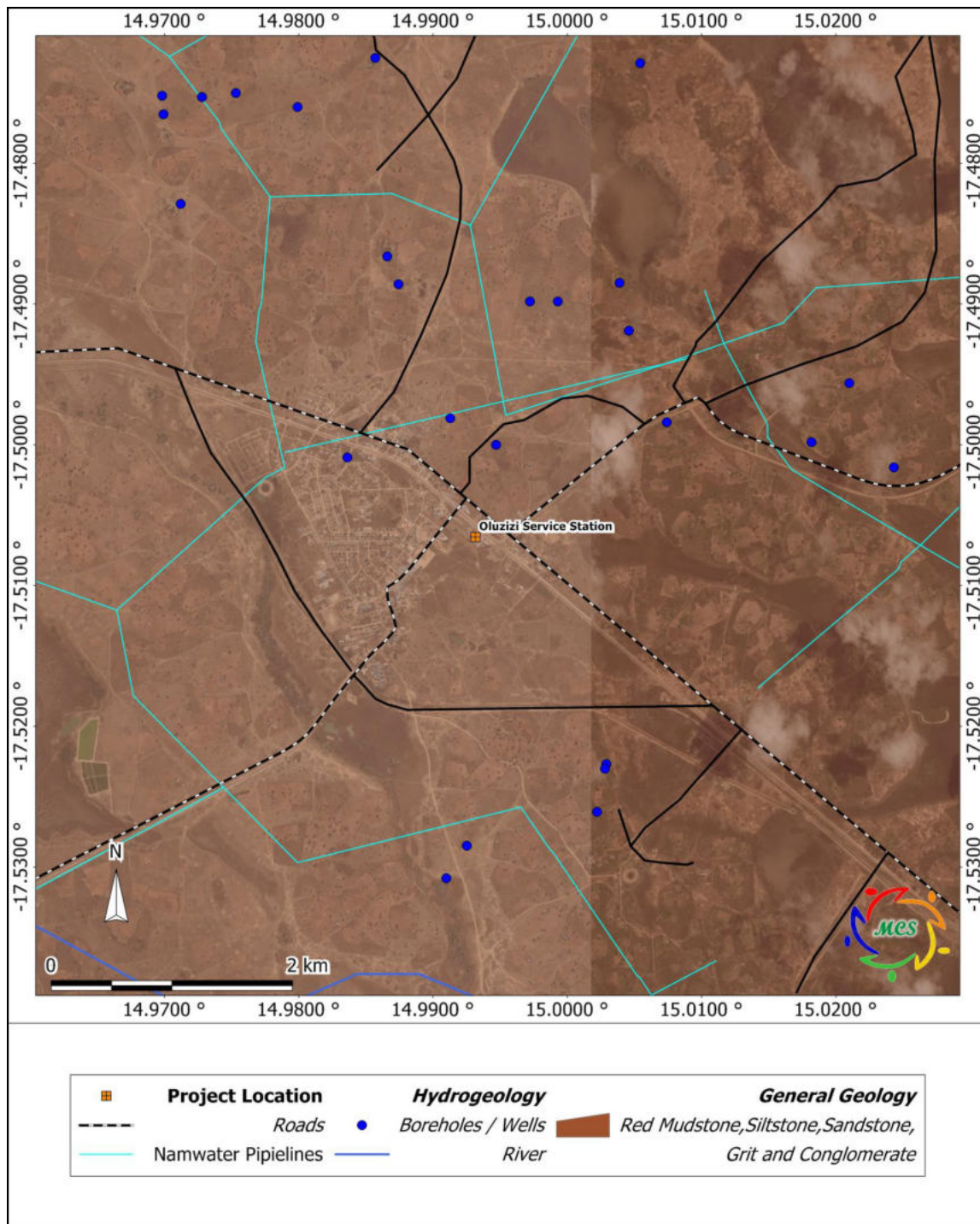


Figure 4. Hydrogeology of Area

9.6 General Ecology

The site falls within the Tree and shrub savanna biome, which is characterised by Oshana Kalahari mosaic type vegetation. The vegetation structure type is classified as Woodland. The project location itself is considered to be not virgin land, as it has been already disturbed and earmarked for development. The surrounding vegetation consists mainly of short dispersed grass and shrubs, palm bush and trees, weed species, and thorn bushes. Where necessary, the palm trees were incorporated in to the project development and not removed. No endangered species are present on site. The following photos below illustrate the vegetation on site.



Palm trees in the area



Thorn bush in the area

Deducing from the Atlas of Namibia, the proposed site is within the area that is known to have 100 to 150 plant species and a Low medium diversity of higher plants (Mandelsohn et al (2003). With regards to fauna, no wildlife has been observed in the vicinity of the study area, but domestic animals do pass the site. Faunal species diversity is presented in the table below:

Table 2. General Fauna Diversity (*Atlas of Namibia*)

Mammal Diversity	61 - 75 Species
Scorpion Diversity	6 - 9 Species
Bird Diversity	141-170 Species
Reptile Diversity	61 - 70 Species
Frog Diversity	12 - 15 Species
Lizard Diversity	20 - 23 Species
Termite Diversity	7 - 9 Genera

9.7 Socio-Economic Aspects

This section provides an overview of socio-economic characteristics of the study area. It provides regional and local information on the, economic activities, population dynamics, vulnerability, and social services currently available in the area.

9.7.1 Regional information

The proposed fuel retail facility will be situated in the Omusati Region of Namibia. The total current population is estimated to be 228,842 (102,473 males and 126,368 females) (NPC, 2001). Eighty four (84%) percent of the population of the Omusati Region over 15 years of age are literate. The estimated unemployment rate in region is 35%. The population density in the region is relatively high at 8.6 persons per km², compared to the national average of 2.1 persons per km². The life expectancy in the Omusati region is 50.5 years for females and 46.6 years for males.



Table 3. Selected indicators for Omusati Region (NPC, 2007)

Population size	228,842
Population density (Persons/km ²)	8.6
Sex ratio (males per 100 females)	81
Head of household % males/females	38/62
Literacy rate 15+ years %	84
Children 6-15 years attending school %	
Boys	88 %
Girls	91 %
Labour force 15+ years %	In labour force (economically active) 38
	Employed 65
	Unemployed 35
Households with safe water %	83
Households with no toilet facility %	83
Electricity for lighting %	4
Main source of income :	
Wages and salaries %	16
Farming	46

9.7.2 Outapi

9.7.2.1 Economic activities

Outapi is the capital town of the Omusati Region and the district capital of the Outapi Constituency, which forms part of the hub for all economic activities in the area and the region at large.

9.7.2.2 Employment (Job Opportunities)

Unemployment still hampers most of the developing world and the Omusati region is not an exception. The proposed fuel retail facility is likely to increase the job opportunities in the region. The Construction phase of the project will provide job opportunities, of which 80% are expected to be unskilled and semi-skilled people and can be sourced from the unemployed labour force of Outapi and the surrounding areas.

Some of the functions of the operation will be outsourced e.g. security services, maintenance and cleaning services. The outsourcing of these services will strengthen existing business operating in the area and provide employment to people.

9.7.2.3 Livelihoods

Economic activities in the region are limited and livelihoods are heavily dependent on wages and salaries. The livelihoods of the local community are likely to be positively impacted therefore predicted to be better than before the development of the facility in the area.

9.7.2.4 Procurement

Local businesses are to benefit from the envisaged construction and operational activities. The Oluzizi Service Station and/or its sub-contractors might need to procure services from these businesses e.g. domestic waste removal, transport, security services etc.



9.7.2.5 Tourism

The area attracts a lot of tourists from all over the world. In particular, Outapi boasts the presence of the famous Omukwa Ombalantu Baobab tree, a Baobab whose huge hollow trunk has been used in the past as a post office, a chapel and a coffee shop, and is now a craft shop. This tree is located within the former South African Army base at the town.

Excessive waste, dust, noise and vibrations can have negative impacts on the tourism industry in the area, as it can become a nuisance to tourists. Mitigation measures at the site must be put in place to reduce these impacts.

9.7.2.6 In - Migration

Due to enhanced employment opportunities that could be created by the envisaged project, some in-migration of job seekers to Outapi can be expected. Depending on the amount of in-migration, local areas may start experiencing overcrowdings, over use of infrastructures, local ethnical conflicts, increase of goods prices due to increased demand etc.

9.7.2.7 HIV & Prostitution

Namibia has a high incidence of HIV/AIDS, which has a strong and adverse socio-economic impact on livelihoods of people in the region. The HIV prevalence rate is estimated at 19.7% for Namibia (Poverty profile 2007).

The spending power of locals and expatriates working for Oluzizi Service Station and/or its contractors are likely to increase, and this might be a perfect opportunity for sex workers to explore. Migrant labourers from other regions and expatriates are normally vulnerable and may use the services rendered by the sex workers.

9.7.2.8 Infrastructure & Increased Traffic

The traffic in the area is expected to increase slightly and it might contribute to heavy traffic during peak hours and a higher number of car accidents in the area. Infrastructure like roads (i.e. main road C46) will be affected due to increased traffic and heavy-duty cargo trucks accessing the site.

10. STAKEHOLDER PARTICIPATION

Consultation with the public forms an integral component of an EIA investigation and enables I&APs e.g. neighbouring landowners, local authorities, environmental groups, civic associations and communities, to comment on the potential environmental impacts associated with the proposed development and to identify additional issues which they feel should be addressed in the EIA. The primary aims of public participation were:

- ❖ To initiate participation of Interested and affected parties (I&APs).
- ❖ To inform I&APs and key stakeholders about the proposed development
- ❖ To identify issues and concerns of key stakeholders and I&APs with regards to the proposed development.
- ❖ To provide information to enable informed decision making
- ❖ To develop a communication structure with stakeholder and I&APs
- ❖ To promote transparency of the project



- ❖ To ensure the public and stakeholders comments are considered for the development.
- ❖ To provide answers to I&APs queries
- ❖ To encourage shared responsibility and sense of ownership.

Public participation posters (A3 size) notices were placed at the proposed area of the fuel retail facility. The posters provided background information about the project and gave interested and affected parties an opportunity to forward their issues and comments about the project. No further concerns were received from the general public regarding the development.

The owners and/or representatives of the properties surrounding the site were consulted and interviewed and issued with the background information document and raised no environmental or social concerns regarding the development. They all welcomed the development.

Mr H Negumbo, the Environmental Health and Safety Manager at the Outapi Town Council were also consulted. He was briefed about the project; provided with a background information document and asked to comment or raise issues the council have about the proposed project. Mr Negumbo indicated no environmental concerns regarding the proposed development from the council side.

Table 4. Interviewed Stakeholders/I&APS

NAME	ORGANISATION/ERF	OWNER/POSITION
Ms. T. Iyambo	Ministry of Mines and Energy.	EA procedure, Consultation
Dr. F.M Sikabongo	Ministry of Environment and Tourism, Directorate of Environmental Affairs.	EA procedure
Mr. V. Shapwa	Puma Namibia LTD.	Fuel Supply Information
Mr. S. Andjaba	Oluzizi Service Station.	Installation Information
Mr. H. Negumbo	Environmental Health and Safety Manager	Local Authority
Mr. D. Kandjaba	Oshoolela Garage (Northwest).	Interested or Affected Parties
Mr. P. Nambele	Pena Trading Enterprise (Northeast).	Interested or Affected Parties
Mr. B. Hauwanga	BH Hardware & Spares (Southeast).	Interested or Affected Parties
Mr. E. Diwanga	Namibia Fish Consumption Promotion Trust (Southwest).	Interested or Affected Parties

Consultation with the department of Environmental Affairs (MET) included the environmental assessment procedure and application procedure.



11. ENVIRONMENTAL IMPACT EVALUATION

The Environmental Impact Assessment sets out potential positive and negative environmental impacts associated with the proposed development. The following assessment methodology will be used to examine each impact identified, see Table 5:

Table 5. Impact Evaluation Criterion (DEAT 2006)

Criteria	Rating (Severity)	
Impact Type	+VE	Positive
	0	No Impact
	-VE	Negative
Significance of impact being either	L	Low (Little or no impact)
	M	Medium (Manageable impacts).
	H	High (Adverse impact).

Probability:	Duration:
5 - Definite/don't know	5 - Permanent
4 - Highly probable	4 - Long-term (impact ceases)
3 - Medium probability	3 - Medium-term (5-15 years)
2 - Low probability	2 - Short-term (0-5 years)
1 - Improbable	1 - Immediate
0 - None	
Scale:	Magnitude:
5 - International	10 - Very high/don't know
4 - National	8 - High
3 - Regional	6 - Moderate
2 - Local	4 - Low
1 - Site only	2 - Minor
	0 - None

11.1 Construction Phase

11.1.1 Dust Pollution

Dust will be generated during the construction phase. These are expected to be site specific and will pose no nuisance to the residence and business in the surrounding area. No residences are located in the immediate vicinity of the area. Dust might be worse during the winter months when strong winds occur.

The construction of the proposed fuel facility is envisaged to have minimal impacts on the surrounding air quality. It is recommended that regular dust suppression be included in the construction phase, when dust becomes an issue.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Dust	-VE	1	2	4	3	L	L

11.1.2 Noise Impact

Earthmoving equipment will be utilised during the construction phase and noise would be generated. Construction workers should be equipped with ear protection equipment. The nearby residence and business may be impacted. Construction activities should be limited to 07H00 - 19H00.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Noise	-VE	1	2	4	2	L	L



11.1.3 Safety

Safety issues could arise from earthmoving equipment that will be used on site during the construction period. This increases the possibility of injuries and the responsible contractor must ensure that all staff members are made aware of the potential risks of injuries on site. The contractor is advised to ensure that the team is equipped with first aid kits and that they are available on site at all times. Workers should be equipped with adequate personal protective gear and properly trained, thus mitigating these impacts.

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Safety	-VE	1	2	4	2	M	L

11.1.4 Traffic

The site is situated along the main road C46. Construction related activities are expected to have a minimal impact on the movement of traffic along this road. No diversion of traffic or closure of the road is expected.

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Traffic	-VE	1	2	2	2	L	L

11.1.5 Groundwater

Groundwater quality could be impacted through oil leakages and grease from equipment and machinery utilised during construction phase. Care must be taken to avoid contamination of soil and groundwater. Drip trays must be used when removing oil from machinery.

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Groundwater	-VE	1	3	2	2	L	L

11.1.6 Surface Water

No waste material may be disposed off in any of the nearby depressions (i.e. pans, oshanas and/or omurambas etc) in the area. Hydrocarbon contaminated equipment and clothing should not be washed within 25m from any surface water body. Surface runoff from the site is expected in a north-northwestern direction.

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Surface water	-VE	2	3	2	2	L	L

11.1.7 Generation of Waste

All waste must be collected, contained and disposed of at an appropriate waste disposal site. Contaminated soil and building rubble are common on most construction sites, and thus must be addressed. Consultation with the Outapi Town Council should be conducted for any disposal of waste.

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Waste	-VE	1	3	6	4	M	L



11.1.8 Heritage Impacts – There are no known heritage areas envisaged to be impacted by the new development.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Heritage	-VE	1	2	2	2	L	L

11.1.9 Ecological Impacts

No major vegetation impacts are expected considering that the proposed site is not virgin land. No conservation worthy vegetation is situated at the proposed site location. No vegetation will be removed outside the designated zones.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Ecology	-VE	1	2	2	2	L	L

Summary of all potential impacts during the construction phase:

In general, impacts are expected to be low to medium, mostly short lived and site specific. Mitigation options recommended in the Environmental Management Plan (EMP) will guide and ensure that the impacts of the construction work are minimised. It is further advised that traffic signs and barricades be installed around any excavations to ensure safety. Proper storm water management plans must be in place to minimise the risk of flooding and must form part of the engineering designs.

The appointed contractor should be made aware of the content and environmental requirements of this report through proper induction training.

11.2 Operational Phase

11.2.1 Spills

Spillages are bound to occur during delivery of fuel over the operational phase of the fuel retail facility. Workers must be properly trained to avoid such incidents, and they must be provided with emergency response procedures which they should be familiar with.

Fuel tanks could be placed in suitable containment structures, such as bund walls or plastic liners to avoid the spread of spills. Staff should at all times be aware of the precautions associated with the handling of petroleum / chemical products as described in the relevant Material Safety Data Sheets.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Spills	-VE	1	2	6	4	M	L

11.2.2 Air Quality

Air quality around the site could be impacted by exhaust fumes from the fleet of transport tanker trucks and vehicles accessing the facility. It is recommended that regular air quality monitoring be conducted at the facility.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Air Quality	-VE	1	4	4	2	L	L

11.2.3 Fire and Explosion Risks

Emergency response procedures should be in place so as to alert the employees on how to react to fire and explosions incidents. An incident reporting procedure should also be



implemented to make the employees aware of how, when and to whom to report fire and explosion incidents.

Regular inspections should be carried out to inspect and test fire fighting equipment and emergency response at the fuel retail facility. It is highly recommended that electrical wiring of the facility be installed and approved by a qualified electrician who will issue a Certificate of Compliance.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Fire & Explosions	-VE	1	2	6	4	M	L

11.2.4 Generation of Waste

Waste such as contaminated soil, litter, empty cans of engine oil will be generated during the operational phase. Waste bins must be available at the retail facility at all times. Waste must be appropriately collected and disposed off at an approved appropriate waste disposal site.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Waste	-VE	1	2	6	2	L	L

11.2.5 Surface Water

Surface runoff from the site is expected in a north-northwest direction. Runoff from the site poses a risk to any nearby depressions (i.e. pans, oshanas etc); however the risk will be lowered due to the design and management of the facility. Proper containment mechanisms installed should be able to contain any spillages that might occur during the operation of the facility. The presence of an emergency response plan and suitable equipment is advised, so as to react to any spillage or leakages properly and efficiently.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Surface water	-VE	2	2	6	3	M	L

11.2.6 Groundwater

Spillages might occur during filling of tanks and/or overfilling of vehicles. Overfilling of the tanker trucks may also take place and proper monitoring of the product levels must take place to eliminate overfilling. All operational surfaces at the facility must be installed with spill containment areas.

Equipment and materials to deal with spill cleanup must be readily available on site and staff must be trained as to how to use the equipment and briefed about reporting procedures. Training attendance lists must be kept. The risk can be lowered further through the installation of suitable containment structures.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Groundwater	-VE	1	3	6	3	M	L

11.2.7 Health and Safety

The operations of the facility can cause health and safety risks to workers on site. Employees could be exposed through to the skin contact with fuel and inhalation of fuel particulates during handling of such products.

Staff must be properly trained and made aware of all the MSDS sheets of all chemicals on site. Fire fighting equipment and first aid kit should be made available and must be serviced



regularly. Employees are expected to be trained on how to use all equipment and how to handle petroleum products, and training attendance lists must be kept.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Health & Safety	-VE	1	3	6	3	M	L

11.2.8 Traffic

A slight increase in traffic will be experienced along the main road C46 leading to the proposed facility. This impact will be long-lived, as both passenger vehicles and long distance trucks will be making use of the same site. Appropriate road signs should be erected to reduce these impacts and their spin-offs.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Traffic	-VE	1	4	6	3	M	L

11.2.9 Heritage Impacts

There are no known heritage areas / material envisaged to be impacted by the operational phase.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Heritage	-VE	1	2	2	2	L	L

11.2.10 Ecological Impacts

The proposed facility operations will have no impact the fauna and flora. The operational activities would not exceed the demarcated area of the fuel retail facility as zoned by the local authority. The area is free of conservation worthy vegetation and fauna.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Ecology	-VE	1	2	2	2	L	L

11.3 Decommissioning Phase

The impacts associated with this phase will be similar to that of the construction phase. The supplier's guidelines for tank removal must be followed to reduce the risk of spillage and groundwater contamination. The Environmental Management Plan for this phase will have to be reviewed at the time of decommissioning to cater for changes made to the development.

12. CUMMULATIVE IMPACTS

Construction: Possible cumulative impacts associated with the construction phase include an increase in traffic visiting the site. An increase in emissions from these vehicles will be experienced, decreasing the air quality around the proposed development. Wear and tear on the roads could be expected, coupled with increased risks of road traffic incidences. These impacts will be short lived for the duration of construction.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Cummulative impacts	-VE	2	2	6	2	L	L



Operational: Potential cumulative impacts associated with the operational phase include increase in traffic around the site. Emissions from vehicles visiting the proposed fuel retail facility are expected, coupled with the existing emissions from vehicles in the surrounding areas, the air quality will be impacted. These impacts can be long-term as long as the retail facility is operating.

Impact
Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Cummulative impacts	-VE	2	2	6	2	M	L

13. ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Management Plan (EMP) provides management options to ensure impacts of the proposed development are minimised. An EMP is an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented, and the positive benefits of the projects are enhanced.

The objectives of the EMP are:

- ✓ to include all components of the development;
- ✓ to prescribe the best practicable control methods to lessen the environmental impacts associated with the construction of the development;
- ✓ to monitor and audit the performance of construction personnel in applying such controls; and
- ✓ to ensure that appropriate environmental training is provided to responsible construction personnel.

The EMP acts as a stand-alone document, which can be used during the various phases of the proposed fuel retail facility. All contractors taking part in the construction of the facility should be made aware of the contents of the EMP. An EMP for the construction, operational and decommissioning phases of the proposed fuel retail facility has been developed and is attached as Appendix A.

14. CONCLUSIONS

In general, the proposed development would pose limited environmental and social risks.

The site is generally suitable for the proposed fuel retail facility. All environmental risks can be minimised and managed through implementing preventative measures and sound management systems. It is recommended that this information be made available to the community on a regular basis.

The Environmental Management Plan should be used as an on-site tool during all phases of the proposed fuel retail facility. Future environmental audits should be carried out to ensure compliance of the EMP and environmental regulations of Namibia. Parties responsible for non-conformances of the EMP will be held responsible for any rehabilitation that may need to be undertaken.

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June 2013



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APPENDIX A

Environmental Management Plan (EMP)



PROPOSED NEW FUEL RETAIL FACILITY

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1. INTRODUCTION and BACKGROUND

This Environmental Management Plan (EMP) serves as a managing tool for the construction, operation and decommissioning of the proposed new fuel retail facility at Outapi. The EMP is developed to outline measures to be implemented in order to minimise adverse environmental degradation associated with this development.

The EMP serves as a guiding tool for the contractors and workforce on their roles and responsibilities concerning environmental management on site, and also provides an environmental monitoring framework for all project phases of the development. This environmental management plan aims to take a pro-active route by addressing potential problems before they occur. The EMP acts as a stand-alone document, which can be used during the various phases of the development.

In this report, the *Contractor* refers to Puma Energy Namibia and its sub-contractors.

The purpose of the EMP is to:

- ✓ Train employees and contractors with regard to environmental obligations.
- ✓ Promote and encourage good environmental management practices.
- ✓ Outline responsibilities and roles of Oluzizi Service Station and the contractor in managing the environment.
- ✓ Describe all monitoring procedures required to identify environmental impacts.
- ✓ Minimise disturbance of the natural environment.
- ✓ Develop waste management practices.
- ✓ Prevent all forms of pollution.
- ✓ Protect the natural environment.
- ✓ Prevent soil and water erosion.
- ✓ Comply with all applicable laws, regulations and standards for environmental protection.

The construction and operation of the proposed retail facility entails:

- ✓ Construction of buildings and associated facilities.
- ✓ The installation of a new fuel storage tanks.
- ✓ Construction of spill control measures.
- ✓ Installation of associated electrical supply.
- ✓ Installation of reticulation pipelines and associated dispensing points.
- ✓ Transport of fuel supply with road transport tanker trucks.
- ✓ The dispensing of fuel to vehicles.

2. LEGISLATIVE FRAMEWORK

❖ *The Namibian Constitution*

The Namibian Constitution has a section on principles of state policy. These principles cannot be enforced by the courts in the same way as other sections of the Constitution. But they are intended to guide the Government in making laws which can be enforced.

The Constitution clearly indicates that the state shall actively promote and maintain the welfare of the people by adopting policies aimed at management of ecosystems, essential ecological processes and biological diversity of Namibia for the benefit of all Namibians, both present and future.

❖ *Environmental Management Act No.7 of 2007*

This Act provides a list of projects requiring an Environmental assessment. It aims to promote the sustainable management of the environment and the use of natural resources and to provide for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters.

The Act defines the term “*environment*” as an interconnected system of natural and human-made elements such as land, water and air; all living organisms and matter arising from nature, cultural, historical, artistic, economic and social heritage and values.

The Environmental Management Act has three main purposes:

- (a) to make sure that people consider the impact of activities on the environment carefully and in good time
- (b) to make sure that all interested or affected people have a chance to participate in environmental assessments
- (c) to make sure that the findings of environmental assessments are considered before any decisions are made about activities which might affect the environment

Line Ministry: Ministry of Environment and Tourism

❖ *Water Resources Management Act of Namibia (2004)*

This act repealed the existing South African Water Act No.54 of 1956 which was used by Namibia. This Act ensures that Namibia’s water resources are managed, developed, protected, conserved and used in ways which are consistent with fundamental principles depicted in section 3 of this Act. Part IX regulates the control and protection of groundwater resources. Part XI, titled Water Pollution Control, regulates discharge of effluent by permit.

Line Ministry: Ministry of Agriculture, Water and Forestry

❖ *Environmental Assessment Policy of Namibia (1995)*

Environmental Assessments (EA’s) seek to ensure that the environmental consequences of development projects and policies are considered, understood and incorporated into the planning process, and that the term ENVIRONMENT (in the context of IEM and EA’s)

is broadly interpreted to include biophysical, social, economic, cultural, historical and political components.

All listed policies, programmes and projects, whether initiated by the government or the private sector, should be subjected to the established EA procedure as set out in Figure 2.

Line Ministry: Ministry of Environment and Tourism

❖ *Draft Pollution Control and Waste Management Bill*

The proposed project of the Oluzizi Service Station at Outapi, only applies to Parts 2, 7 and 8 of the Bill.

Part 2 stipulates that no person shall discharge or cause to be discharged any pollutant to the air from a process except under and in accordance with the provisions of an air pollution licence issued under section 23. It further provides for procedures to be followed in licence application, fees to be paid and required terms of conditions for air pollution licences.

Part 7 states that any person who sells, stores, transports or uses any hazardous substances or products containing hazardous substances shall notify the competent authority, in accordance with sub-section (2), of the presence and quantity of those substances.

Part 8 calls for emergency preparedness by the person handling hazardous substances, through emergency response plans.

❖ *Atmospheric Pollution Prevention Ordinance of Namibia No. 11 of 1976*

The Ordinance prohibits anyone from carrying on a scheduled process without a registration certificate in a controlled area. A certificate must be issued if it can be demonstrated that the best practical means are being adopted for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process. Best practice would be to notify the line Ministry about emissions but it is not a legal requirement.

Line Ministry: Ministry of Health and Social Services

❖ *Hazardous Substances Ordinance No. 14 of 1974*

The Ordinance applies to the manufacture, sale, use, disposal and dumping of hazardous substances, as well as their import and export and is administered by the Minister of Health and Social Welfare. Its primary purpose is to prevent hazardous substances from causing injury, ill-health or the death of human beings.

Line Ministry: Ministry of Health and Social Services

3. ENVIRONMENTAL MANAGEMENT PLAN

3.1 Responsibilities for environmental management

Puma Energy Namibia/ Oluzizi Service Station will be responsible for environmental control on site during the construction and operational phase. It is very important a pre-construction briefing meeting be held to reach an agreement on specific roles of various parties and penalties for non-compliance.

3.2 Training and induction

Puma Energy Namibia/ Oluzizi Service Station are bound to be responsible for ensuring that environmental awareness education of all employees and contractors is done satisfactorily. Oluzizi Service Station should ensure that employees and contractors are made aware of the environmental requirements of the project.

The EMP should form part of the Terms of Reference for all contractors, sub-contractors and suppliers. All contractors, sub-contractors and suppliers will have to sign an agreement to assure that they understood the EMP and that they will comply. All senior staff should familiarise themselves with the full contents of the EMP and its implications. Senior staff is expected to train and assist the rest of the employees on the contents of the EMP.

3.3 Environmental incident reporting

All environmental incidents occurring at the proposed site will be recorded. The incident report will have to include time, date, location, and nature of the incident, extent of the incident, actions taken, and personnel involved.

All complaints received from the neighbouring community should be directed to the manager of Oluzizi Service Station. Management should be able to respond to the complainant within a week (even if pending further investigation).

3.4 Environmental monitoring

Periodic environmental monitoring must be taken on a regular basis. Monitoring should be done in order to ensure compliance with all aspects of the EMP. Findings should be liaised with to all responsible officers as chain command.

3.5 EMP administration

Copies of this EMP shall be kept at the site office and should be distributed to all senior staff members, including those of the contractors.

3.6 EMP amendments

The EMP amendments can only be made with the approval of the DEA. Amendments to the EMP should be liaised to all employees and contractors.

3.7 Non compliance of the EMP

Problems may occur in carrying out mitigation measures or monitoring procedures that could result in non-compliance of the EMP. The responsible personnel should encourage staff to comply with the EMP, and address acts of non-compliance and penalties.

3.8 Environmental Control Officer

The Environmental Control Officer for the site can be an independent environmental consultant (e.g. Matrix Consulting Services) appointed by Oluzizi Service Station to monitor and review the on-site environmental management and implementation of this EMP.

3.9 Site Management

Areas outside this designated working zone shall be considered “no go” areas. The offloading zones must be clearly demarcated when offloading goods to enhance safety around the proposed development.

3.9.1 Access routes and work sites

Road transport trucks will access the proposed fuel retail facility via the existing C46 road. No new tracks/roads shall be established and only existing roads may be used. Work sites shall be clearly demarcated and road signs erected where needed. The general public should not have access to the work sites during construction.

3.9.2 Fire and safety management

The electrical wiring at the facility will have to be approved by a qualified electrician who will issue a Certificate of Compliance for these buildings prior to occupation.

Hydrocarbons are volatile under certain conditions and their vapours in specific concentrations are flammable. If precautions are not taken to prevent their ignition, fire and subsequent safety risks may arise.

No fire, whether for cooking or any other purpose, is to be made at the fuel retail facility during any of the three phases (construction, operational and decommissioning). The Contractor shall take all reasonable measures and active steps to avoid increasing the risk of fire through activities on site and prevent the accidental occurrence or spread of fire; and shall ensure that there is sufficient fire-fighting equipment on site at all times. This equipment shall include fire extinguishers. The Contractor should be prepared for such events.

The Oluzizi Service Station management together with contractors shall take all reasonable measures to avoid increasing the risk of fire and shall ensure that there is sufficient fire-fighting equipment on site at all times.

3.9.3 Staff management

The Contractor must ensure that their employees have suitable personal protective equipment and are properly trained in fire fighting and first aid.

3.9.4 Waste management

The developer shall remove all waste off-site to designated waste disposal sites. Sufficient bins or containers on-site to store any solid or liquid waste produced should be provided by Oluzizi Service Station. The bins and containers should be weatherproof and scavenger-proof.

3.9.5 Cement and concrete batching

Concrete mixing directly on the ground shall not be allowed and shall take place on an impermeable surface. All run-off from batching areas shall be strictly controlled, and cement contaminated water shall be collected, stored and disposed of at a licensed suitable waste disposal facility.

3.9.6 Hydrocarbons management

If any spillage occurs, contaminated soil shall be collected in a holding tray or drum and which will then disposed at a licensed hazardous waste site. Any spillage of more than 200 litres must be reported to the Ministry of Mines and Energy as per the Petroleum Products Act.

The Contractor shall take all reasonable measures to prevent surface or groundwater pollution from the release of oils and fuels.

Sufficient space should be left in fuel storage tanks to allow for fuel expansion and to prevent leakage of fuel from the fuel retail facility.

3.9.7 Flood management

The fuel retail facility will be designed in a way that it can withstand flood. Storm water management of the site should be a key aspect of flood management on site. All culverts should be kept clean to allow storm water to flow freely.

3.9.8 Management of environmental aspects during all phases of the project

Groundwater

Construction/Decommissioning phase	
Description	Groundwater contamination can be caused by leakages and spills of fuel from machinery and heavy-duty vehicles during construction and decommissioning phase. Care must be taken to avoid contamination of soil and groundwater.
Proposed Mitigation Measures	Prevent spillages of any chemical or fuel. Use drip trays when doing maintenance on machinery. Maintenance should be done on dedicated areas with linings or concrete floor.
Proposed Monitoring	Regular visual inspection.
Responsible Party	Oluzizi Service Station / Contractors.

Operational phase	
Description	Spillages might occur during delivery and loading of road transport tanker trucks. This may also occur during Service of vehicles.
Proposed Mitigation Measures	All operational surfaces for fuel storage must be installed with spill containment areas as per the relevant SANS standards (or better). The risk can be lowered further through proper training of staff. All spills must be cleaned up immediately. The presence of an emergency response plan and suitable equipment is advised, so as to react to any spillage or leakages properly and efficiently.
Proposed Monitoring	Groundwater monitoring sampling for hydrocarbon pollution.
Responsible Party	Oluzizi Service Station

Surface Water

Construction/Decommissioning phase	
Description	Leakage from machinery during construction and decommissioning. Oil Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could be impaired.
Proposed Mitigation Measures	Machinery should not be serviced on the facility to avoid spills. All spills should be cleaned up as soon as possible. Hydrocarbon/chemical contaminated soil; clothing or equipments should not be washed within 25m of any surface water.
Proposed Monitoring	Regular visual inspection. Surface water quality monitoring in cases of evident pollution.
Responsible Party	Oluzizi Service Station / Contractors.

Operational phase	
Description	Spillages might occur during delivery and loading of road transport tanker trucks. This may also occur during filling of vehicles. Contaminated soil might pose a risk to surface water.
Proposed Mitigation Measures	All spills should be cleaned up as soon as possible. The presence of an emergency response plan and suitable equipment is advised, so as to react to any spillage or leakages properly and efficiently.
Proposed Monitoring	Regular visual inspection. Surface water monitoring sampling for hydrocarbon pollution.
Responsible Party	Oluzizi Service Station

Air quality (including dust)

Construction/Decommissioning phase	
Description	Dust may be produced during the construction and decommissioning phase; and might be worsened when strong winds occur. These are expected to be site specific and could potentially pose a nuisance to the neighbouring residence and business. The construction of the proposed fuel retail facility will have minimal impact on the surrounding air quality.
Proposed Mitigation Measures	Excavation, handling and transport of materials must be avoided under high wind conditions. During high winds, dust suppression measures may be required (e.g. dampening with water).
Proposed Monitoring	Regular visual inspection.
Responsible Party	Oluzizi Service Station / Contractors.

Operational phase	
Description	Hydrocarbon vapours will normally be released during delivery, as liquid displaces the gaseous mixture in the tanks.
Proposed Mitigation Measures	Vehicle idling time shall be minimised by putting up educative signs. All venting systems and procedures have to be designed according to SANS standards and placed in a sensible manner.
Proposed Monitoring	A complaints register regarding emissions/smell should be kept and acted on if it becomes a regular complaint.
Responsible Body	Oluzizi Service Station

Health and Safety

Construction/Decommissioning phase	
Description	During the construction and decommissioning phase, earthmoving equipment will be used on site. This increases the possibility of injuries. The presence of equipment lying around on site may encourage criminal activities (theft).
Proposed Mitigation Measures	Equipment and machinery operators should be equipped with ear protection equipment. Operations should be strictly between 07H00 to 19H00. First aid and safety awareness training for contractors. Ensure the general safety and security at all times by providing day and night security guards and adequate lighting within and around the premises. The construction staff must be properly trained on safety and health issues of the project. Workers should be fully equipped with personal protective equipment gear.
Proposed Monitoring	Safety procedures evaluation. Health and safety incident monitoring.
Responsible Party	Oluzizi Service Station / Contractors.

Operational phase	
Description	The operations of the fuel retail facility can cause health and safety risks to workers on site. Occupational exposures are normally related to inhalation of fuel vapours and physical contact with fuels.
Proposed Mitigation Measures	Ensure the general safety and security at all times by providing day and night security guards and adequate lighting within and around the premises. Operators must be properly trained on safety and health issues of the project. Well stocked first aid box which is readily available and accessible should be provided within premises. Signs such as 'NO SMOKING' must be prominently displayed in parts where inflammable materials are stored on the premises. Workers should be fully equipped with personal protective equipment gear.
Proposed Monitoring	Regular inspection and incident monitoring report evaluation.
Responsible Body	Oluzizi Service Station

Noise Pollution

Construction/Decommissioning phase	
Description	Noise pollution due to heavy-duty equipment and machinery on site. Disturbance of any residence and business in the vicinity of the construction area will have to be taken into account during construction.
Proposed Mitigation Measures	Sensitive construction vehicle drivers and machinery operators to switch off engines of vehicles or machinery not being used. Ensure engines of construction machinery are fitted with mufflers. Equipment and machinery operators should be equipped with ear protection equipment. Operations should be strictly between 07H00 to 19H00.
Proposed Monitoring	Strict operational times. Regular inspection.
Responsible Party	Oluzizi Service Station / Contractors.

Operational phase	
Description	Noise pollution already exists around the site in the form of noise generated from vehicles using the main road C46.
Proposed Mitigation Measures	Delivery of fuel products by heavy-duty tankers should be limited to normal working hours (07h00 to 19h00). Loud music from vehicles fuelling up should be restricted.
Proposed Monitoring	Strict delivery and collection times. Observation of on-site noise levels by the Manager or Supervisor.
Responsible Body	Oluzizi Service Station

Waste Generation

Construction/Decommissioning phase	
Description	This can be in a form of contaminated soil, building rubble and domestic waste. During Decommissioning, excavated soil from the installation of the underground tank.
Proposed Mitigation Measures	Ensure that no excavated soil, refuse or building rubble generated on site are placed, dumped or deposited on adjacent/surrounding properties or land. Waste must be disposed off at a suitable waste disposal site. Clear dumping area with the Oshikoto Regional Council.
Proposed Monitoring	Regular inspection and housekeeping procedure monitoring. Observation of site appearance by the manager.
Responsible Party	Oluzizi Service Station / Contractors.

Operational phase	
Description	Waste in the form of contaminated soil due to spillage might be generated, but should be prevented through the use of containment areas as provided. Litter may also be produced during the operational phase.
Proposed Mitigation Measures	Waste minimization policy should be formulated by Oluzizi Service Station. Regular maintenance of the oil/water separator. Bioremediation of contaminated soil. Removal of sand and other material from containment areas. Rubbish must be collected and disposed at a suitable waste disposal site.
Proposed Monitoring	Regular visual inspection. Containment area inspections and monitoring of the oil/water separators.
Responsible Body	Oluzizi Service Station

Traffic

Construction/Decommissioning phase	
Description	Construction and decommissioning related activities are expected to have a minimal impact on the movement of traffic along main road C46. Diversion of traffic or closure of roads is not expected.
Proposed Mitigation Measures	It is recommended that if the need arises for traffic diversion road closure, the contractor should liaise with the relevant authorities. Speed limit and construction site warning signs must be erected to minimise accidents. Construction vehicles must be tagged with reflective signs or tapes to maximise visibility of the vehicles and avoid accidents.
Proposed Monitoring	Observations of the traffic flow on C46 road.
Responsible Party	Oluzizi Service Station / Contractors.

Operational phase	
Description	Traffic around the Service station
Proposed Mitigation Measures	Delivery of fuel products by heavy-duty tankers should be limited to normal working hours (07h00 to 19h00).
Proposed Monitoring	Strict delivery times monitoring. Observation of traffic by the Manager or Supervisor.
Responsible Body	Oluzizi Service Station

Ecological impacts

Construction/Decommissioning phase	
Description	The location of the proposed fuel facility is free of any conservation worthy terrestrial vegetation and fauna. Impacts on fauna and flora are expected to be low.
Proposed Mitigation Measures	The site has been previously disturbed and cleared to be used as a football field. Prevent surface water contamination and disturbance of areas outside the designated working zone.
Proposed Monitoring	Regular site inspection.
Responsible Party	Oluzizi Service Station / Contractors.

Operational phase	
Description	Disturbance or impacts on fauna and flora. Very little impacts are expected as the area is already disturbed and earmarked for development.
Proposed Mitigation Measures	Prevent surface water contamination and disturbance of areas outside the designated working zone.
Proposed Monitoring	Regular site inspection.
Responsible Body	Oluzizi Service Station

Overfilling of tanks and vehicles

Operational phase	
Description	Overfilling of vehicles and fuel storage tanks may take place.
Proposed Mitigation Measures	This impact can be reduced by the installation of spill containment areas around the pumps and through proper training of the operators. Proper monitoring of the product levels in the tanks must take place to eliminate overfilling. Proper training of the operators on site is vital.
Proposed Monitoring	Regular inspection of the level of fuel in tanks.
Responsible Body	Oluzizi Service Station

Nuisance Pollution

Construction/Decommissioning phase	
Description	Aesthetics and inconvenience caused to person trying to access/exit the site.
Proposed Mitigation Measures	The Construction supervisor should maintain tidiness on site at all times. Take cognition when parking vehicles and placing equipment.
Proposed Monitoring	Regular visual site inspection.
Responsible Party	Oluzizi Service Station / Contractors.

Operational phase	
Description	Hydrocarbons are volatile under certain conditions and their vapours in specific concentrations and conditions are flammable.
Proposed Mitigation Measures	There should be sufficient water available for fire fighting purposes. Ensure that all fire-fighting devices are in good working order and they are serviced. All personnel have to be trained about responsible fire protection measures and good housekeeping such as the removal of flammable materials on site.
Proposed Monitoring	Regular inspections should be carried out to inspect and test fire fighting equipment.
Responsible Body	Oluzizi Service Station

Hydrocarbon Spillages

Operational phase	
Description	Fuel spillages might occur during delivery during the operational phase.
Proposed Mitigation Measures	<p>This impact can be reduced by the installation of spill containment areas around the pumps and through proper training of the operators. All spills must be cleaned up immediately.</p> <p>The presence of an emergency response plan and suitable equipment is advised, so as to react to any spillage or leakages properly and efficiently.</p>
Proposed Monitoring	Risk of impact from this can be lowered through proper training of staff and the installation of suitable containment structures.
Responsible Body	Oluzizi Service Station

4. CONCLUSIONS

If the above-mentioned management recommendations are properly implemented, it is anticipated that most of the adverse impacts on the environment can be mitigated. An appointed environmental officer/consultant will need to monitor or audit the site throughout construction to ensure that the EMP is fully implemented and complied with. The EMP caters for all project phases, but will need to be reviewed during all phases of project, especially when revisions are made to the project development plans.

The Environmental Management Plan should be used as an on-site tool during all phases of the proposed project. Parties responsible for contravention of the EMP should be held responsible for any rehabilitation that may need to be undertaken.

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