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**DRAFT BASIC ASSESSMENT
EDTEA REF. NO: DC27/0008/2018: KZN/EIA/0000928/2018**

THE PROPOSED CONSTRUCTION OF A FUEL FILLING STATION AT EMPEMBENI AREA WITHIN THE JURISDICTION OF THE BIG FIVE HLABISA LOCAL MUNICIPALITY, UMKHANYAKUDE DISTRICT, NORTHEN OF KWA-ZULU NATAL.



Prepared by: Emvelo Quality and Environmental Consultant (PTY) Ltd

On behalf of Amangotsha Transport and Trading (PTY) Ltd

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TABLE OF CONTENTS

CONTENTS	PAGE
LIST OF ACRONYMS	5
PROJECT DETAILS.....	6
GLOSSARY OF ITEMS	7
EXECUTIVE SUMMARY	11
1. INTRODUCTION	12
2. PROJECT TITTLE	12
3. PROJECT DESCRIPTION.....	12
5. SERVICES.....	13
5.1. Internal Roads	13
5.2 Electricity	14
5.3 Water and Sanitation	14
5.4 Domestic Waste	14
5.5 Stormwater Management Plan	14
6. SITE ALTERNATIVE	14
7. SITE ACCESS	15
8. NO GO.....	15
9. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT	15
9.1 Solid Waste Management.....	15
9.2 Waste Recycling Measures	15
9.3 Emissions into the Atmosphere	16
9.4 Generation of Noise.....	16
9.5 Effluent.....	16
10. SITE LOCALITY MAPS AND SITE PHOTOGRAPHS	16
11. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE.....	16
12. ACTIVITY MOTIVATION	17
12.1 Social Economic Value of Activity	17
12.2 The Need and Desirability	17
13. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES.....	18
14. LIST OF ACTIVITIES APPLIED FOR UNDER THE NEMA AND EIA REGULATIONS	18

15. A DESCRIPTION OF THE ENVIRONMENT THAT MAY BE AFFECTED BY THE ACTIVITY	19
15.1 Climate	19
15.2 Topography and Geology	20
15.3 Flora	20
15.4 Fauna	20
15.5 Visual Environmental and Land Use	21
15.6 Heritage and Cultural Aspects	21
15.7 Social and Economic Aspects.....	21
16. PUBLIC PARTICIPATION	22
16.1 Background	22
16.2 Objectives of Public Participation.....	22
17. SUMMARY OF THE KEY FINDINGS FOR THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA)	27
18 THE RATING CRITERIA FOR THE IDENTIFIED IMPACTS AND RISKS	41
19. RECOMMENDATIONS BY SPECIALISTS.....	49
19.1 RECOMMENDATIONS BY GEOTECHNICAL SPECIALIST FOR THE PROPOSED CONSTRUCTION OF THE MPEMBENI FILLING STATION.....	49
19.1.1. Earthworks and Excavation	49
19.1.2. Foundation Recommendation.....	49
19.1.3. Subgrade Treatment for the Access Road	50
19.1.4. Subgrade Treatment for the Paved Surface and Parking Areas.....	51
19.1.5. Drainage.....	51
19.1.6. Ablution Blocks	51
19.2. RECOMMENDATIONS FROM THE HYDROGEOLOGICAL SPECIALIST	53
19.2.1. Water Quality Assessment.....	53
19.2.2. Groundwater Contamination Assessment.....	53
19.3.RECOMMENDATIONS FROM THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)	53
20. CONCLUSIONS.....	54

LIST OF TABLES

Table 1: Coordinates.....	12
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Table 2: 21 digit Surveyor General Codes.....	13
Table 3: The List of Applicable Legislation.....	18
Table 4: Listed Activities.....	18
Table 5: Public Participation Table.....	23
Table 6 Comments and Response Report.....	24
Table 7: Direct and Indirect Impacts.....	28
Table 8: Cumulative Impacts.....	40
Table 9: The rating criteria for the identified impacts and risks.....	41

LIST OF FIGURES

Figure 1: Site Locality Layout.....	13
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LIST OF APPENDICES

APPENDIX A: Declaration of Information.....	56
APPENDIX B: Environmental Management Plan (EMPr).....	57
APPENDIX C: Site Photographs and locality Maps.....	58
APPENDIX D: Layout Plan.....	59
APPENDIX E: Public Participation Process.....	60
APPENDIX F: EAP CV(S).....	61
APPENDIX G: Geotechnical Assessment Report.....	62
APPENDIX H: Hydrological Assessment Report.....	63

LIST OF ACRONYMS

DWS	Department of Water and Sanitation
DEDTEA	Department of Economic Development, Tourism and Environmental Affairs
EMPr	Environmental Management Programme
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
MSDS	Material Safety Data Sheet
NEMA	National Environmental Management Act
I&AP	Interested and Affected Parties
EAP	Environmental Assessment Practitioner
GA	General Authorisation

PROJECT DETAILS

Developer (DEV)

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Environmental Assessment Practitioner (EAP) Details

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GLOSSARY OF ITEMS

DEVELOPMENT: the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint.

BIODIVERSITY: The variety of life in an area, including the number of different species, the genetic wealth within each species, and the natural areas where they are found.

BASIC ASSESSMENT: The process of collecting, organizing, analyzing, interpreting and communicating information that is relevant to the consideration of the application.

DEVELOPMENT FOOTPRINT: any evidence of physical alteration as a result of the undertaking of any activity.

CONTRACTOR: companies and or individual persons appointed on behalf of the client to undertake activities, as well as their sub-contractors and suppliers.

ENVIRONMENTAL CONTROL OFFICER: an individual nominated through the client to be present on site to act on behalf of the client in matters concerning the implementation and day to day monitoring of the EMPr and conditions stipulated by the authorities as prescribed in NEMA.

ENVIRONMENT: in terms of the National Environmental Management Act (NEMA) (No 107 of 1998) (as amended), Environment means the surroundings within which humans exist and that are made up of:

- ✚ the land, water and atmosphere of the earth;
- ✚ micro-organisms, plants and animal life;
- ✚ any part or combination of (i) of (ii) and the interrelationships among and between them;
- ✚ the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence;
- ✚ Human health and wellbeing.

ENVIRONMENTAL IMPACT: the change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services.

MITIGATION: the measures designed to avoid reduce or remedy adverse impacts.

ENVIRONMENTAL MANAGEMENT PROGRAMME: a detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive environmental impacts and limiting or preventing negative environmental impacts are implemented during the life-cycle of the project. This EMP focuses on the construction phase, operation (maintenance) phase and decommissioning phase of the proposed project.

POLLUTION: the National Environmental Management Act, No. 107 of 1998 defined pollution to mean any change in the environment caused by the substances; radioactive or other waves; or noise, odors, dust or heat emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future.

WATER POLLUTION: the National Water Act, 36 of 1998 defined water pollution to be the direct or indirect alteration of the physical, chemical or biological properties of a water resource so as to make it less fit for any beneficial purpose for which it may reasonably be expected to be used; or harmful or potentially harmful (a) to the welfare, health or safety of human beings; (b) to any aquatic or non-aquatic organisms; (c) to the resource quality; or (d) to property.

REHABILITATION: rehabilitation is defined as the return of a disturbed area to a state which approximates the state (wherever possible) which it was before disruption.

WATERCOURSE: can be a) a river or spring; b) a natural channel or depression in which water flows regularly or intermittently; c) a wetland, lake or dam into which, or from which, water flows; and/or d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water

Act, 1998 (Act No. 36 of 1998) and a reference to a watercourse includes, where relevant, its bed and banks.

WETLAND: land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

INDIGENOUS VEGETATION: refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.

GENERAL WASTE: waste that does not pose an immediate hazard or threat to health or the environment, and includes -

- domestic waste;
- building and demolition waste;
- business waste; and
- inert waste.

HAZARDOUS WASTE: hazardous waste means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste have a detrimental impact on health and the environment.

GENERAL WASTE LANDFILL SITE: a waste disposal site that is designed, managed, permitted and registered to allow for the disposal of general waste.

ARCHAEOLOGICAL RESOURCES: includes (a) material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years including artefacts, human and hominid remains and artificial features and structures; (b) rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation; wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older

than 60 years or which SAHRA considers to be worthy of conservation; features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

INTERESTED AND AFFECTED PARTY: for the purposes of Chapter 5 of the NEMA and in relation to the assessment of the environmental impact of a listed activity or related activity, an interested and affected party contemplated in Section 24(4) (a) (v), and which includes (a) any person, group of persons or organization interested in or affected by such operation or activity; and (b) any organ of state that may have jurisdiction over any aspect of the operation or activity.

EXECUTIVE SUMMARY

Emvelo Consultant has been appointed by Amangotsha Transport and Trading (Pty) Ltd to conduct the Basic Assessment Report (EIA) for the proposed Fuel Filling Station at Mpembeni Area.

Amangotsha Transport and Trading (Pty) Ltd intends to construct a fuel filling station totalling a footprint of approximately 1452m². The site of the proposed filling station is located along the intersection of Provincial road P451 and District Road D1905. The site on which the development is set to take place is currently leased by the developer.

The public participation was undertaken which involved undertaking of the public meeting with the affected community, consultation with the relevant Government Stakeholders and other Interested and Affected Parties (I&APS). To undertake the Public Participation Process, the on-site notices were displayed on the construction site. An advertisement was placed on iLanga Newspaper. The Background Information Documents (BIDs) were also distributed to the relevant Government Stakeholders. All the comments/concerns will be addressed in the Final BAR.

This Draft BAR BA will be compiled in accordance with the EIA Regulations 2014.

1. INTRODUCTION

Emvelo Quality and Environmental Consultant has been appointed by Amangotsha Transport and Trading (Pty) Ltd to conduct the Basic Assessment Report (EIA) in terms of the Section 24(5) and Section 44 of the National Environmental Management Act, 1998 (Act No.107 of 1998) as read with the Environmental Impact Assessment (EIA) Regulations of 04 December 2014, amended in 2017. This project will be registered with the Department of Economic Development, Tourism and Environmental Affairs (uMkhanyakude District Office).

2. PROJECT TITTLE

The proposed construction of the Fuel Filling Station at Empembeni area within the Jurisdiction of the Big Five Hlabisa Local Municipality, UMkhanyakude District, Northern Kwa-Zulu Natal.

3. PROJECT DESCRIPTION

The proposed fuel filling station has a total footprint of approximately 1452m² and will comprise of the following: convenient store, a total capacity of 100 000 L (100m³) storage underground tanks comprising 2x 25 000L of petrol, 2x 25 000L of diesel and 1 x 5 000 L of paraffin.

4. PROJECT LOCALITY

The proposed site is located adjacent intersections of Provincial Road P451 and District Road D1905 on Farm Reserve No.12 No. 15832. The site is 2,4km away from the boundary of the Hluhluwe–Umfolozi Game Park. The proposed development is located at the following coordinates indicated on the table 1 below

Table 1: Project Coordinates

Latitude /Longitude	Degrees	Minutes	Seconds
South	28 ⁰	08'	00.11"
East	31 ⁰	56'	07.7"

Table 2: 21 Surveyor General Code

N	O	G	V	0	0	0	0	0	0	0	1	7	4	3	6	0	0	0	0	0

An image below indicates the location of the project



Figure 1: Image showing site locality layout.

5. SERVICES

The services hereby mentioned in this section are that will serve the development during the operational phase.

5.1. Internal Roads

The proposed site can be accessed via the existing roads (P451 and D1905 intersections) serving the existing adjacent residential and existing developments. Access to the proposed site will be provided by two proposed internal road networks.

5.2 Electricity

Power to the development will be provided by Eskom. All the proposed additional connection points are within 1km to existing already serviced areas. Specific take-off points will have to be provided by Eskom and the developer will enter into a service agreement with the Eskom regarding its electric connections.

5.3 Water and Sanitation

The area of Mpembeni often experiences water shortage. Therefore, the developer has proposed a borehole system, there is an existing borehole on site. However, it needs to be rehabilitated and treated before human consumption.

Due to the prevailing geological condition on site such as, clayey soils and shallow tillite bedrock showing very low permeability rate, the site is considered to be unsuitable for disposal of effluent via septic tanks or soak-way system. Therefore, the developer proposes to use conservancy tanks which requires emptying at regular intervals.

5.4 Domestic Waste

During the operational phase, the development will start generating certain amounts of domestic waste. Waste collected during this phase will be sorted and disposed into a licensed disposal facility.

5.5 Stormwater Management Plan

Stormwater management plan will be designed to direct water away from fill edges to prevent overtopping of the fill crest and erosion of the fill embankments. Run-off generated from hard surfaces will either join natural drainage patterns in the surrounding area or to be directed to discharge points in adjacent vegetated areas.

6. SITE ALTERNATIVE

No site alternative was considered for this project and the decision was primarily informed by the following prevailing conditions on site;

The applicant is currently leasing the land on which the development is to take place. The site remains undeveloped and is suited to accommodate the proposed activity. Due to the locality of the site it is perfectly suited for the development of a filling station as it is located between intersections of Provincial Road P451 and District road D1905.

7. SITE ACCESS

The site can be accessed via P451 and D1905 roads.

8. NO GO

The NO-GO alternative was also assessed and will include not developing the site for a filling station and leaving the site in its present state. As such the site will continue to remain less useful to the community and the municipality as it is not currently generating income or revenues. In the absence of the proposed activity the socio-economic benefit associated with the development, such as, investment, infrastructure development, job opportunities during construction and operational phase may not happen.

9. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

9.1 Solid Waste Management

Volumes of general waste collected during construction will be sorted and disposed of into the nearest licensed disposal facility. There is no part of waste that will be generated during construction, which can be classified as hazardous.

9.2 Waste Recycling Measures

On the construction site waste recycling bins will be provided to ensure that the waste is being separated accordingly. Waste will be separated into the recyclable and non-recyclable materials. The recyclable materials will be transported to the recycling facilities. Non-recyclable materials will be disposed of at the licensed landfill site. During the construction phase, construction waste will be used as fill material and as foundation where possible. The re-use of construction waste materials will minimize the amount of waste that will need to be disposed of at registered municipal waste facilities

(King Cetshwayo Land Fill Site). Only inert, non-hazardous construction material will be re-used. Raw materials with non-recyclable packaging will be avoided.

9.3 Emissions into the Atmosphere

The activity itself will not contribute directly to emissions released into the atmosphere except possible short-term dust emissions during construction. However, the construction of the of the Petrol Filling Station will increase the capacity of vehicles that will pass by the station and it will contain hazardous substances like petrol or diesel which in turn will cause an increase in noxious gas emissions from cars into the atmosphere and for those living adjacent to the proposed construction.

The activity will therefore have an indirect effect on the release of emissions. The release of emissions from vehicles is controlled under the Air Quality Act (Act No 39 of 1998).

9.4 Generation of Noise

During the construction phase it is anticipated that there will be noise generated from the construction activities, vehicles and machinery. The mitigation measures to reduce the level of noise will be implemented during construction.

9.5 Effluent

There will be no effluent generated during this activity. Proper measures will be put in place to contain any spills occurring during construction before it reaches the nearest stream.

10. SITE LOCALITY MAPS AND SITE PHOTOGRAPHS

Site photographs and locality maps are attached in the document as Appendix C.

11. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Geotechnical investigations were conducted by Geo-Caluza to assess the suitability of the site for the proposed development. In the investigation conducted, the area

indicated to be underlain by a mantle of transported material and residual soils overlying the weathered tillite bedrock of the Dwyka Formation.

There was no groundwater seepage encountered in any of the investigated site pits below existing ground level during the investigation. However, it is imperative to note that during season of heavy rainfall, there will be an increase in the magnitude of groundwater seepage flow.

The ground conditions generally consisted of a mantle of transported and residual materials overlying weathered bedrock of Dwyka Formation.

12. ACTIVITY MOTIVATION

12.1 Social Economic Value of Activity

The project will contribute directly to social and service infrastructure. The number of people to be employed during the construction and operational phase of the project is unknown as there will be direct, indirect and induced employment opportunities.

12.2 The Need and Desirability

The people of this community during the public meeting raised concerns of travelling all the way to Hlabisa town to get one of either service this development will provide. With the level of unemployment, the people are experiencing, they are hopeful that not only will the development bring some of the services closer, but it cost them nothing to get to the petrol station, it will just be at a walking distances as it located close to their homes.

Now that the need has been addressed, it is also imperative to also assess the desire. The proposed filling station will provide a more convenient source of fuel for transient traffic travelling on the highway as well as related service-provision for local villagers. The community will benefit immensely due to access of fuel, convenient food and other related services the development will provide It is anticipated that the proposed filling station will reduce unemployment and increase buying power.

13. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

Table 3: The List of Applicable Legislation

Title of legislation	Administering authority
The Constitution of South Africa Act, 1996 (Act No. 108 of 1996)	National
National Environmental Management Act, 1998 (Act No. 107 of 1998)	National & Provincial
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	National
National Water Act, 1998 (Act No 36 of 1998)	National
South African Roads Act, 1998 (Act No. 74 of 1998)	National & Provincial
KwaZulu-Natal Heritage Act, 2008 (Act No.4 of 2008)	Provincial
National Environmental Management: Air Quality Act 39 (Act No. 39 of 2004)	National

14. LIST OF ACTIVITIES APPLIED FOR UNDER THE NEMA AND EIA REGULATIONS

In terms of the Environmental Regulations promulgated under the National Environmental Management Act (NEMA), an EIA must be conducted for any development or activity that requires an Environmental Authorization. The listed activities in the NEMA, relevant to this project, that trigger the need for Environmental Authorization are listed below:

Table 4: Listed activities

Listed Activities as described in GN R.983	Description of project activity
Listed activity 14: The development of facilities or infrastructure, for the storage, or for the storage and handling, of dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic	The combined capacity of a Petrol Filling Station is more than 80 cubic meters but it is not exceeding 500 cubic meters.

meters or more but not exceeding 500 cubic meters.	
Potential Triggered Listed Activities	
Listed Activities as described in GN R.983	Description of project activity
<p>Listing 3, Activity 10: “The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres. (d) KwaZulu-Natal : (xiii) <i>Outside urban areas:</i> (aa) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any terrestrial protected area identified in terms of NEMPA or from the core areas of a biosphere”</p>	<p>More than 80 cubic metres of dangerous goods will be stored underground.</p>

15. A DESCRIPTION OF THE ENVIRONMENT THAT MAY BE AFFECTED BY THE ACTIVITY

15.1 Climate

Hlabisa Local Municipality falls within the humid subtropical region, with the maximum and minimum temperatures fluctuating between 32 °C and 10.3 °C. The average annual rainfall is estimated to be between 500-900mm. The precipitation pattern are slightly skewed to the high-altitude northern areas which receive most of the rainfall as compared to low-lying western areas (Hlabisa Local Municipality IDP, 2013/2014).

15.2 Topography and Geology

Hlabisa Local Municipality has the altitude that ranges from 20m to 500m above sea level. The area is characterised by two distinct physical features which almost separate the area into two distinct topographical settings. The eastern region is characterised by flat to gentle surfaces. Whereas western region consists of plateaus comprising of rounded hilltops which are bisected by gentle slopes incised river valleys, with steep escarpment falling into south linking up with Nongoma (Hlabisa Local Municipality IDP, 2013/2014).

Geologically the area is underlain by black-clay and duplex soils derived from a distinct variety of clastic sediments of the Dwyka, Ecca, Beaufort and igneous rocks of the Lebombo Groups (all of the Karoo Supergroup). In addition, the area is also endowed with well-drained soil forms that occur especially on stony slopes.

15.3 Flora

Vegetation that occurs within the area especially on steep slopes within river valleys is dominated by *Themeda triandra*. The vegetation is characterised by open grassland dominated by well-known red-grass. The presence of *Presidium aqualine*, *Magnifera indica*, and various *Acacia* species such as *Acacia karoo* as well as alien invasive species such as *Lantana camara* and *chromolaena odorata* is evident on grassland especially on lower slopes of the valleys. (Hlabisa Local Municipality IDP, 2013/2014).

15.4 Fauna

Hlabisa municipality is located in one of the world's richest and diverse tourism areas. World renowned game and nature reserves such as St Lucia, Hluhluwe/Umfolozi and Mkuze are located here. The proposed site is 2, 4 km away from Hluhluwe –Umfolozi Game Park. The Park is widely diversified, and the species found include the "Big 5"; Black & White Rhinoceros, Elephant, Buffalo, Lion and Leopard (KZN Wildlife, 2011) .

Other species found are African Wild Dog, Cheetah, Hyena, Jackal, Blue Wildebeest, Giraffe, Zebra, Nile crocodile, Hippopotamus, Bushpig, Warthog, Mongoose, Chacma Baboons and Vervet Monkeys (KZN Wildlife, 2011).

There is also a wide range of Antelope species such as: Waterbuck, Kudu, Nyala, Impala, Reedbuck, Bushbuck, Duiker, Steenbok and Suni and variety of Tortoises, Terrapins, Snakes and Lizards. The park is also a prime birding destination, with over 320 recorded bird species.

15.5 Visual Environmental and Land Use

The land on which the proposed site is located is administered by the traditional authority and much of the area is yet to be developed. The area is characterised by sparsely populated settlement with the majority of households still depending on livestock, subsistence and small scale farming.

15.6 Heritage and Cultural Aspects

The enquiry has been lodged with AMAFA in order to ascertain whether there are any cultural sites present in the study area. Findings will be incorporated in the final Basic Assessment Report.

15.7 Social and Economic Aspects

Hlabisa Local Municipality is largely dominated by scattered rural villages, with 52.6% of the entire population being classified as economically inactive. The majority of the population lives below poverty line. This is demonstrated by 83% of the working personnel earning less than R 3 200 per month, of this figure 41% of the households have no secured income. The main employment contributors are, namely; agriculture, community service sector, manufacture and trade (Hlabisa Local Municipality IDP, 2013/2014).

The information provided by Statistic South Africa has proven that improvements with regards to socio-economic status have been made within the municipality. The poverty headcount (number of households that can be classified as multidimensionally poor by using South African Multidimensional Poverty Index) has decreased from 16.2 % in 2011 to 10.3% in 2016. In addition, there has been a slight decrease on the intensification of poverty from a value of 41.8 in 2011 to 41.7 in 2016 (Equispectives Research & Consulting Services, 2016).

16. PUBLIC PARTICIPATION

16.1 Background

Public participation is part of the EIA process which is governed under the principles of NEMA as well the EIA regulations. It is defined as the process by which an organization consults with all interested or affected parties (I&APs) which include organizations, government entities, community, NGOs etc., before making a decision. It is a two-way communication and collaborative problem solving with the goal of achieving better and more acceptable decisions. Public Participation Process provides all stakeholders including the community with a platform to raise their concerns before the Competent Authority can make a final decision about the environmental authorisation. This prevents and minimizes disputes before they become unsolvable.

Chapter 6 of the EIA regulations emphasize that the information related to the proposed project must be made available to I&APs, prior to a final decision. Therefore, this process will allow I&APs to have access to the information relating to the proposed development. The public participation process (PPP) for the proposed construction was conducted according to Chapter 6 of the December 2014 EIA regulations

16.2 Objectives of Public Participation

- To inform and involve the community and stakeholders about the proposed development.
- To identify and address the community and stakeholder's concerns regarding this development.
- To provide opportunities for the community, relevant government departments, farmers, political parties and other stakeholders to raise their concerns, suggest solutions and identify priorities.

16.3 Notification of the Interested and Affected Parties (I&APs)

Section 41 of Chapter 6 of the EIA regulations have listed the following options, to be used when notifying the interested and affected parties (I&APs):

Table 5: Public Participation Processes

<i>All the Interested and Affected parties were notified of the application by-</i>		
Fixing a notice board at the place conspicuous to and accessible by the public at the boundary, on fence, or along the corridor of any alternative sites.	YES	NO
Any alternative site also mentioned in the application	YES	NO
<i>Has a written notice been given to-</i>		
Land owner or person in control if the applicant is not in control of the land	YES	NO
The municipal councillor of the Ward in which the site and alternative site of the proposed activity.	YES	NO
The municipality which has jurisdiction in the area and other organs of state	YES	NO
<i>Placing an advertisement in-</i>		
One local newspaper	YES	NO
Any official Gazette that is published specifically for providing public notice of applications	YES	NO
One* provincial newspaper, any official Gazette that is published with the purpose of providing public notice of applications.	YES	NO

16.4 Comments from the Registered Interested and Affected Parties (I&APs)

Section 43 of Chapter 6 indicates that all interested and affected parties are entitled to comment in writing on all reports produced by the applicant during EIA process. This will bring the concerns raised to the attention of the applicant.

The Ridge Public Meeting was held on the 07 of April 2018, at Mpembeni Tribal Court. All comments received were acknowledge and have been addressed in Table 5 below and are indicated by means of communication

Table 6: Comments and Response Report (CRR) for The Ridge Public Meeting held at: Mpembeni Tribal Court

NO	NAME OF I&AP	MEANS OF COMMUNICATION	COMMENT	RESPONSE BY EAP
1.	Xolani Shangase	Public Meeting	Members of the public usually travel for several kilometres to access petrol. Xolani Ntshangase was pleased about the proposed construction of petrol station. His delight was due to the fact that they will now be accessing petrol/fuel at a nearby station. However, Mr Shangase was concerned, on whether people from the tribal council would be considered first during employment stage.	The EAP acknowledged this comment
2.	P.C Mbatha	Public Meeting	According to P.C Mbatha this project will bring about much change that is needed in the community. In addition, Mr Mbatha was interested in knowing, who would be eligible for employment and in case some people are recruited are they going to receive any skills training.	The EAP has acknowledged this comment.
3.	Zimele Ntshangase	Public Meeting	Mr Ntshangase applauded and appreciated proposed development and the value it brings to the community.	The EAP has acknowledged this comment.

NO	NAME OF I&AP	MEANS OF COMMUNICATION	COMMENT	RESPONSE BY EAP
	Zimele Ntshangase	Public Meeting	He reiterated that, this project was much needed to the community as it will boost local economy. In addition, he went on to say that, the convenience store associated with the development will improve the accessibility of basic food product.	The EAP has acknowledged this comment.
4.	Mrs Hlabisa	Public Meeting	According to Mrs Hlabisa "this project is very pleasing and attractive". She maintained that, when heavy traffic has taken its toll on the highway especially on their way back from work, they generally feel lazy to drive to distanced filling stations. She was pleased that this project will go a long way in helping them during peak hours of traffic.	The EAP has acknowledged this comment.
5.	Zamani Mathenjwa	Public Meeting	It is of vital importance that people from this community be considered first for employment and when employing people, the applicant should try to avoid conflict from emerging.	The EAP has acknowledged this comment.

NO	NAME OF I&AP	MEANS OF COMMUNICATION	COMMENT	RESPONSE BY EAP
6.	Vusi Gaxa	Public Meeting	According to Vusi Gaxa the value of the proposed development is very much blatant to the public. He continued to add that, on certain occasions the existing filling stations would run out of fuel of which then becomes a problem for motorists.	The EAP has acknowledged this comment.
7.	Fisimpilo Mbatha	Public Meeting	Fisimpilo gladly received proposed development, as it has the potential of attracting other businesses and improve local economy.	The EAP has acknowledged this comment.
8.	Nkululeko Hlabisa	Public Meeting	The proposed development will be beneficial to people who are running a Grass cutting business, as this project will allow them to access petrol at a nearby petrol station.	The EAP has acknowledged this comment.

17. SUMMARY OF THE KEY FINDINGS FOR THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

The table 7 below shows the environmental impact assessment (EIA) conducted for the planning and design phase, the construction phase and the operational phase, for the preferred alternative site.

Table 7: Direct and Indirect Impacts (Preferred Alternative)

Table 7 below shows the Environmental Impact Assessment (EIA) conducted for the planning and design phase, the construction phase and the operational phase, for the preferred alternative site.

Impact	Description	Mitigation
Planning and Design Phase		
Removal of vegetation	The excavations and site preparation will result in the removal of vegetation on the currently vegetated areas within the site.	<ul style="list-style-type: none"> • Ensure that the Engineer, the Contractor and the employees are trained about the preservation of the environment. • The vegetation found on site must not be removed for the purpose of making fire. • Existing indigenous trees should be retained where possible. • Grass occurring on and near construction sites should be retained where possible, to assist in retarding erosion. • Vegetation must be only removed on the site demarcated and authorised for construction. • Where necessary the disturbed areas should be re-vegetated using a specific seed mix or appropriate indigenous trees.
Soil erosion	Excavation of site or removal of top and sub-soil during site preparation could result in soil erosion. The clearing of vegetation will result in the exposure of soils.	<ul style="list-style-type: none"> • Provide environmental awareness training on soil erosion prevention. • Suitable precautions like removing vegetation on steep areas must be avoided. • Any tunnel or erosion channel developing during the construction period shall be backfilled and compacted

Impact	Description	Mitigation
Planning and Design Phase		
Soil erosion	Exposed soils are susceptible to erosion by wind and water (i.e. run-off) during high wind or rainfall conditions	<ul style="list-style-type: none"> • Avoid prolonged vegetation disturbance, vegetation must be replanted on the disturbed areas as soon as possible. • Areas susceptible to erosion must be protected by installing the necessary temporary and/or permanent drainage works to prevent surface water from being concentrated in streams • Bare and disturbed areas must be minimized. • Unearthed rocks and boulders are to be used for erosion protection on site. • Access routes to the site should be minimized to avoid disturbance of vegetation. • Cleared areas are to be successfully stabilized as means of protecting and controlling soil erosion.
Access Road	Poor Planning and execution of access road can have an impounding effect on the free flow of traffic, travelling on P451 and D 1905.	<ul style="list-style-type: none"> • When designing the access routes disturbance to the flow of traffic, neighbouring community, private owners and local businesses must be taken into consideration. • Preferably access road must be designed in accordance with the existing gravel access road.

Impact	Description	Mitigation
Planning and Design Phase		
Community members and private landowners	Community members and private landowners might be affected if they are not made aware of the risks associated with the construction activities. They might interfere with the working areas and are at risk of getting injured if not trained.	<ul style="list-style-type: none"> • Environmental awareness must be provided to the community (in their language) to train them of the potential hazards that might occur during construction. • The construction site must be fenced off to prohibit unauthorised entry.
Construction Phase		
Ground and surface water contamination	<p>Chemicals and waste that may be released intentionally or accidental have the potential of pollution ground and surface water.</p> <p>Spills from construction machines or vehicles have a high probability of being carried away by surface run-off to the nearby stream</p>	<ul style="list-style-type: none"> • A storm water management plan must be made available during all phase of construction. • Uncontrolled discharges from the construction site are strictly prohibited. • All Vehicles shall be properly maintained and serviced so as to avoid oil leakages occurring on site. • Any stockpiled soil and rock should have a storm water management plan to avoid surface run-off during heavy rainfall. • A hydrologist needs to be present on site supervising the construction activity to ensure that all mitigation measures are being developed or carried out as recommended

Impact	Description	Mitigation
Construction Phase		
Geological Impact	Due to the scale of the activity, there might be destabilization of surface geology as result of excavations.	<ul style="list-style-type: none"> • Earthworks must be carried out according to engineer's details. • All site disturbances must be limited to areas where structures will be constructed. • Excess materials from excavation together with construction rubble must be appropriately disposed of. • Suitable excavated material is to be stockpiled next to excavation for use as back fill. • Topsoil should only be exposed for minimal periods of time and adequately stockpiled to prevent loss through run-off.
Soil pollution and Compaction	<p>(A)The contamination of soil during concrete mix and asphalt preparation will affect soil content.</p> <p>(b) There is a high probability that soil may be compacted by the operation and parking of construction vehicles. Compacted soil results in the reduced ability for plant growth and water absorption.</p>	<ul style="list-style-type: none"> • Adequate number of cement mixers should be provided. In case where they are not made available, cement mixing should take place within an impermeable layer. • Where practical, concrete washout must be collected and stored in a leak proof container for reuse. • Construction vehicles and machines on site must be maintained properly to ensure that oil spillages are kept at a minimum.

Impact	Description	Mitigation
Construction Phase		
Soil pollution and Compaction	.	<ul style="list-style-type: none"> • Chemicals need to be in a safe enclosed location to prevent any contamination from occurring • Chemicals need to be in a safe and enclosed location to prevent any contamination from occurring. • If there is a hazardous chemical spill on site, it is imperative that the appropriate authority be contacted and hazard spill team is dispatched to the site to remediate the contaminated area. • Spills are to be cleared immediately and contaminated material disposed of at an appropriately permitted disposal site. • Where practical the movement of construction vehicles must be limited to the development footprint
Visual Impact and Light Pollution	Pollution may occur due to the following: Littering and illegal dumping on the site and on the adjacent areas which can affect visual character of the site.	<ul style="list-style-type: none"> • Site must be managed properly and all rubbish and rubble removed to a registered waste disposal facility. • Refuse bins must be provided on site and these must be emptied regularly. • Construction activities must be limited to daylight hours.

Impact	Description	Mitigation
Construction Phase		
Visual Impact and Light Pollution		<ul style="list-style-type: none"> • Where possible construction waste should be recycled. • Burning of waste material is not permitted on site. • Records of all waste taken off site and disposed of must be kept as evidence.
Noise pollution	Excessive noise might be generated during the construction, from the delivery vehicles, earth moving machinery and piling works. This may give rise to nuisance complaints from the people living next the construction site.	<ul style="list-style-type: none"> • Excavation activities can be conducted during the daylight hours only, no excavation should be allowed before or after working hours. • Training and environmental awareness must be provided to the workers about the noise pollution. • Noise dampening mechanisms must be installed on the moving machinery'. • Ear plugs must be provided to the workers.
Air pollution	(a) During construction, dust may be generated especially where there is exposed surface. Specific activities that may contribute to the release of dust include offloading and stockpiling of building materials such as sand, storage of excavated materials and movement of vehicles.	<ul style="list-style-type: none"> • Training and environmental awareness must be provided to workers. • Proper stockpile management must be implanted to reduce dust. • Where necessary dust must be suppressed using water tankers. • Dust from the stockpiles must also be suppressed to reduce dust. • Strict speed limits must be implanted on the dusty roads.

Impact	Description	Mitigation
Construction Phase		
Air pollution	(b) Generation of dust and smoke will increase the visibility of the project and may become any eyesore if not managed properly	<ul style="list-style-type: none"> • Traffic moving in and out of the site must be reduced to reduce air pollution.
Traffic Impact	The traffic may potentially increase during construction phase as vehicles will be utilizing the existing road networks, potentially altering the flow of traffic along P415.	<ul style="list-style-type: none"> • Large construction vehicles are to avoid main roads during peak traffic hours. • Construction vehicles are not to be parked on the roads thereby blocking the way to the neighbouring properties. • All deliveries must be timed and confirmed the day before to avoid queues of trucks. • Clear signs should be displayed indicating construction site and turning construction vehicles. • Signs must be kept clean and well maintained if they are to be effective. • Unnecessary traffic control signs or road markings must be removed as they tend to confuse motorists and make them careless.
Fauna	(a) Habitat destruction will take place within the development. As a result fauna could be harmed due to construction activities	<ul style="list-style-type: none"> • Construction workers must be confined to the construction site and access to the undeveloped areas must be strictly regulated.

Impact	Description	Mitigation
Construction Phase		
Fauna		<ul style="list-style-type: none"> • The contractor must ensure that no faunal species are disturbed, trapped, hunted or killed during construction. • Blasting and earth moving activities must be scheduled to occur at the same time to avoid repeating of noisy activities that might have an impact to animals.
Health and Safety	Construction activities can be hazardous to the public as well as the workers.	<ul style="list-style-type: none"> • 5 minutes safety toolbox talks must be conducted before commencing with any activity on site, to refresh on the health and safety training. • If the distance between the construction sites exceeds reasonable walking distance, the Contractor must provide transport to and from the site for the workers. • The Contractor must also ensure that construction personnel have access to some form of medical treatment in case injuries occur. • Members of the public adjacent to the construction area must be notified of construction activities in order to limit unnecessary disturbance or interference. • Appointed safety officer must-continuously monitor safety conditions during construction •

Impacts	Description	Mitigation
Construction Phase		
Health and Safety		<ul style="list-style-type: none"> • Health and Safety (OHS) Act must be ensured. Employees must be provided with appropriate Personal Protective kit. Workers must be trained on handling chemicals. The Materials Safety Data Sheet (MSDS) must all always be provided for the chemical brought on site. The immediate Public must be notified of the Construction activities to avoid any disturbance or interferences. • Where possible the safety signs must be displayed to warn the public of the hazards associated with the construction. • Fire arms or hunting weapons must be prohibited on site. • Eating areas must be provided within the construction camp.
Community members and private landowners	People living nearby are at risk of being Injured by construction vehicles or machines	<ul style="list-style-type: none"> • Safety signs must be displayed to warn the community of the potential hazards within the construction site. • Access to the construction camp site and construction site must be monitored. • Strict access to the construction site must be ensured to avoid any disturbance or interference by the community. •

Impacts	Description	Mitigation
Construction Phase		
Socio-economic	<p>Positive Impact: More employment opportunities will be created during the Construction period. The local people will acquire some construction skills. On-job training for the laying of the bricks and concrete mixing. The local economy will increase as some -local businesses will be created during the construction period.</p>	N/A
Operational Phase		
Groundwater and Surface contamination	<p>The following event can be expected during the operational phase of the filling station</p> <ul style="list-style-type: none"> • Contamination of ground and surface water associated with the operation of a filling station. • Spillage may occur during refuelling. • Leaking of underground storage tanks 	<ul style="list-style-type: none"> • A proper groundwater quality monitoring program must be implemented as soon as possible. • Groundwater boreholes/wells need to be installed for continuous monitoring of groundwater quality to identify any possible contamination issues. • Monitoring of groundwater needs to be carried out on a bi-annual basis during the operational phase of a filling station.

Impacts	Description	Mitigation
Operational Phase		
<p>Groundwater and Surface contamination</p>		<ul style="list-style-type: none"> • Monitoring of ground water sampling data should be reviewed by a hydrologist to establish performance and water quality trends. • Early warning system must be considered for placement within the monitoring wells or beneath storage tanks. • Any spills should be cleaned up immediately and contaminated soil should be disposed of at a licenced designated area. • Stormwater originating from the filling station surface areas must be treated as dirty water. • Leak detection systems must be implemented in all fuel storage and tanks
<p>Safety and Health</p>	<p>Storage, handling and transportation of fuel pose a major threat to employees, neighbours and customers due to the risk of fire and explosions associated with the filling station</p>	<ul style="list-style-type: none"> • Measure should be put in place with regards to handling and storage of fuel. In addition appropriate measures must be put in place to deal with a dangerous situation. • Staff must be regularly updated about safety procedures. • Emergency equipment must be readily available and adequately supplied for customers and staff.

Impact	Description	Mitigation
Operational Phase		
Safety and Health	.	<ul style="list-style-type: none"> • Equipment and material must be handled by staff that have been supervised and thoroughly trained. • Local Emergency number should be placed in a position where it can be seen by everyone within the filling station. • The filling station management must develop an emergency plan. All employees must be adequately trained in the implementation of the plan. • Fire extinguishers must be easily accessible and be placed at strategic positions. • Workers should be trained on fire safety and preferably a marshal must be appointed.
Traffic Impact	The impeding of traffic flow can be expected with vehicles, trucks and motorbikes coming in and out of the filling station	<ul style="list-style-type: none"> • All signage and road markings for the proposed should be in accordance with the South African Road Traffic Sign Manual.

Table 8: Cumulative Impacts

Impact	Description	Mitigation
Alien Invasive plant species	Clearing of the land for road construction often encourages the spread of invasive species. Several invasive species also infiltrate the habitats using the roads.	Removal of the weeds and alien vegetation must be implemented to prevent the spreading.
Impact	Description	Mitigation
Regional socio-economic Structure	The financial input of the development will have a positive impact on the socio-economic aspects of the area. This will be through a continued generation of revenue for the municipality, direct employment of staff. The cumulative impact is positive, local, highly probable and of moderate significance.	N/A

18 THE RATING CRITERIA FOR THE IDENTIFIED IMPACTS AND RISKS

The table below indicates the rating criteria that was used to rate the extent of the identified impacts. It also indicates the method that was used to rate the impacts. The score range from 10 to 100, where 10 indicates lowest impact, 60 indicates medium and 100 indicates the highest impact. The score then determines the significance, duration and the extent of impact.

Table 9: The rating criteria for the identified impacts and risks

Planning and Design Phase			
Removal of Vegetation			
Rating criteria	With mitigation measures	Without mitigation measures	
Score	20	70	
Significance	Low	High	
Duration	Immediate	Short term	
Extent of impact	site	local	
Impact Rating summary	The removal of indigenous vegetation must only be limited to a development footprint and areas exposed outside of development footprint must re-vegetate with suitable indigenous plants. All reasonable precautions as stipulated under mitigation measures must be taken into consideration to avoid possible damage to the surrounding environment and alien species encroachment.		
Soil Erosion			
Rating criteria	With mitigation measures	Without mitigation measures	
Score	25	60	
Significance	Low	High	
Duration	Short term	Long term	
Extent of impact	local	regional	
Impact Rating Summary	Easily adoptable precautions such as not removing vegetation on steep gradients must be exercised. Any failure to implement mitigation measures as recommended could result in a degradation of topsoil.		

Access Road			
Rating criteria	With mitigation measures	Without mitigation measures	
Score	35	70	
Significance	Low	High	
Duration	Short term	Long term	
Extent of impact	site	local	
Impact Rating Summary	Poor Planning of the access road may impede the traffic flow, cause tragic accidents and possibly lead to fatalities. The responsibility rest with project applicant to ensure that to ensure that whoever is responsible for designing the access road is competent enough and sticks to the recommended mitigation measures as stipulated.		
Community Members and Private Landowners			
Rating criteria	With mitigation measures	Without mitigation measures	
Score	20	75	
Significance	Low	Very high	
Duration	Immediate	Long term	
Extent of impact	site	site	
Impact Rating Summary	Immediate community members must be notified before the commencement of the construction activities. Failure to do so, the possibility of fatalities or injuring a community member would not be avoided.		

Construction Phase			
Ground and Surface Water Contamination			
Rating criteria	With mitigation measures	Without mitigation measures	
Score	20	75	
Significance	Low	Very high	
Duration	Immediate	Long term	
Extent of impact	site	Local	

Impact Rating Summary	As a guide to assist with the development of a filling mitigation measures as recommended must be utilised to minimize potential contamination to the ground and surface water.
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Geological Impact		
Rating criteria	With mitigation measures	Without mitigation measures
Score	35	60
Significance	low	medium
Duration	immediate	Long term
Extent of impact	site	local
Impact Rating Summary	The issue of geological impact as a result of construction activities could be avoided and minimized, provided that the contractor sticks to recommendation provided by the geotechnical specialist also well as those provided by EAP.	

Soil Pollution and Compaction		
Rating criteria	With mitigation measures	Without mitigation measures
Score	35	70
Significance	low	High
Duration	immediate	Long term
Extent of impact	site	local
Impact Rating Summary	Soil pollution at and around a construction site may become contaminated by deposition of construction contaminants as well as water runoff of construction contaminants. As a result soil may constitute a sink for pollutants and some of those may accumulate in soil and persist over longer periods of time. It is of vital importance that soil pollution mitigation measures are implemented.	
Visual Impact and Light Pollution		
Rating criteria	With mitigation measures	Without mitigation measures

Score	35	60
Significance	low	medium
Duration	immediate	Long term
Extent of impact	site	local
Impact Rating Summary	A sound light pollution management plan has been made available in this report. There shouldn't a problem in managing light waste during construction phase. However any failure to execute such plan would result littering in and around site. Whether the litter is intentional or unintentional, large or small, it can drastically affect the environment for years to come	

Noise Pollution		
Rating criteria	With mitigation measures	Without mitigation measures
Score	35	60
Significance	low	medium
Duration	immediate	Long term
Extent of impact	site	local
Impact Rating Summary	Noise is usually associated with construction work may adversely affect your people's (workers and immediate community members) health, including effects such as stress, sleep disturbance, high blood pressure and even hearing loss. Without fail mitigation measures should be implemented.	

Air Pollution		
Rating criteria	With mitigation measures	Without mitigation measures
Score	35	70
Significance	low	High
Duration	immediate	Long term
Extent of impact	site	local
Impact Rating Summary	<p>Poor air quality is the most immediate pollution effect one may experience from a construction site. This means that airborne contaminants including contaminated particulate matter and volatile compounds are spreading around (mostly carried by wind) in the surrounding neighbourhood. Dust suppression measures must be implemented at regular intervals to avoid such effect</p>	

Traffic Impact		
Rating criteria	With mitigation measures	Without mitigation measures
Score	35	60
Significance	low	medium
Duration	immediate	Long term
Extent of impact	site	local
Impact Rating Summary	<p>Construction activities along major Roads present a deadly hazard for workers, motorists, and pedestrians. This hazard is brought about by high speeding vehicles, impatient drivers, and widespread traffic congestion. However such issues can be avoided provided that mitigation are implemented without fail</p>	

Biodiversity Impact (Fauna and Flora)		
Rating criteria	With mitigation measures	Without mitigation measures
Score	35	60
Significance	low	medium
Duration	immediate	Long term
Extent of impact	site	local
Impact Rating Summary	During construction habitat destruction may occur where a habitat is removed to make way for a proposed filling station. Plants and <u>sessile</u> animals in these areas are usually directly impacted generally resulting in alteration or reduction in biodiversity. Mobile animals (especially birds and mammals) retreat into remnant patches of habitat. Therefore to minimize such impact recommendations must be properly implemented.	

Cultural and Archaeological Aspect		
Rating criteria	With mitigation measures	Without mitigation measures
Score	35	70
Significance	low	High
Duration	immediate	Long term
Extent of impact	site	site
Impact Rating Summary	Modern infrastructure such as the proposed filling station can be very destructive if they do not take account of the buried heritage property. We can reduce this risk by understanding the threats, and practically implementing the recommended measures.	

Health and Safety		
Rating criteria	With mitigation measures	Without mitigation measures
Score	35	60
Significance	low	medium
Duration	immediate	Long term
Extent of impact	site	local
Impact Rating Summary	Applying of the health and safety mitigation measures will help the contractor to reduce the injuries rate on site and illness to employees as well as the local community. Without the mitigation measures the significance is very high and can cause a long term impact to the immediate community members	

OPERATIONAL PHASE		
Risk of Fires and Explosion		
Rating criteria	With mitigation measures	Without mitigation measures
Score	20	80
Significance	low	Very High
Duration	immediate	Long term
Extent of impact	Local	local
Impact Rating Summary	Because of the flammability of petrol vapours, service stations carry a risk of fire or explosion not common to other types of retail outlets. Ignition of petrol vapours can happen if vapour comes into contact with a heat source capable of igniting it. Beyond any reasonable doubt this could pose a major threat to human lives as such mitigation measures should be implemented.	

Ground and surface Water Contamination		
Rating criteria	With mitigation measures	Without mitigation measures
Score	25	75
Significance	low	high
Duration	immediate	Long term
Extent of impact	site	local
Impact rating summary	As a guide to assist with the development of a filling mitigation measures as recommended must be utilised to minimize potential contamination to the ground and surface water.	

CUMULATIVE IMPACTS		
Alien Invasive Plant Species		
Rating criteria	With mitigation measures	Without mitigation measures
Score	18	59
Significance	low	70
Duration	immediate	high
Impact rating summary	Invasive plant species can be very dangerous and can be economically costly if the mitigation measures are not implemented during the operational phase	

19. RECOMMENDATIONS BY SPECIALISTS

19.1 RECOMMENDATIONS BY GEOTECHNICAL SPECIALIST FOR THE PROPOSED CONSTRUCTION OF THE MPEMBENI FILLING STATION.

The Geo-technical study for the Mpembeni Filling Station was conducted by Geo-Caluzza Consulting Engineers (Pty) Ltd and the following recommendations were raised:

19.1.1. Earthworks and Excavation

All terraces should be erected using material which is categorised as G7 or better and compacted in 150mm layer to a minimum of 93 Modified AASHTO density at OMC. Material categorised as G7 will need to be brought on site.

Terraces should be sloped at approximately 1:1 ½ to allow for free drainage.

With matters pertaining excavation, excavation condition almost on the entire site must be classified as 'soft mechanical excavation' according to SANS 1200D "Classification of material for machine excavation" to depths exceeding 2.4m below existing ground level. Mild to hard excavation can be expected with depth.

19.1.2. Foundation Recommendation

The investigations conducted on the site proposed for development, pointed out that the site is underlain by materials of firm to stiff consistencies with depths. The tillite bedrock at depths is found to be between 0.38 and 0.67 below the existing ground level. After penetrometer tests it was concluded that the general area is to be underlain by soils derived from the tillite bedrock beneath of at least firm to consistencies to depths ranging between 2.1 and 2.4m below the existing ground level.

Hence it is recommended that the proposed structure be built upon weathered tillite bedrock or reinforced concrete rafts. With activities pertaining structures which have a regular square or rectangular outline, a concrete raft may be considered. Concrete rafts are also highly compatible with steelwork and similar structure which is generally light loaded with relatively small plan area. This foundation type requires good supporting site drainage and plumbing service precautions. Raft can be founded at 1.0m below ground level, where an EASBP of 60Kpa can be assumed.

Any other buildings which are required on the proposed site may be under structured in a similar manner.

In cases where the area is not precisely engineered to support structures, no building should be founded on fill material. It is therefore recommended that Geo-caluzza Consulting Engineers evaluate and approve all foundation excavations to confirm the depth of under structure and bearing pressure

In addition to the above recommendations, the following is also recommended

- The building should have a concrete surround, minimum width of 1 metre, with falls away from the building to ensure drainage of storm water away from the structure. This will prevent ingress of water into the foundation soils.
- All roof water to be collected via down pipes and discharged away and the downslope of the building
- No flower beds or vegetation to be planted adjacent to the structure.

The following precautionary measures may also be adopted for stable development

- Damp proof medium to be placed below floors and tied into brick walls.
- Brick force to be incorporated in every alternative mortar course or every course from top of footing to floor slab/surface bed level
- Similarly, brick force to be incorporated in every alternative mortar course or every course from the top of lintel beam to wall plate height.
- To avoid any settlement related to damage, it is recommended that all finishing be carried out as late as possible.

19.1.3. Subgrade Treatment for the Access Road

As general indication, subgrade treatment should constitute a simple rip and re-compacting procedure. Henceforth the surface of the proposed route should therefore be exposed to at least depth of 300mm, wet and re-compacted to a minimum of 90% Modified AASHTO and optimum Moisture content.

In addition to the aforementioned recommendations, the following recommendations were made;

- Create new road formation
- Create generous side drainage
- Remove to a depth of 300mm in situ soils.

- The in situ materials should be compacted to a minimum density of 90% Modified AASHTO and OMC prior to the replacement of wearing course.
- Use G7 material and place in 150mm layers to the boxed out excavation and compact to 93% Modified AASHTO and OMC. The material will require to be imported from the site as the material tested is too clayey.
- Import Subgrade for the selected and base-course. Choice of surfacing will be determined by factors such as the gradients, type of traffic anticipated, traffic volumes and maintenance strategy

19.1.4. Subgrade Treatment for the Paved Surface and Parking Areas

With the anticipation of light trafficked internal roads and paved areas, layer works should therefore be designed by a competent engineer taking into account the expected traffic loads. It would be enough to treat the in situ subgrade material by ripping to a minimum depth of 200mm (or as recommended by the roads design Engineer) and re-compact to a minimum 93% Mod AASHTO dry density.

19.1.5. Drainage

The removal and control of both surface and groundwater from the site is a major contributor in ensuring firmness of a construction site. Water should be channelled to natural drainage lines and storm water disposal must be in accordance with the local Authorities requirements.

When designing a surface drainage of building platforms, it should be able to direct water away from fill edges to prevent overtopping of the hill crest and erosion of the fill embankment slopes. It is important that grassing of filling embankments be carried out as soon as possible after construction.

In case where groundwater is encountered these areas would have to be controlled with effective subsoil drains, especially where water is likely to gain access into foundations and structural layers of the fill embankments.

19.1.6. Ablution Blocks

The evaluation of the on-site sanitation system, in particular the septic tanks were done in terms of the requirements laid down by SABA0400:1990.

The following criterion was used to assess the feasibility of the soak-away system within the proposed site:

- Suitability of the subsoil/existing geotechnical conditions for disposal of wastewater and sewage effluent by subsoil percolation,
- Occurrence of groundwater,
- Availability of sufficient area that may be allocated for evapotranspiration purposes, and
- Suffice soil cover.

Based on the criteria given above the site was found to be unsuitable for effluent disposal via septic-tanks or soak-away system. This is due to the availability of clayey soils and tillite bedrocks showing signs of low permeability rate which are unsuitable for septic tank/soak away system. In addition the effluent would also not soak away efficiently.

Due to the unsuitability of septic tanks or soak away system for the proposed site, the following recommendation was made;

Conservancy Tanks

This is a non-permanent enclosed tank that is utilized temporarily to receive and retain sewage and it requires periodic emptying at regular intervals and possible the use of an additive, such as bio enzymes. Such enzymes act as catalyst in speeding up the process of bacteriological breakdown of effluent. A conservancy tank is used when, in the opinion of the City Engineer:

- It is impractical to connect to an existing sewer line
- There is access to the site for periodic emptying of the tank
- There is sufficient availability of vehicles for emptying the tank at given intervals.

It is within the responsibility of the project applicant to ensure maintenance or emptying of the tank when required and provide sufficient access to the tank.

19.2. RECOMMENDATIONS FROM THE HYDROGEOLOGICAL SPECIALIST

19.2.1. Water Quality Assessment

According to water quality test conducted by Geosure, the water quality state in the area is not in its natural condition. Generally it ranges from “fair” to “poor”. This is clearly indicated by high levels of contamination as reflected in the increased microbial content and conductivity values ranging from 70mSm to 1000mSm. Based on the aforementioned information the site is regarded as high contamination risk, therefore, an extreme level of caution and protection is required.

Before borehole water could be allowed to be consumed by humans it should be treated accordingly. The appropriate method for borehole water treatment would need to be discussed with the borehole treatment specialist.

19.2.2. Groundwater Contamination Assessment

Based on the groundwater vulnerability criteria, the site is classified as high to extreme vulnerability in terms the probability of groundwater contamination; this view is informed primarily by the geological condition encountered on site and the site close proximity to the stream.

19.3. RECOMMENDATIONS FROM THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

The EAP recommends the authorization of this application: However, the following conditions and mitigation measures are recommended and should be considered in any authorization that may be granted by the competent authority in respect of the application.

- Appoint an Environmental Control Officer (ECO) to oversee and advice on site specific environmental management requirements. The ECO must be appointed for the duration of the construction period.
- The Developer must be cognizant of the sewage infrastructure on site and Eskom servitude
- Surrounding residents must be notified in advance of construction schedule.
- Activities which will lead to excessive noise near residential areas should be limited to take place during the day.
- All reasonable precautions must be taken to minimize noise generated on site.
- Construction vehicles must be kept in good working order so as not to generate excessive noise.

- Maintenance done on construction vehicles must be done in such a manner to prevent spillage of fuel and oils.
- Use inert construction waste (e.g. old road surface and foundations) as fill material where possible.
- After the completion of construction, any possible soil compaction and spillage of substances within the construction camp must be rehabilitated.
- Visible remains of concrete as a result of construction must be physically removed and disposed of as building wastes.
- Non-hazardous material should be recycled and utilized in other construction processes.
- Disposal of waste at a registered waste disposal site.
- If excessive spillage of oil and fuel etc. should occur due to accidents, it should be cleaned-up immediately.
- Obtain fill material from existing borrow pits to minimize the impact of creating new borrow pits.
- Construction camp to be erected where it will have the least environmental impact.
- Implement erosion control measures where applicable.
- During construction all staff must be adequately identified.
- No construction workers are permitted to be accommodated overnight on the site or in the site construction camp except for skeleton security personnel.
- Re-vegetate and rehabilitate after construction.
- Where possible limit the removal of riparian vegetation.
- Only indigenous vegetation should be utilized during rehabilitation.
- Rehabilitation success should be monitored.

20. CONCLUSIONS

The above report provides a detailed Draft Basic Assessment Report (DBAR) for the proposed Fuel Filling Station. This report and documentation attached are sufficient to decide in respect of the activity applied for, in the view of the EAP.

The EIA process was conducted according to Appendix 1 of the EIA regulations, December 2014 and the NEMA as amended in 2017. The assessment was based on the information provided, the site inspection conducted by the EAP and DEDTEA, as well as the comments by the Stakeholders.

This draft report will also provide the Interested and Affected Parties (comments from stakeholders) (I&APs) with an opportunity to comment, their comments will be reviewed and will be incorporated in the final Basic Assessment Report.

The Competent Authority (CA) is required to assess the report based on the information currently provided and take a final decision once the information submitted is complete. Emvelo Consultant will continue to liaise with all the I&APs during the process.

APPENDIX A
DECLARATION OF INFORMATION

I, the undersigned Phumzile Lembede, on behalf of **Emvelo Quality and Environmental Consultant**, hereby declare that the information provided in this application is correct and true.

Signature

Date

Position

Company Name

**APPENDIX B:
ENVIRONMENTAL MANAGEMENT PLAN(EMPr)**

**APPENDIX C:
SITE PHOTOGRAPHS AND LOCALITY MAPS**

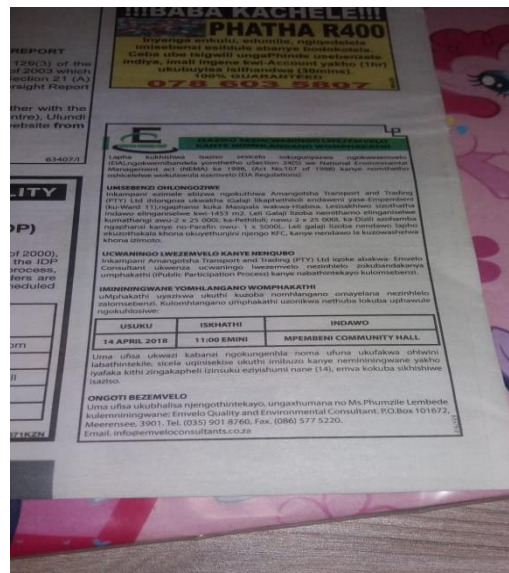


Images showing the proposed site.

**APPENDIX D:
LAYOUT PLANS**

APPENDIX E PUBLIC PARTICIPATION PROCESS

The images below show the onsite-notices displayed on the fence of a primary school and the advertisement placed in the Ilanga News Paper



**APPENDIX F:
EAP'S CV(S)**

**APPENDIX G:
GEOTECHNICAL ASSESSMENT**

**APPENDIX H:
HYDROGEOLOGICAL ASSESSMENT**