



DRAFT BASIC ASSESSMENT REPORT FOR THE TRUCK STOP WITH FILLING STATION AND ANCILLARY USES KNOWN AS MEERKAT TRUCKSTOP ON REMAINING EXTENT OF PORTION 9 (A PORTION OF PORTION 5) OF THE FARM SMALKLOOF 122 REGISTRATION DIVISION HS SITUATED APPROXIMATELY 2 KM OUTSIDE VOLKSRUST, MPUMALANGA PROVINCE

MDEDET REFERENCE NO: 17/2/3 GS-110

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Draft Basic Assessment Report for the Meerkat Truck Stop with filling station and ancillary uses on remaining extent of portion 9 (a portion of portion 5) of the farm Smalkloof 122 registration division HS situated approximately 2 km outside Volksrust, Mpumalanga Province

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TABLE OF CONTENTS

TABLE OF CONTENTS	I
ACRONYMS AND ABBREVIATIONS	V
1 INTRODUCTION	1
1.1 NEED AND DESIRABILITY	5
1.2 APPROACH TO THE EIA STUDIES	8
1.3 DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER	9
1.4 ASSUMPTIONS AND GAPS IN KNOWLEDGE	11
2 LEGAL REQUIREMENTS	12
2.1 THE CONSTITUTION OF SOUTH AFRICA	12
2.2 NATIONAL LEGISLATION AND REGULATIONS	12
2.2.1 NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NO 107 OF 1998)	12
2.2.2 EIA REGULATIONS (2010)	12
2.2.3 NATIONAL WATER ACT (NO 36 OF 1998)	16
2.2.4 NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT 39 OF 2004	17
2.2.5 NATIONAL HERITAGE RESOURCES ACT (NO 25 OF 1999)	18
2.2.6 OCCUPATIONAL HEALTH AND SAFETY ACT (NO 85 OF 1993)	18
2.3 OTHER RELEVANT ACTS, GUIDELINES, DEPARTMENTAL POLICIES, ENVIRONMENTAL MANAGEMENT INSTRUMENTS	
3 PROJECT ALTERNATIVES	19
3.1 LOCATION ALTERNATIVES	19
3.2 LAND USE / ACTIVITY ALTERNATIVES	20
3.3 INPUT ALTERNATIVES	20
3.4 TANK POSITION AND ENTRANCE TO THE SITE ALTERNATIVES	20
3.5 NO-GO ALTERNATIVE	25
4 PUBLIC PARTICIPATION PROCESS	25
4.1 AIMS OF THE PUBLIC PARTICIPATION PROCESS	25
4.2 AUTHORITY CONSULTATION	26
4.3 CONSULTATION WITH OTHER RELEVANT STAKEHOLDERS	26
4.4 ADVERTISING	27
4.5 IDENTIFICATION OF INTERESTED AND AFFECTED PARTIES	28
4.6 ISSUES TRAIL	28
4.7 PUBLIC REVIEW OF THE DRAFT BA REPORT	28
4.8 FINAL BASIC ASSESSMENT REPORT	28
5 GENERAL DESCRIPTION OF THE STUDY AREA	29
5.1 SOILS AND GEOLOGY	29
5.2 VEGETATION	29
5.3 VEGETATION AND LANDSCAPE FEATURES	30
5.4 FAUNA	32

5.4.1	AMPHIBIANS	33
	<u>THREATENED SPECIES</u>	35
5.4.2	REPTILES	35
5.4.3	AVIFAUNA/BIRDS	36
	THREATENED SPECIES	37
	<u>THREATENED SPECIES</u>	40
5.4.4	GEOHYDROLOGY (GROUNDWATER)	41
5.5	CLIMATE AND LOCAL WEATHER CONDITIONS	44
5.5.1	ATMOSPHERIC STABILITY	44
5.5.2	TEMPERATURE AND HUMIDITY	46
5.5.3	PRECIPITATION	47
5.6	AIR QUALITY	47
5.7	NOISE	48
5.8	SOCIO-ECONOMIC ASPECTS	48
5.9	LAND-USE	54
5.10	HERITAGE	54
5.11	VISUAL	55
6	<u>IMPACTS ASSESSMENT METHODOLOGY</u>	57
7	<u>IMPACTS ASSESSMENT AND MANAGEMENT MEASURES</u>	59
7.1	CATEGORY A: DESIGN AND PLANNING PHASE	60
7.2	CATEGORY B: CONSTRUCTION PHASE	61
7.3	CATEGORY C: OPERATIONAL PHASE	91
7.4	CATEGORY D: DECOMMISSIONING PHASE	114
8	<u>ENVIRONMENTAL IMPACT STATEMENT</u>	118

TABLE OF FIGURES

FIGURE 1: LOCALITY MAP	1
FIGURE 2: EXTENDED LOCALITY MAP	2
FIGURE 3: LOCALITY MAP INDICATING ACCESS TO THE PROPOSED SITE (GOOGLE EARTH)	3
FIGURE 4: BASIC ASSESSMENT PROCESS	9
FIGURE 5: SOUTH ENTRANCE AND THE TANK POSITION DUE NORTH OF SAME ENTRANCE	21
FIGURE 6: NORTH ENTRANCE AND THE TANK POSITION DUE SOUTH OF SAME ENTRANCE	22
FIGURE 7: THE PROPOSED VOLKSRUST TRUCK STOP LOCATION WITH AMERSFOORT HIGHVELD CLAY GRASSLAND (GM 13) VEGETATION UNIT (SOURCE: (MUCINA & RUTHERFORD 2006)	30
FIGURE 8: (A, B, C &D): A CONGLOMERATE OF PHOTOGRAPHS DISPLAYING THE VEGETATION ON THE SITE AND IMMEDIATE ADJACENT AREAS.	31
FIGURE 9: TRANSFORMED OR SECONDARY SUCCESSION GRASSLANDS	32
FIGURE 10: THE SITE OFFERS LIMITED SUITABLE HABITAT FOR FROGS. THE GUTTURAL TOAD (AMIEOTOPHRYNUS GUTTURALIS) IS AN URBAN EXPLOITER AND COULD POSSIBLY OCCUR ON THE SITE.	34
FIGURE 11: A CONGLOMERATE OF PHOTOGRAPHS DISPLAYING ANIMAL BURROWS OBSERVED ON THE SITE.	
FIGURE 12: PERIOD WIND ROSE FOR THE SASOL CLUB (LEFT) AND LANGVERWACHT (RIGHT) MONITORING STATIONS FOR THE PERIOD JAN 2006 – DEC 2010	44
FIGURE 13: STABILITY CLASS FREQUENCY DISTRIBUTION FOR SASOL CLUB (TOP) AND LANGERWACHT (BOTTOM) MONITORING STATIONS	46
FIGURE 14: AVERAGE MONTHLY TEMPERATURE AND HUMIDITY FOR SASOL CLUB (TOP) AND LANGVERWACHT (BOTTOM) FOR THE PERIOD JAN 2006 – DEC 2010	47
FIGURE 15: AGE PROFILE, 2011	50
FIGURE 16: LEVEL OF EDUCATION, 2011.	50
FIGURE 17: EMPLOYMENT PROFILE, 2011	51
FIGURE 18: SECTOR EMPLOYMENT OF THE WORKING POPULATION, 2011	52
FIGURE 19: AVERAGE ANNUAL HOUSEHOLD INCOME, 2011	53
FIGURE 20: MAIN MODE OF TRANSPORT, 2001	54

LIST OF TABLES

TABLE 1: DETAILS OF THE EAP	10
TABLE 2: LISTED ACTIVITIES ACCORDING TO LISTING NOTICES OF THE EIA REGULATIONS (2010)	
TABLE 3: CATEGORIES OF WATER USE REGISTRATIONS\	17
TABLE 4: ANALYSIS OF ENVIRONMENTAL PARAMENTERS OF THE TWO TECHNICALLY FEASIBLE ALTERNATIVES	
TABLE 5: KEY STAKEHOLDERS CONTACTED AS PART OF PP PROCESS	26
TABLE 6: FROG SPECIES RECORDED ON THE ACTUAL SITE OR ARE LIKELY TO OCCUR ON THE SITE.	
TABLE 7: REPTILE SPECIES THAT OCCUR OR ARE LIKELY TO OCCUR IN THE STUDY AREA DUE TO SUITABLE HABITAT, AND MAY THEREFORE BE PRESENT.	35
TABLE 8: BIRD SPECISIES RECORDED DURING BRIEF FIELD SURVEY (6HRS)	36
TABLE 9: RED LIST SPECIES RECORDED IN VOLKSRUST 2720_2950 PENTAD (SABAP2.ADU.ORG.ZA).	
TABLE 10: MAMMAL SPECIES RECORDED DURING FIELD SURVEY	40
TABLE 11: ATMOSPHERIC STABILITY CLASSES	45
TABLE 12: POPULATION AND HOUSEHOLD PROFILE, 2012	49
TABLE 13: AGE PROFILE CLASSIFICATION	49
TABLE 14: CRITERIA USED FOR THE RATING OF IMPACTS	57
TABLE 15: SIGNIFICANT RATING OF CLASSIFIED IMPACTS	58
TABLE 16 : DIFFERENT PHASES OF THE PROJECT LIFE-CYCLE	59
TABLE 17: POTENTIAL PLANNING AND DESIGN PHASE IMPACTS RELATING TO THE CONSTRUCTION OF A TRUCK STOP FOR BOTH- OPTIONS	60
TABLE 18: POTENTIAL CONSTRUCTION PHASE IMPACTS RELATING TO THE CONSTRUCTION OF A TRUCK STOP INCLUDING FILLING STATION AND ENTRANCE – OPTION 1	61
TABLE 19: POTENTIAL CONSTRUCTION PHASE IMPACTS RELATING TO THE CONSTRUCTION OF A TRUCK STOP INCLUDING FILLING STATION AND ENTRANCE – OPTION 2 (PREFERRED)	75
TABLE 20: SUMMARY OF IMPACTS AND AVERAGE POINTS ALLOCATED TO BOTH ALTERNATIVES DURING THE CONSTRUCTION PHASE	90
TABLE 21: POTENTIAL OPERATIONAL PHASE IMPACTS RELATING TO THE TRUCK STOP – OPTION 1	
TABLE 22: POTENTIAL OPERATIONAL PHASE IMPACTS RELATING TO THE OPERATION OF A TRUCK STOP INCLUDING FILLING STATION AND ENTRANCE – OPTION 2 (PREFERRED)	102
TABLE 23: SUMMARY OF IMPACTS AND AVERAGE POINTS ALLOCATED TO BOTH ALTERNATIVES DURING THE OPERATION PHASE	
TABLE 24: POTENTIAL DECOMMISSIONING IMPACTS APPLICABLE TO THE ENTIRE TRUCK STOP AND ASSOCIATED FILLING STATION PROJECT	114
TABLE 25: SUMMARY OF IMPACTS AND AVERAGE POINTS ALLOCATED FOR THE DECOMMISSIONING PHASE	
TABLE 26: SUMMARY OF AVERAGE POINTS ALLOCATED FOR ALL PHASES OF THE PROJECT	117

APPENDICES

APPENDIX A	CONCEPTUAL DESIGN
APPENDIX B	DEVELOPMENT MOTIVATION MEMORANDUM
APPENDIX C	FEASIBILITY STUDY
APPENDIX D	MINUTES OF THE MEETING OF IDP REPRESENTATIVE FORUM
APPENDIX E	ACKNOWLEDGEMENT LETTER FROM MDEDET
APPENDIX F	PUBLIC PARTICIPATION
APPENDIX F1	STAKEHOLDER DATABASE
APPENDIX F2	SITE NOTICE PHOTOS
APPENDIX F3	NEWSPAPER ADVERTISEMENT
APPENDIX G	SPECIALIST STUDIES
APPENDIX G1	ECOLOGY
APPENDIX G2	GEOHYDROLOGY
APPENDIX G3	AIR QUALITY
APPENDIX G4	HERITAGE
APPENDIX G5	GEOTECH
APPENDIX H	ENVIRONMENTAL MANAGEMENT PROGRAMME

ACRONYMS AND ABBREVIATIONS

BA	Basic Assessment
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
NEMA	National Environmental Management Act (No 107 of 1998)
NWA	National Water Act (No 36 of 1998)
WUL	Water Use License

1 INTRODUCTION

TOWB Trading cc proposes the construction of a Truck Stop including overnight facilities and a petroleum fuel filling station approximately 4 km outside Volksrust along the R23 provincial road, Mpumalanga. The proposed development is expected to take place on remaining extent of portion 9 (a portion of portion 5) of the farm Smalkloof 122 registration division HS situated on the north western outskirts of Volksrust, approximately 2 km from the urban edge and 4,5 km from the centre of town of the central business district. The site is a narrow, rectangular shaped portion of land located to the northeast and directly adjacent to and along the R23 National Road and within a predominantly small holding and agricultural precinct. Access to a farm and guesthouse to the northeast of the Subject Site, from the R23, traverses the site through the centre of the narrow width of the site (see Figure 1, 2 & 3 below).

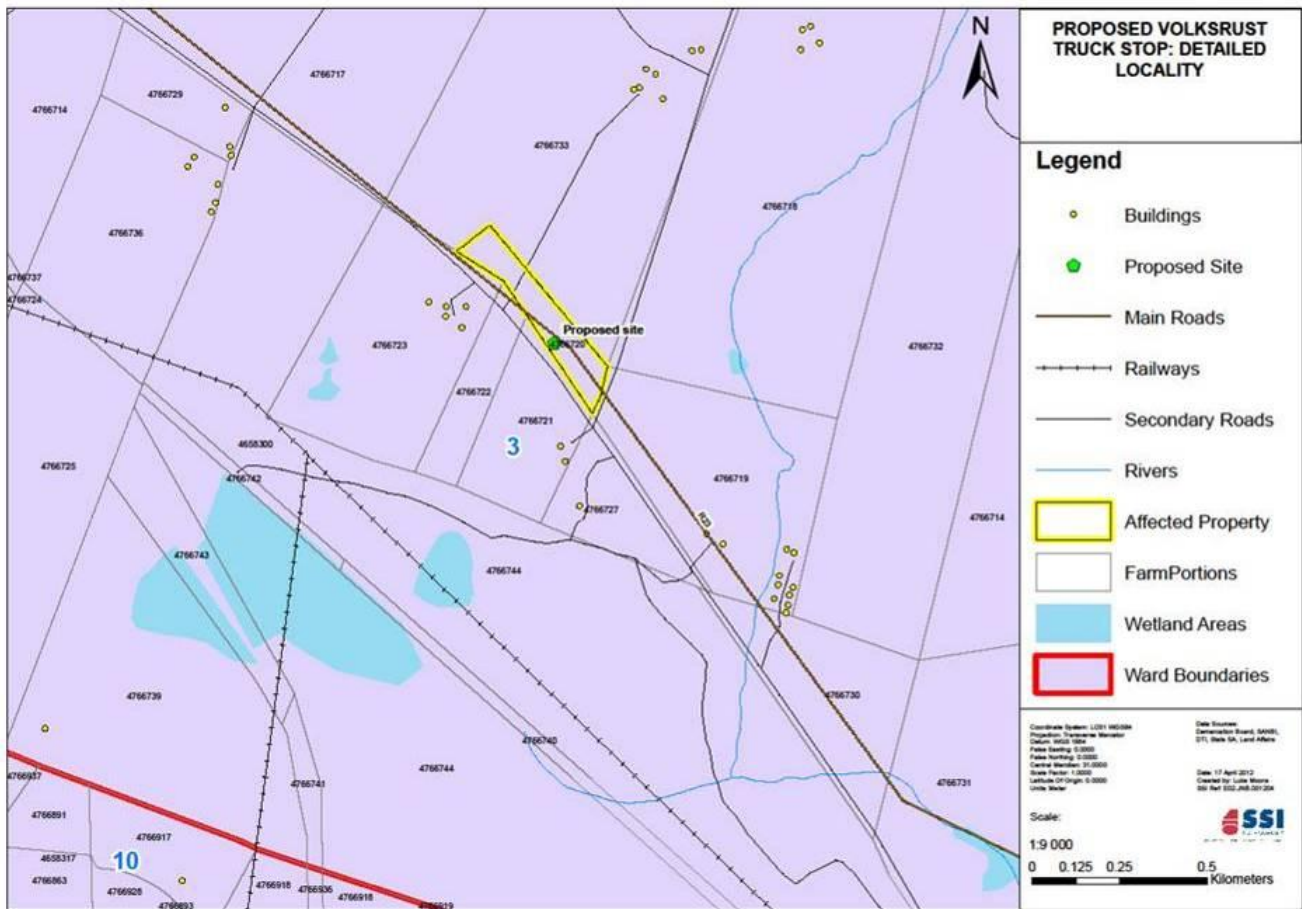


FIGURE 1: LOCALITY MAP

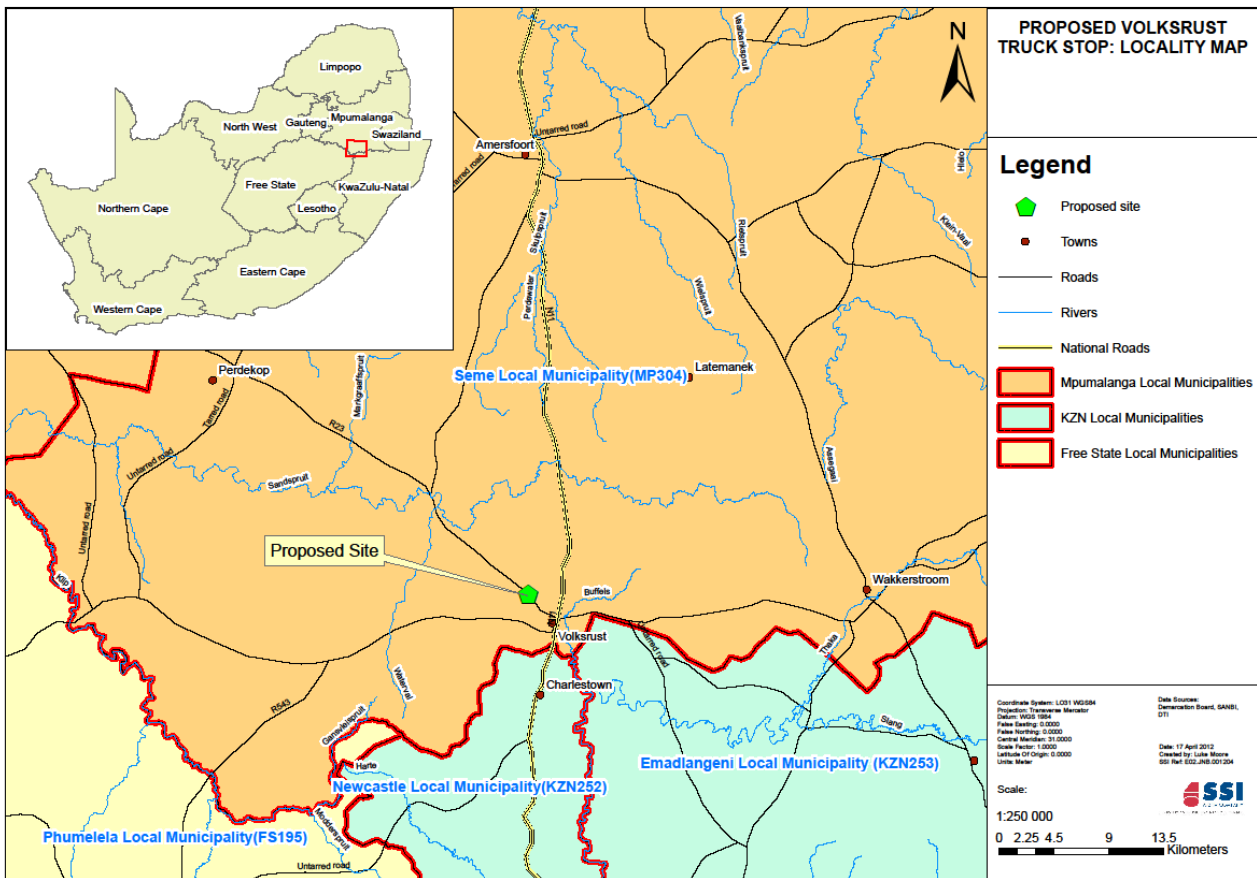


FIGURE 2: EXTENDED LOCALITY MAP

MDEDET REF.NO.: 17/3/2-GS110 -:- PROPOSED TRUCK STOP WITH FILLING STATION AND ANCILLARY USES KNOWN AS MEERKAT TRUCK STOP ON REMAINING EXTENT OF POTION 9 (A PORTION OF PORTION 5) OF THE FARM SMALKLOOF 122 REGISTRATION DIVISION HS VOLKSRUST, MPUMALANGA PROVINCE



FIGURE 3: LOCALITY MAP INDICATING ACCESS TO THE PROPOSED SITE (GOOGLE EARTH)

The total development footprint is approximately 8.1145 hectares in extent. The proposal is for the development of a Long Haul Heavy Vehicle Service Station, together with the storage of petroleum fuel on the subject site. The service station is to be complimented with convenience shops normally associated with such an activity, parking facilities for long haul heavy vehicles and minor maintenance facilities. No facilities for providing overnight accommodation facilities will be constructed on site.

The development is proposed to be undertaken in phases with the first phase being the development of the truck stop, ablution, convenience shop, workshop and site offices and second phase will be the fuel filling station (fuel storage facilities, fuel bowsers and canopy). Petroleum fuel storage is expected to be contained in 7 storage tanks (5 tanks of 80 000 litres per tank and 2 tanks of 50 000 litres of diesel per tank). Thus the combined capacity of fuel storage is 500 000 litres.

Initially the ingress / egress to the subject site from the R23 were proposed to be at the most southern portion of the site. Subsequently, in consultation with traffic authorities, the current ingress / egress to the adjacent Smalkloof farm and guest house was to be the most favourable position for vehicular access to the Subject Site. The amended position of the ingress / egress caused the initial layout to be amended in that the proposed long haul heavy vehicle facility is to be to the south of the ingress / egress and the service station to the north, constituting to a safer and more feasible development configuration. The amended development configuration will have the proposed truck stop, with convenient facilities and diesel fuel outlet on the southern 2/3 portion of the proposed Site and a formal service station with all the related facilities on the remaining northern portion.

The location of the access and fuel outlet in the centre portion of the site will provide ample time for drivers to decide whether to turn off and visit the site or not, thus maximising the potential for of possible patronage from traffic from Standerton (travelling north-west) on the R23. The exact conceptual design is attached on Appendix **A**.

A Service Station facility in the form of fuel outlet provided with a canopy, bowser islands and buildings for a small convenience shop or kiosk with ablution facilities and a kitchenette and laundrette for the benefit of vehicle operators will be developed (Total building floor area not exceeding 8000 m²). In order to provide maximum turning and holding capacity for the awaiting heavy vehicles to be refuelled, the position of the fuel outlet is to be located at the most accessible portion of the site. Driving and parking lanes for vehicles will clearly be demarcated permanently on the ground for the management of vehicular movement and parking.

Five suitably designed, convenient and functional ablution facilities for the vehicle operators will be developed on the proposed site, providing for both male and female patrons. The buildings for the ablution facilities will each be approximately 70 m² in size. Heavy vehicles, travelling on long haul journeys often encounter some minor faults in the vehicles, therefore a small workshop for minor repairs is proposed on the site. Minor repairs are to include battery charging or replacement, wheel changes, light repairs on the vehicles, load securing facilities, minor engine and vehicle lubrication, exhaust and vacuum system repairs, but will exclude major work and services to vehicle engines. A building of 250 m² for the workshop function is proposed and will be located in the north eastern centre of the site.

1.1 Need and Desirability

Some of the information on the need and desirability for the proposed development, as presented in this section, is adapted from Development Motivation Memorandum (Appendix B) and Feasibility Study (Appendix C) for the development of a Long Haul Heavy Vehicle Service Station and Parking (Truck Stop), with Convenience Shops, ablution facilities and ancillary heavy vehicle related uses prepared by the Sieghard Knöcklein t/a KZK Urban Planning Studio and Urban-Econ Development Economists respectively:

With regards to the proposed Meerkat Truck Stop there is no competing facility within a minimum radius of 50km. There is no truck stop with secure parking and ablution facilities in Volksrust, and thus trucks are forced to park in town. On an average night in Volksrust, there will be between 80 and 150 trucks overnighing on the streets of the town.

The preferred route for heavy vehicle between Gauteng and the eastern coast ports of KwaZulu-Natal is the N3 National Road but due to the increase traffic volumes, the increased toll road fees and the upgraded N11 National road between Volksrust, Newcastle and Ladysmith, heavy vehicle traffic between Gauteng and the KZN port cities via Volksrust has increased. A further contributing factor could be the unpredictable bottleneck situation at Van Reenen's Pass in bad weather, which could sometimes cause hours, and even days, of delay in reaching the destination. The upgraded N11 national road between Volksrust and Ermelo has also recently been upgraded, contributing to an increased heavy vehicle traffic volume between the Mpumalanga Coal hub (Middleburg, Witbank, Secunda area) and the KZN coastal ports. The latest preferred route is along the N2 via Piet Retief and Pongola or Vryheid, however recently also via Volksrust, Utrecht and Vryheid. In comparison to the container couriers from Gauteng, not many of the heavy vehicles from the Mpumalanga Coal Belt, of which a big percentage transport bulk raw material, stopover in Volksrust at night.

Some of the contributing factors for heavy vehicles to favour parking in Volksrust overnight could be as follows:

- Convenient and suitable travelling time from Gauteng (3.5 hours to 4 hours), leaving at business closing time, to have a break for a rest before the descent over the Laingsnek pass at Amajuba, 8km out of Volksrust, with sufficient time after the rest to reach the destination in Durban or Richards Bay 6 to 8 hours later and in time for opening of business (Laingsnek pass is known for high collision and accident rates for heavy vehicles caused by driver's fatigue);
- Convenient and suitable location to check machine and cargo for road safety purposes before the descent and stretch to the coast.

The heavy vehicles parking in Volksrust overnight cause numerous economic and social challenges for the town and its immediate surrounding and further beyond. Some of the **negative impacts** related to the presence of the trucks are:

- Traffic obstructions are caused by heavy vehicles parked bumper to bumper along main roads, and sometimes double parked next to each other, causing only a single lane open for through traffic, contributing to an unsafe traffic situation for other road users;
- Heavy vehicles competing for safe and secure parking space with sufficient lighting and surveillance, causing heavy vehicle congestion along the limited length of the roadway in the town which is illuminated ;

- Heavy vehicles competing for safe parking space, illegally venture off the roadway and with their heavy loads and tight turning manoeuvres damage the roads, not designed or constructed for the weight of the trucks, causing tremendous damage to the road surface, sub base, curbing and road infrastructure and furniture. Costly repairs of these damages to the road is for the expense of the public at large (see Figure 5.6 of the feasibility study);
- Stopping and starting of heavy vehicles parked in the residential suburb cause significant noise and air pollution nuisance factors during time of rest for the residents; this leads to irritation and inconvenience of inhabitants;
- Heavy vehicles parked in the residential suburb cause obstruction for inhabitants in accessing their residences, contributing to an increased level of irritation against the road users;
- The lack of suitable facilities for the vehicle operators with regards to ablution, sanitation and cooking facilities contributes not only to the pollution of the environment, but also to an unhealthy situation with reduced levels of comfort for the vehicle operators and the public at large;
- The lack of suitably developed facilities with sufficient space and accessibility contribute to a very limited number of heavy vehicles refuelling in Volksrust, reducing the exposure to the specific industry for the town;
- The presence of these heavy vehicle operators has contributed to an influx of sex workers to the area causing tremendous social and health problems;
- Recently increased number of accidents that have been experienced in Volksrust (the establishment of a truck stop outside town was suggested as a way to reduce this factor in the meeting of IDP Representative Forum of the 6th of September 2012 (See Minutes of the meeting in Appendix D).

In this context of these negative impacts above the proposed development would be desirable if it contributed to the removal of the negative aspects of truck traffic in Volksrust from the town.

On the **positive impact** side there is the fact that there is a great opportunity for Volksrust to benefit from a share (albeit small in the national context) of the heavy vehicle-related economic activities of South Africa that are worth R13 billion, by providing proper facilities for the vehicles and their crew in a suitably located and secure facility. Some of the positive aspects for the town related to the accommodation of the heavy vehicles at a proper developed facility are as follows:

- Provisions of suitably located and secure parking facilities with provided amenities to serve the truck crew, is likely to reduce the number of heavy vehicles parked in town, thus reducing accidents;
- The reduced time spent by the heavy vehicles in the town will reduce the overall fuel consumption of the vehicles and will reduce the volume of exhaust emissions related thereto, which will reduce the air pollution and carbon footprint of the vehicles;
- The reduced number of parked heavy vehicles in town and related reduction in manoeuvring activities for secure parking will reduce the impact on the main roads and the roads in the residential area, thus reducing the road maintenance cost to the public;
- Security fenced and illuminated parking area with 24 hour surveillance will provide a safe area for the vehicles, their cargo and crew, which will increase the comfort level of the drivers and thereby reduce the level of road fatigue and therewith the driver's attitude on the road;
- Security and surveillance at the parking area will reduce the accessibility for sex workers;

- The provision of proper facilities for the heavy vehicles in Volksrust could possibly cause an increase in the use by heavy vehicles from other areas and therewith possibly increase the economic base of the Volksrust area with possible spin-offs to other related activities to the benefit and increased employment and economic activities and related services;
- The Meerkat Truck Stop will generate approximately 200 jobs during the construction period and 30 jobs during the operational period. R35 million will also be invested in the development providing a big investment into the local economy;
- According to the local South African Police Service, there were 43 accidents involving trucks between January 2012 and November 2012 in and around the Volksrust area. The development of a truck stop will be likely to reduce the number of accidents as trucks will no longer have to park and obstruct vehicles in the streets of Volksrust;
- In an endeavour to assist in the curbing of the current negative impact of the heavy vehicles parked in Volksrust at night and the problems caused and related thereto, the Pixley Isaka Ka Seme Local Council, in its meeting held on 27 November 2012, provided their conditional support for the development of the proposed truck stop on the Subject Site.

According to the feasibility study major upgrades of the Port of Durban are planned over the next few decades to accommodate the growing demand of local and international consumer goods and resources and due to the lack of sufficient rail infrastructure the initial demand will have to be supplied by road freight in the form of trucks to transport the goods and resources to the various destinations. In order to accommodate the current influx of heavy vehicles to Volksrust and provide for above-mentioned future expansion, when that further need arises, the desired location for such an activity is of crucial importance. The proposed desired location of the activity ideally is to satisfy some of the following, however not limited to such, criteria:

- Easy and convenient direct access to movement corridor and traffic arteries;
- Sufficient parking and manoeuvre space for the long haul heavy vehicles;
- Secure parking and convenience facilities for vehicles and their drivers;
- Provide sufficient commodities for a sustainable development;
- Have sufficient space for future expansion;
- Not be directly or easily accessible to members of the community not directly related to the services and benefit of the vehicles;
- The possible future expansion of the town and associated road networks;
- Consider the physical character of the environment on and directly immediate to the proposed development;
- Consider the impact of the proposed development on the environment, including social and economical aspects; and
- Consider the imposed traffic situation on the direct vicinity of the site.

In the same context of project need and desirability, concern about the proposed truck stop development has been raised by a number of stakeholders and I&APs, especially relating to increased noise, introduction of crime to the local area due to people coming to the construction site, increased road accidents, impairment / degradation of the view from the Smalkloof guest house and loss of revenue for existing local filling stations and impact on bird life. In this context some stakeholders and I&APs have expressed the view that the proposed truck stop would be undesirable. As specified in the impact assessment section, the impacts highlighted by the I&APs

have been provided with mitigation measures such that the desirability of the proposed development was shown to have been improved in this context by being associated with fewer impacts, with the exception of the potential loss of revenue and job losses at existing filling stations. This negative socio-economic impact could result as the feasibility study has revealed that, at this point in time, there is not sufficient demand for a filling station at the proposed site due to low traffic volumes of 2,495 vehicles a day and the estimated fuel sales of between 70,000 and 141,000 litres a month which is far below the industry standard of 350,000 litres a month that is not sufficient to sustain a filling station. This may cause the existing filling stations to experience a reduction in fuel sales in the short term.

The findings of the feasibility study relating to fuel dispensing affected the initial development proposal in that fuel will only be provided for heavy vehicles, allowing them the opportunity of convenient refuelling with ample space to manoeuvre their vehicles, and also to receive other truck related services. Measures to reduce idling include electrical point installation for the convenience of the vehicle operators, rendering the site more convenient and attractive to the truck operators and the environment at large, and also counteracting the random, uncontrolled vehicle parking in town.

1.2 Approach to the EIA Studies

The environmental impacts associated with the proposed project require investigation in compliance with the Environmental Impact Assessment Regulations (2010) published in Government Notice No. R. 543, No. R. 544 & R 546 and read with Section 24 (5) of the National Environmental Management Act (Act No 107 of 1998) (as amended).

The required environmental study is the undertaking of a Basic Assessment (BA) process which is being conducted in 3 phases (see Table 4 below) namely:

- Phase 1: Project inception;
- Phase 2: Basic Assessment and Environmental Management Programme; and
- Phase 3: Authority review and response.

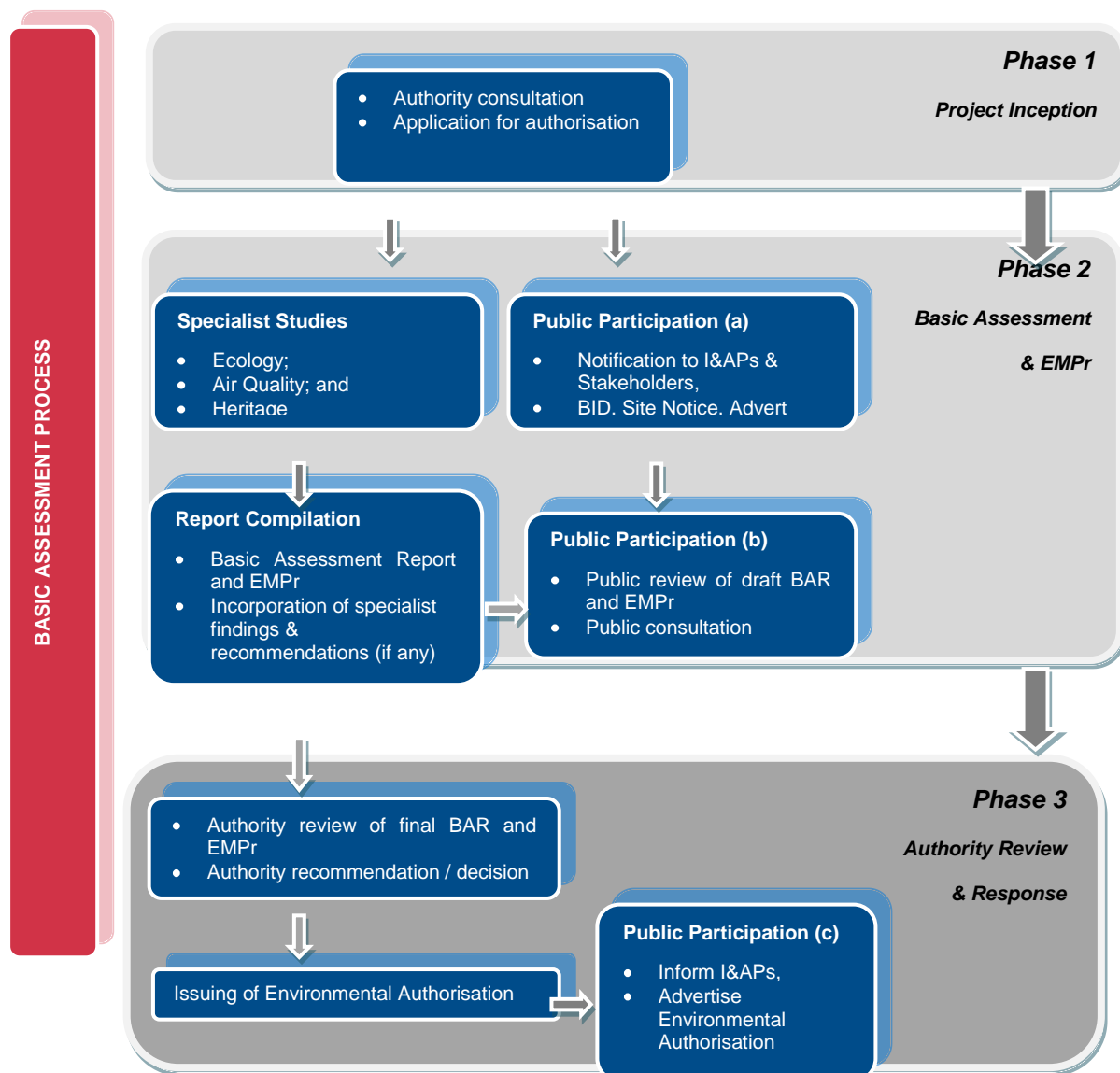


FIGURE 4: BASIC ASSESSMENT PROCESS

1.3 Details of the Environmental Assessment Practitioner

RHDHV has been appointed as an Environmental Assessment Practitioner (EAP) by TOWB Trading cc, to undertake the appropriate environmental studies for this proposed project. The professional team of RHDHV has considerable experience in the environmental management and EIA fields (refer to Table 1).

RHDHV has been involved in and/or managed several of the largest Environmental Impact Assessments undertaken in South Africa to date. A specialist area of focus is on assessment of multi-faceted projects, including

the establishment of linear developments (national and provincial roads, and power lines), bulk infrastructure and supply (e.g. wastewater treatment works, pipelines, landfills), electricity generation and transmission, the mining industry, urban, rural and township developments, environmental aspects of Local Integrated Development Plans (LIDPs), as well as general environmental planning, development and management.

TABLE 1: DETAILS OF THE EAP

CONSULTANT DETAILS	RHDHV
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Expertise:	<p>Malcolm Roods is a Principal with SSI specializing in Environmental Impact Assessments (EIA) for electricity supply (generation, transmission and distribution), road infrastructure, residential developments as well as water management projects. This builds on a broad government background, which has made him particularly flexible. His past experiences include 6 years public service which included policy development, environmental law reform and EIA reviews. His experience also includes more than 3 years of environmental consulting in the field of Impact Assessment and Authorisation Applications, with a focus on legislative requirements and sector area management. Malcolm holds a BA. (Honours) in Environmental Management from the North West University, and is a registered EAP with EAPSA.</p> <p>Ntseketsi Lerotholi is a Senior Consultant for SSI Environmental. She has four years practice in the quality assurance discipline, three years in the safety health and environment discipline and five years in environmental management. Her roles and responsibilities in her environmental career required her to apply skills and competencies in the following areas; Environmental Management Programmes, Environmental Management Plans, Financial Provisions, Social and Labour Plans, Performance audits, Environmental Impact Assessments, Waste Management, liaise with clients and provide environmental advice.</p>

1.4 Assumptions and Gaps in Knowledge

- All information provided by TOWB Trading cc to the EAP was correct and valid at the time it was provided.
- The EAP does not accept any responsibility in the event that additional information comes to light at a later stage of the process.
- All data from unpublished research is valid and accurate.
- The scope of this investigation is limited to assessing the potential environmental impacts associated with the Truck stop and fuel filling station.

2 LEGAL REQUIREMENTS

In order to protect the environment and ensure that the proposed truck stop, sanitary facilities and filling station operate in an environmentally responsible manner, there are a number of significant pieces of environmental legislation and guidelines that need to be taken into account during this study. These include:

2.1 The Constitution of South Africa

The Bill of Rights, in the Constitution of South Africa (No. 108 of 1996), states that everyone has a right to a non-threatening environment and requires that reasonable measures be applied to protect the environment. This protection encompasses preventing pollution and promoting conservation and environmentally sustainable development. These principles are embraced in NEMA and given further expression.

2.2 National Legislation and Regulations

2.2.1 National Environmental Management Act (No 107 of 1998)

The National Environmental Management Act (NEMA) (No. 107 of 1998) (as amended) states that the principles of Integrated Environmental Management (IEM) should be adhered to in order to ensure sustainable development. A vital underpinning of the IEM procedure is accountability to the various parties that may be interested in or affected by a proposed development. Public participation is a requirement of the IEM procedure, in terms of the identification of potentially significant environmental impacts during the Scoping Phase. The IEM procedure aims to ensure that the environmental consequences of development proposals are understood and adequately considered during all stages of the project cycle, and that negative aspects are resolved or mitigated and positive aspects enhanced.

Furthermore, Section 28(1) of the Act states that “every person who causes or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring”. If such pollution cannot be prevented then appropriate measures must be taken to minimise or rectify such pollution.

The NEMA EIA Regulations (2010), which replaced the EIA Regulations (2006), were promulgated and came into effect on 02 August 2010. Government Notice 543, regulates the procedure and criteria as contemplated in Chapter 5 of NEMA, relating to the submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities in order to avoid detrimental impacts on the environment, or where it can not be avoided, ensure mitigation and management of impacts to acceptable levels, and to optimise positive environmental impacts, and for matters pertaining thereto.

2.2.2 EIA Regulations (2010)

The nature of the proposed project includes activities listed in the following Listing Notices – GN R.544 (Listing Notice 1) of the EIA Regulations (2010) – refer to Table 2 below.

TABLE 2: LISTED ACTIVITIES ACCORDING TO LISTING NOTICES OF THE EIA REGULATIONS (2010)

Indicate the number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice) :	Describe each listed activity as per the detailed project description (and not as per wording of the relevant Government Notice) ¹ :	Description of activity:
GN 544: Listing Notice 1: 2010 (as amended)	13	The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres;	The diesel tanks are expected to contain 500 000 litres combined capacity of fuel.
GN 544: Listing Notice 1: 2010	22	The construction of a road, outside urban areas, (i) with a reserve wider than 13,5 meters or, (ii) where no reserve exists where the road is wider than 8 metres, or for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Notice 545 of 2010.	An access road to the filling station and truck stop will be constructed.
GN 544: Listing Notice 1: 2010	23	The transformation of undeveloped, vacant or derelict land to – (i) residential, retail, commercial, recreational, industrial or institutional use, inside an urban area, and where the total area to be transformed is 5 hectares or more, but less than 20 hectares, or (ii) residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and	The proposed project area is 8ha in size and is currently untransformed. In terms of the conditions in the relevant Deed.of Transfer, the relevant land use for the property is already permitting a Service Station

¹ Please note that this description should not be a repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description

		<p>where the total area to be transformed is bigger than 1 hectare but less than 20 hectares; <u>except where such transformation takes place</u></p> <p><u>(i) for linear activities; or</u></p> <p><u>(ii) for purposes of agriculture or afforestation, in which case Activity 16 of Notice No. R. 545 applies.</u></p> <p>[Corrected by "Correction Notice 1" of 30 July 2010, GN No. R. 660]</p>	
GN 544: Listing Notice 1: 2010	56	<p>Phased activities for all activities listed in this Schedule, which commenced on or after the effective date of this Schedule, where any one phase of the activity may be below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold; - excluding the following activities listed in this Schedule:</p> <p>2; 11(i)-(vii);16(i)-(iv);17;19;20;22(i) & 22(iii);25;26;27(iii) & (iv);28;39; 45(i)-(iv) & (vii)-(xv);50;51;53; and b54.</p>	<p>The proposed development will be undertaken in two phases namely:</p> <ol style="list-style-type: none"> 1. Truck stop and ablution facilities, together with convenient shop, work shops and offices: 2. Service Station
GN546: Listing Notice	4	<p>The construction of a road wider than 4 metres with a reserve less than 13,5 metres.</p> <p>(a) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape provinces:</p> <p>i. Outside urban areas, in:</p> <p>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</p> <p>(bb) National Protected Area Expansion Strategy Focus areas;</p> <p>(cc) Sensitive areas as identified in an environmental management framework as contemplated in</p>	<p>The proposed development would require the construction of an access road to the truck stop and service station.(The area falls within the grassland biosphere reserve).</p>

		<p>chapter 5 of the Act and as adopted by the competent authority;</p> <p>(dd) Sites or areas identified in terms of an International Convention;</p> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(ff) Core areas in biosphere reserves;</p> <p>(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve;</p> <p>(hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined.</p>	
<p>GN Notice 546: Listing Notice 3</p>	<p>10</p>	<p>The construction 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.</p> <p>(a) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape provinces:</p> <p>i. Outside urban areas, in:</p> <p>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</p> <p>(bb) National Protected Area Expansion Strategy Focus areas;</p> <p>(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p>	<p>The proposed development would require the storage of 50 cubic meters of fuel on site. (The area falls within the grassland biosphere reserve).</p>

		<p>(dd) Sites or areas identified in terms of an International Convention;</p> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(ff) Core areas in biosphere reserves;</p> <p>(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve;</p> <p>(hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined;</p> <p>(ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined;</p> <p>(jj) Within 500 metres of an estuary.</p>	
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2.2.3 National Water Act (No 36 of 1998)

The major objectives of the National Water Act (NWA) are to:

- Aid in providing basic human needs;
- Meet the growing demand of water in a sustainable manner;
- Ensure equal access to water and use of water resources;
- Protect the quality of water of natural resources;
- Ensure integrated management of water resources;
- Foster social and economic development; and
- Conserve aquatic and related ecosystems.

A Water Use Application (WULA) is a legislature process governed by the Department of Water Affairs for the authorisation of all water uses defined in section 21 of the National Water Act (Act No 36 of 1998) [NWA]. This

document describes a methodology for the assessment of a Section 21 (b), water uses. No water use application is required for the proposed truck stop as there will be no abstraction on site and only conservancy sewage tanks will be installed. Potable water for the development will be sourced from the municipality and the developer will collect the water from a dedicated point from the municipal reticulation network and transport the water to the site in water tanker and store the water in suitably designed water tanks on site for consumption. The water uses are defined and discussed in Table 3 below:

TABLE 3: CATEGORIES OF WATER USE REGISTRATIONS

Type of Authorisation	Applies to	Registration
Schedule 1 of NWA	Small quantity of water use which include: <ul style="list-style-type: none"> • Taking water directly from a water resource for domestic use. • Storing and using run-off water from a roof. • Small gardening activities (excluding commercial use). • Using water for emergencies. 	No registration needed
General Authorisations	Limited water use. [General Authorisation does not apply to all catchments]	Registration in most cases required
Water Use Licensing	Significant water use. All water uses which do not require a general or Schedule 1 authorisation.	Must complete a WULA process Must register the water use at regional offices of DWA

2.2.4 National Environmental Management: Air Quality Act 39 of 2004

In terms of Activity 11: Category 2.2 Storage and handling of Petroleum Products. An Air Emission License is required for the storage of more than 500 cubic meters cumulative tankage capacity at a site. TOWB TRADING aims to remain below this threshold. However in keeping with best practice a baseline assessment will be undertaken to determine if a License would be required.

2.2.5 National Heritage Resources Act (No 25 of 1999)

The protection, management and evaluation of heritage resources are specifically addressed in the following:

Section 34 – Structures older than 60 years:

- In most cases evaluated and handled by Conservation Architects.

Section 35 - Archaeology, palaeontology and meteorites:

- Provides protection for these sites on Provincial and National levels.
- Stipulates State ownership of all archaeological objects, palaeontological material and meteorites.
- Protects archaeological and palaeontological sites and meteorites from unlawful destruction, trade and excavation without permitting.
- Makes provision for mediated action to protect archaeological and palaeontological sites and meteorites being damaged.
- Register private collections of archaeological objects, palaeontological material and meteorites.

Section 35 – Burial grounds and graves:

Provides protection for graves of conflict, as well as burial grounds containing graves of conflict.
Graves and burial grounds older than 60 years outside formal cemeteries administered by local authorities.
The issuing of permits for the exhumation and relocation of such graves and burial grounds.

Section 38 – Heritage Resources Management:

- Subsection (1) stipulates the types of development that require the developer to contact the relevant heritage authority, to determine the need for a Heritage Impact Assessment (HIA).
- Stipulates the minimum information required in such a HIA. These requirements and the minimum requirements for Archaeological Impact Assessments were issued by SAHRA in 2006.
- Indicates evaluation timeframes by the relevant heritage Authority of the submitted HIA report.
- Indicates guidelines on the appeal process on decisions by the heritage Authority.

2.2.6 Occupational Health and Safety Act (No 85 of 1993)

The Occupational Health and Safety Act provides for the health and safety of persons at work and for the health and safety of persons in connection with the use of machinery; the protection of persons other than persons at work, against hazards to health and safety arising out of or in connection with the activities of persons at work.

2.3 Other Relevant Acts, Guidelines, Departmental Policies, Environmental Management Instruments

OTHER RELEVANT ACTS, GUIDELINES, DEPARTMENTAL POLICIES, ENVIRONMENTAL MANAGEMENT INSTRUMENTS

Gert Sibande District Municipality Spatial Development Framework (2009)

South African National Standard SANS 10103:2008 (*The Measurement and Rating of Environmental Noise with Respect to Annoyance and Speech Communication*)

National Noise Control Regulations (1998)

Mpumalanga Biodiversity Conservation Plan (2006)

Hazardous Substances Act (No 15 of 1973) and regulations

3 PROJECT ALTERNATIVES

In terms of the EIA Regulations, Section.28 (1) (c) feasible alternatives are required to be considered as part of the environmental investigations. In addition, the obligation that alternatives are investigated is also a requirement of Section 24(4) of the National Environmental Management Act (Act 107 of 1998) (as amended). An alternative in relation to a proposed activity refers to the different means of meeting the general purpose and requirements of the activity (as defined in Government Notice R.543 of the EIA Regulations, 2010), which may include alternatives to:

- a) the property on which or location where it is proposed to undertake the activity;
- b) the type of activity to be undertaken;
- c) the design or layout of the activity;
- d) the technology to be used in the activity;
- e) the operational aspects of the activity; and
- f) the option of not implementing the activity.

3.1 Location Alternatives

From a technical perspective there is only one site which was chosen where the applicant plans to use, which is suitably located adjacent to the R23 for the proposed truck stop. Alternative locations are currently not available, and would thus involve the lease or purchase of land / other sites. The suitability of the location will be assessed in further detail in the impact assessment section, but based on the internal feasibility assessment the proposed site is deemed suitable as a result of the following factors:

- The site of 8,114ha is more than enough to accommodate the whole development. It is located on a busy corridor for freight haul which makes it ideal.
- The site appeals to the transient market travelling on the R23 as it is easily accessible.
- There are no competing truck stop facilities on the R23. There are however a number of filling stations in town, however these are not specifically focussed on catering for heavy vehicle trade.

3.2 Land Use / Activity Alternatives

The site is situated outside of a formal town planning scheme area, however, as earlier mentioned the proposed site was created and separated from the mother property in 1921 for the purpose of a 'Motel' and 'Service Station', which permitted land use is specifically specified in the Deed of Transfer for the Subject Site. An application to the Department of Agriculture, Forestry & Fisheries (DAFF) as required in terms of Act 70 of 1970, confirmed the site not to be classified as 'agriculture' in a letter dated 16/10/2012(DAFF Record ID: 26089; Code: 2012/07/0202).

The site was used for agriculture but for some years it has remained vacant and undeveloped such that neighbouring farmers use it for grazing. No alternative land uses such as other types of commercial developments, residential or agriculture were considered by the applicant and the registered landowner. The development of a truck stop is considered by the applicant as the preferred and favoured development of the site.

3.3 Input Alternatives

The construction of truck stop is governed by approved procedures and SABS standards, thus there is limited scope for introducing alternatives to this aspect. However, the construction materials that are utilised can be varied. These variations include: bricks, roof, finishes and surfacing of the road and forecourt area. Ultimately, the finished product should be aesthetically pleasing. A great deal of energy saving and alternative energy resources are to be implemented into the operational phase of the proposed development.

3.4 Tank Position and Entrance to the site Alternatives

Two entrance and placement of the underground tanks alternatives were considered; at the Smalkloof guest house entrance (Entrance 2 and option 2) and at the straight section of road at the property entrance closest to Volksrust (Entrance 1 and option 1) (see Figure 2, 5&6). Option 1 shows a south entrance and the tank position due north of same entrance. This option may not be viable due to SANRAL requirements for entry sight distances and the tank position also does not take full advantage of the SANRAL leeway that the tanks may be constructed in the 93m road reserve as long as they are underground. SANRAL indicated to approve the relaxation of the building restriction line on the proposed site along the R23 to be relaxed to 60 meters from the centre of the road and provided there conditional consent for proposed development, which consent was based on Option 2 below.

Option 2 shows a north entrance with the tanks at the entrance thus taking full advantage of the SANRAL leeway to construct within the 60m reserve. This is the safest position for trucks turning and SANRAL has a 600m rule between entry/exit points on the same side of the road and the entrance also adheres to this sight distance criteria.

MDEDET REF.NO.: 17/3/2-GS110 -- PROPOSED TRUCK STOP WITH FILLING STATION AND ANCILLARY USES KNOWN AS MEERKAT TRUCK STOP ON REMAINING EXTENT OF PORTION 9 (A PORTION OF PORTION 5) OF THE FARM SMALKLOOF 122 REGISTRATION DIVISION HS VOLKSRUST, MPUMALANGA PROVINCE

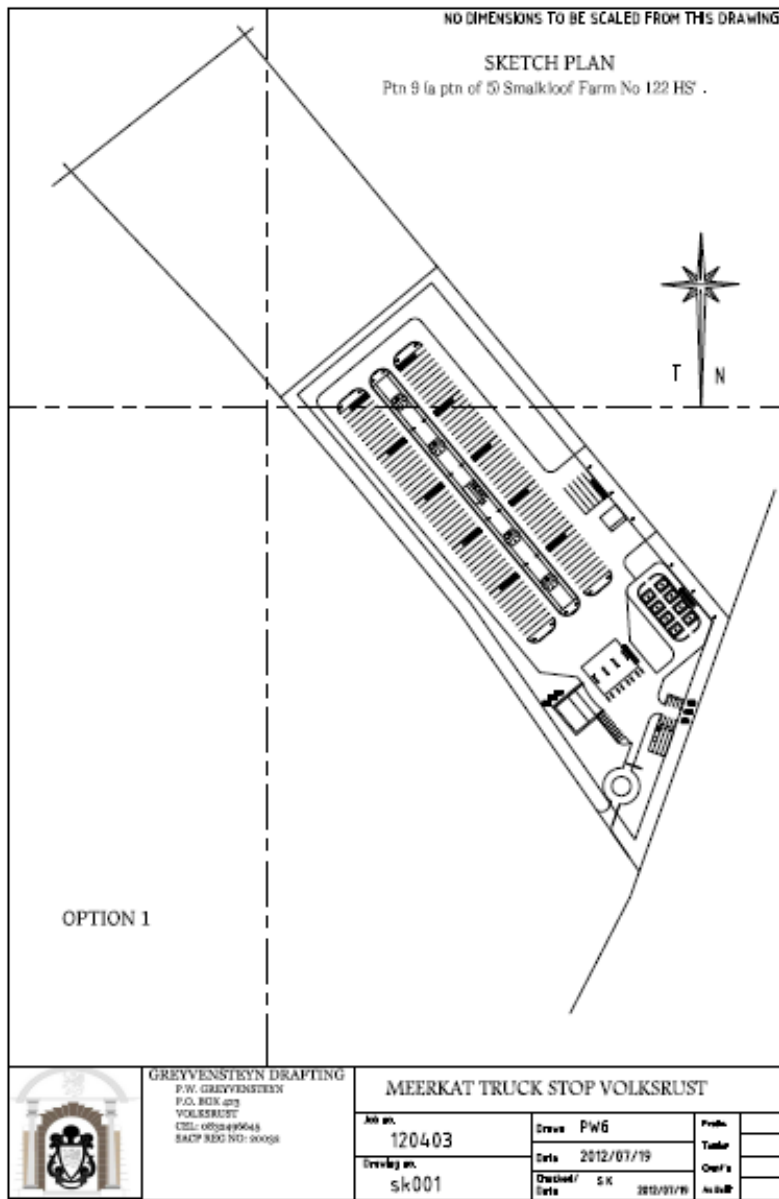


FIGURE 5: SOUTH ENTRANCE AND THE TANK POSITION DUE NORTH OF SAME ENTRANCE

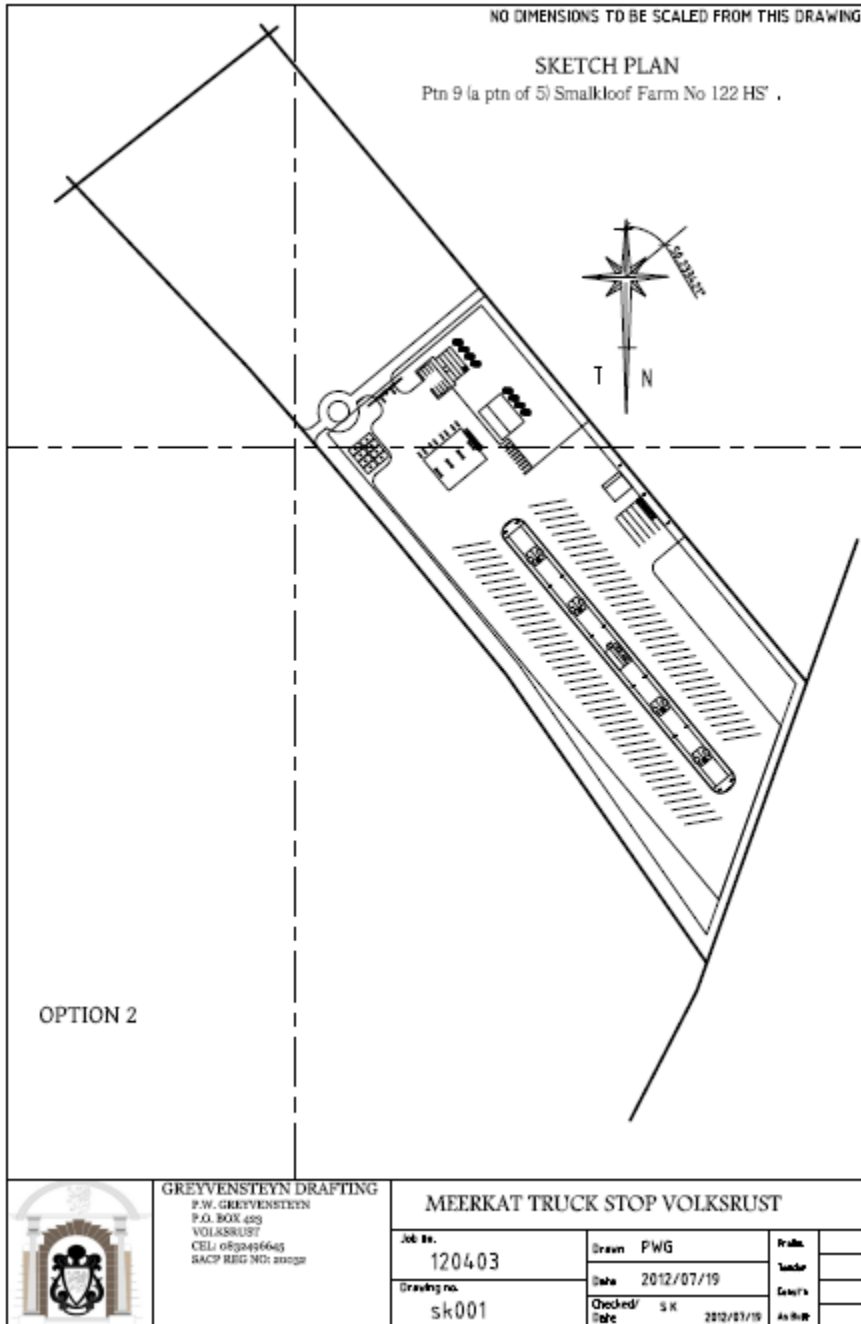


FIGURE 6: NORTH ENTRANCE AND THE TANK POSITION DUE SOUTH OF SAME ENTRANCE

An assessment of these two entrances and tank positions as to which would be the preferable site for the proposed development has been undertaken. The table below summarises this assessment in terms of location/access alternatives.

The two site alternatives have been assessed according to the following aspects:

- Air quality
- Noise Impact
- Visual Impact
- Ecological Impact (flora, fauna)
- Impact on residential areas
- Proximity to surface water resources
- Impact on other filling stations

These aspects are represented in the table below and rated broadly as follows:

3: major problem

2: minor problem

1: no problems

The lowest score indicates the preferred site.

TABLE 4: ANALYSIS OF ENVIRONMENTAL PARAMENTERS OF THE TWO TECHNICALLY FEASIBLE ALTERNATIVES

ASPECT	OPTION 1	OPTION 2	COMMENTS
AIR QUALITY IMPACT	2	2	The proximity of residential properties of both entrances and tank positions would entail that these would be potentially negatively affected by dust and by VOC emissions during operation but trees in between these and the development would mitigate potential impacts
NOISE IMPACT	2	2	The proximity of small holding properties to both entrances and tank positions would entail that these would be potentially negatively affected by noise emanating from the truck stop. An exiting line of trees as well as more indigenous trees will be planted along the periphery and sound barriers that will be installed as part of the development (a measure which was agreed between the owner of Smalkloof guest house and the proponent) will be noise mitigating factors.
VISUAL IMPACT	2	1	The use of same entrance 2 by guest to the Smalkloof guest house would entail that these would be potentially negatively affected by the

			changed view by the truck stop. Entrance 1 is situated away from the nearest sensitive receptors and trees in between the receptor location and the development would mitigate potential impacts as the trees would screen views towards the truck stop.
ECOLOGICAL IMPACT	1	1	Both entrances and tank positions are disturbed and have little / no ecological value; Entrance 2 is part of the road to the Smalkloof guest house, Entrance 1 is also a road to the agricultural fields. Both are isolated from any other natural areas.
IMPACT ON RESIDENTIAL AREAS	3	3	Both entrances and tank positions are immediately adjacent to small holding properties. The closest small holding properties with residential facilities are approximately 50m away from each entrance.
PROXIMITY TO SURFACE WATER RESOURCES	1	1	Both entrances and tank positions are not close to any surface water resources and there would be no likely surface water pollution
SAFETY	3	1	Entrance 2 is the safest position for trucks turning and takes full advantage of the SANRAL sight distance criteria .of 600m between entry/exit points on the same side of the road. Entrance 1 may not be viable due to SANRAL requirements for entry sight distances and will not be safe for turning vehicles.
TOTAL	14	11	Entrance 2 and Option 2 tank position is the preferred entrance and tank position and development access

The most important factor which differentiates the two entrances is the safety of the turning vehicles and the associated potential impacts relating to the visual environment. The entrance 1 would not be optimal and would be likely to be associated with potentially significant negative safety impacts for the motorists using R23. Entrance 2 would also affect the guests to the Smalkloof guest house as they will be using the same entrance as vehicles to the truck stop spoiling the scenery that attracted guests to this area. The assessment indicates that impacts related to entrance 2 would be lesser than at entrance 1 and thus it is evident that entrance 2 is the most optimal entrance for the development of a truck stop and service station.

3.5 No-Go Alternative

Should the proposed project not proceed, the current state in the context of Volksrust being exposed to truck traffic and negative activities associated with the transport commodity will remain the same or even deteriorate further and whereby Volksrust town will still experience the following:

- Continuous and increased rate of destruction of local roads within the town and neighbourhoods as a result of heavy vehicles parking and manoeuvring on the local streets due to the lack of transport facilities like a truck stop.
- Continuing accidents as a result of congestion and obstructions caused by trucks parking overnight in town or attempting to refuel at existing fuel stations not suitable for the refuelling of long haul heavy vehicles.
- Continuing noise and air pollution around residential neighbourhoods where the trucks park overnight
- Current levels of Distribution of drugs and child prostitution currently taking place in town will remain high.

...

However, as explained in the need and desirability section, it is possible that reductions in revenue and job losses at existing filling stations within Volksrust could occur as there is not sufficient demand for a filling station at the proposed site due to low traffic volumes of 2,495 vehicles a day along the R23 and the estimated fuel sales of between 70,000 and 141,000 litres a month which is far below the industry standard of 350,000 litres a month that is not sufficient to sustain a filling station. It should be noted that the feasibility study conducted for the proposed truck stop has not quantified these potential impacts.. If job losses were to occur, it would be likely that the number of permanent (operational) job opportunities would be greater than the number of jobs that would be lost. Thus if the development were not to occur, no jobs would be lost, but at the same time, an overall increase in job opportunities relating to the development would not occur.

. The owner of Smalkloof guest house may also loose business due to damaged view from the guest house that makes the area famous and attractive.

The current situation is that trucks parking at night in the streets are not contributing directly to the economy of the town, rather causing a financial burden to the rate payers in that the lifespan of road surfaces and infrastructure, , is much reduced due to the heavy vehicles entering the residential suburb. By providing a safe and secure area, and prohibiting parking in town, the town and suburbs would be relieved of much of the noise and air pollution associated with the trucks. The reduction in fume emission from the trucks is facilitated by limited idling, reduced manoeuvring time and the provision for power points for complimentary power supply to the vehicles which is normally done with the motor running (eg. heating and refrigerating)

4 PUBLIC PARTICIPATION PROCESS

4.1 Aims of the Public Participation Process

The primary aims of the public participation process are:

- to inform interested and affected parties (I&APs) and key stakeholders of the proposed application and environmental studies;
- to initiate meaningful and timeous participation of I&APs;

- to identify issues and concerns of key stakeholders and I&APs with regards to the application for the development (i.e. focus on important issues);
- to promote transparency and an understanding of the project and its potential environmental (social and biophysical) impacts (both positive and negative);
- to provide information used for decision-making;
- to provide a structure for liaison and communication with I&APs and key stakeholders;
- to ensure inclusivity (the needs, interests and values of I&APs must be considered in the decision-making process);
- to focus on issues relevant to the project, and issues considered important by I&APs and key stakeholders; and
- to provide responses to I&AP queries.

4.2 Authority Consultation

The competent authority, Mpumalanga Department of Economic Development, Environment and Tourism (MDEDET) reviewing the project and providing environmental authorisation was consulted from the outset of this study.

Authority consultation included the following activities:

- Submission of an application for environmental authorisation in terms of Section 26 of the EIA Regulations (2010) on 11th May 2012.
- Approval of the application documentation by MDEDET was received on 21st May 2012 (see Appendix E).

4.3 Consultation with Other Relevant Stakeholders

Consultation with other relevant key stakeholders will be undertaken through telephone calls and written correspondence in order to actively engage these stakeholders from the outset and to provide background information about the project during the draft Basic Assessment Phase. These stakeholders included:

TABLE 5: KEY STAKEHOLDERS CONTACTED AS PART OF PP PROCESS

CONTACT PERSON	ORGANISATION
Mr P Maleybe:	Dr Pixley ka Isaka Seme Local Municipality– Municipal Manager
Mr Nyembe:	Dr Pixley ka Isaka Seme Local Municipality- Manager Local Economic Development
Mr. L. Skhosana	Dr Pixley ka Isaka Seme Local Municipality– Department Human Settlement & Development
Mrs. E van Jaarsveld	COGTA Mpumalanga
Reggie Sibiya	Fuel Retailers Association Chief Executive Officer
Riaan Kock	Director A. Kock & Associates Inc.: Legal Representative of Engen Petroleum Ltd
LH Maphutha /TP Mkhabela	Mpumalanga Rural Development and land Reform

CONTACT PERSON	ORGANISATION
Aubrey Tshivhandekan,	Department of Mineral Resources
CJ Vermaak	Department of Water Affairs
M C Marubini	Mpumalanga Tourism and Parks Agency Department of Agriculture, Forestry and Fisheries
	SAHRA
Ashraf and Yacoob	Exel garage (Amajuba Service Station)
Sandra Aveling	Engen 1 Plus (Aveling Convenience Centre)
Fanie De Bruyn	Total garage (Afgri)
Aisha	Engen garage (Midway Service Centre)
Gerrit Smit	Shell garage (Smit Motors)
Herman Brelage	FPS Bulk Diesel (The diesel depot information)
Morné Myburg	Farmer bordering north and west of the proposed side

Also refer to the attached stakeholder database in **Appendix F1**

4.4 Advertising

In compliance with the EIA Regulations (2010), notifications of the commencement of the BA process for the project were sent to Interested and Affected Parties (I&APs) on 31st May 2012. I&APs were requested to register their interest in the project and become involved in the BA process. The primary aim of these notifications was to ensure that the widest group of I&APs possible was informed and invited to provide input and questions and comments on the project. These were distributed to the following:

- Engen Garage
- Pep Store
- Hand delivered to Smalkloof guesthouse in Volksrust
- Excel Garage in Volksrust
- Volksrust Library
- Volksrust Municipality
- Special effort was done to hand deliver to shops in Volksrust town and B&Bs

In addition to advertisements, A2 size site notices in *English* were placed at the following public places advertising the EIA process for the project on 31st May 2012:

- On site
- Engen garage(Midway Service Centre)
- Tuck Shop (Volksrust- De Kock Street)
- Volksrust Home Affairs
- Volksrust Library

Refer to **Appendix F 2** for photos of site notices.

4.5 Identification of Interested and Affected Parties

I&APs were identified primarily through an existing database as well as from responses received from the site notices mentioned above. The contact details of all identified I&APs are updated on the project database, which is included in the final BA report.

This database will be updated on an on-going basis throughout the BA process.

4.6 Issues Trail

Issues and concerns raised in the public participation process during the BA process will be compiled into an Issues Trail. This Issues Trail will reflect the issues raised by I&APs during consultation, and provide an indication of particular areas within which concerns were raised. An objection has been received from Riaan Kock who is the legal representative for Engen, the points raised have been addressed in this report.

4.7 Public Review of the Draft BA Report

An advert was placed in the *Recorder Newspaper* on 17th May 2013 informing I&APs of the availability of the draft BAR and EMPr for review and comment. The *Recorder Newspaper* is a weekly newspaper. Additionally, all registered I&APs will be notified of the availability of the report. Refer to **Appendix F3** for the newspaper advert.

The draft BAR, together with the EMPr will be made available for authority and public review for a total of 40 calendar days. In addition, the report will also be made available at the following public locations (which are all readily accessible to I&APs) within the study area:

- Volksrust Library
- Newcastle Library
- Standerton Library
- Offices of Royal HaskoningDHV (Building 5, Country Club Estate, Woodlands drive, Woodmead); and
- Royal HaskoningDHV website (<http://www.rhdhv.co.za/new/site/pages/environmental/current-projects.php>).

4.8 Final Basic Assessment Report

The final stage in the Basic Assessment process will entail the capturing of responses and comments from I&APs on the draft BAR in order to refine the BAR, and ensure that all issues of significance are addressed. The final BAR will be submitted to MDEDET for review and decision-making. According to Section 56 (6) of the EIA (2010) regulations, registered I&APs must comment on final reports and submit the comments to the competent authority (MDEDET) and provide a copy of such comments to the applicant (TOWB) or EAP (Royal HaskoningDHV).

5 GENERAL DESCRIPTION OF THE STUDY AREA

5.1 Soils and Geology

According to the 2728 Frankfort Geological series, the area under investigation is underlain by transported and residual soils derived from the in situ decomposition of mudstone and shale of the Volksrust Formation. To the higher lying north of the site, olive-green and grey mudstone and sub-ordinate sandstone of the Normandien Formation can be found capped by younger Dolerite sills. Commonly found in the study area are younger dolerite intrusions (denoted as Jd) in the shape of dykes and sheets (sills). Most notably, no major regional geological features intersect the site on a local level. The aforementioned conditions were confirmed through the geotechnical investigation results obtained from the Duncan Hemingway Geotechnical report into site conditions and concluded that the soils are relatively consistent across the site and consist a shallow (0.45m) layer of dark brown colluvium followed by relatively deep (at least 3m) layer of red-brown becoming light grey silty clays with varying expansive properties, derived from in-situ decomposed or completely weathered Mudstone / Sandstone.

5.2 Vegetation

The proposed Volksrust Truck Stop and filling station is situated with **Amersfoort Highveld Clay Grassland (Gm 13)** vegetation unit (Mucina & Rutherford 2006) (Figure 7) which occurs within Mpumalanga and Kwazulu-Natal Provinces. This unit extends in a north-south band from just south of Ermelo, down through Amersfoort to the Memel area in the south.

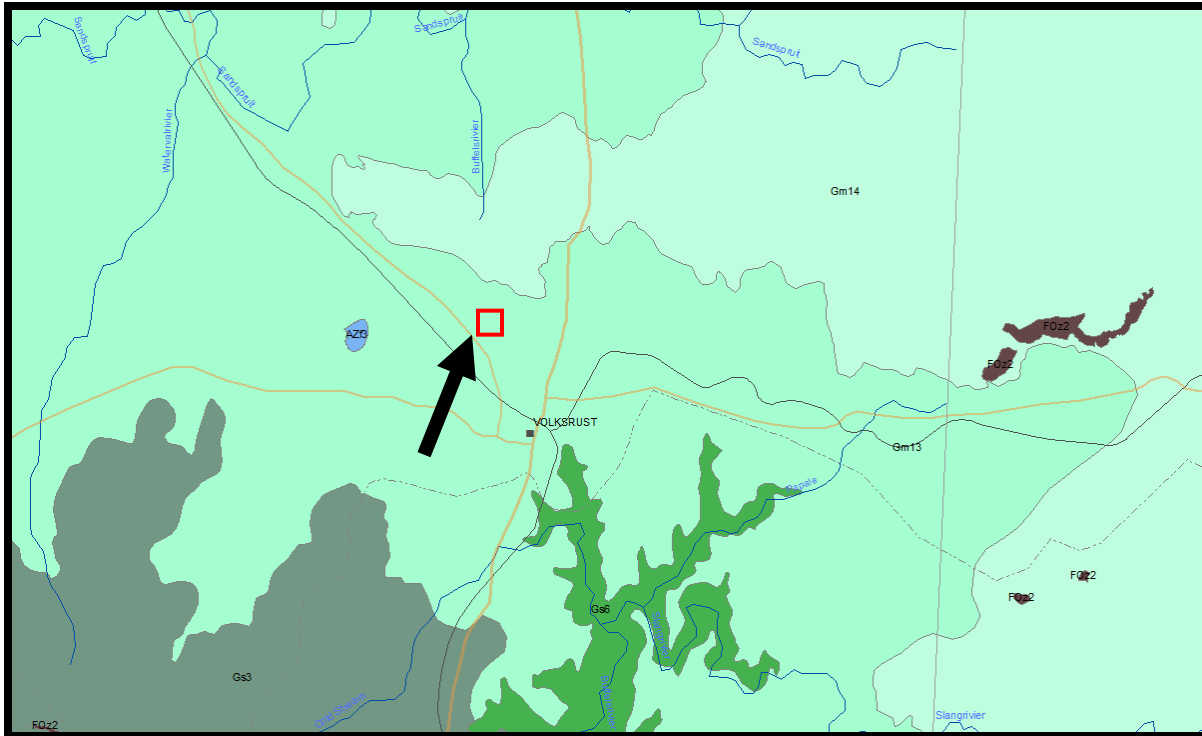


FIGURE 7: THE PROPOSED VOLKSRUST TRUCK STOP LOCATION WITH AMERSFOORT HIGHVELD CLAY GRASSLAND (GM 13) VEGETATION UNIT (SOURCE: (MUCINA & RUTHERFORD 2006)

5.3 Vegetation and Landscape Features

This vegetation type comprises undulating grassland plains, with small scattered patches of dolerite outcrops in areas. The vegetation is comprised of a short closed grassland, largely dominated by a dense *Themeda triandra* sward, often severely grazed to form a short lawn. Overgrazing or poor grassland management result in the invasion of the dwarf shrub *Seriphium plumosum*/*Stoebe vulgaris*. Parts of this unit were once cultivated and now lie fallow and have been left to re-vegetate with pioneer grass species. These transformed areas are not picked up by satellite for transformation coverage and the percentage of grasslands still in a natural state may be underestimated.

The proposed Volksrust truck stop and filling station is situated with Amersfoort highveld clay grassland (gm 13) vegetation unit. The natural grassland of the study areas are characterised by a short, low cover of herbaceous species, physiognomically dominated by grasses. The floristic status of these areas is largely determined by the intensity of grazing by cattle and sheep. In areas where high grazing pressure predominate the vegetation is dominated by the grasses *Eragrostis plana*, *E. chloromelas*, *Cynodon dactylon* and the forbs *Cirsium vulgare*, *Berkheya carlinopsis*, *Alternanthera pungens* and *Crepis hypochoeridea*. The forb and herb species diversity in these parts is frequently low.

Areas that are subjected to lower grazing pressure comprises vegetation with a higher floristic status, species diversity consisting of the grasses *Themeda triandra*, *Brachiaria eruciformis*, *Eragrostis racemosa*, *Setaria* species, *S. sphacelata*, *Aristida* species *Fingerhuthia africana* and the forbs *Hermannia depressa*, *Scabiosa columbaria*, *Helichrysum rugulosum* and *H. aureonitens*. These areas are more likely to be associated with shallow soils and localised dolomite rocky outcrops. The species diversity in these parts is more diverse, comprising a high degree of forbs and geophytic herbs or geophytes in particular, including *Boophone disticha*, *Gladiolus crassifolius*, *Gladiolus robertsoniae*, *Hypoxis iridifolia*, *H. obtusa* and *H. rigidula*. The floristic status of these areas are frequently not as well-defined as indicated in the description, but more often represent a gradient of grazing pressure. However, even areas that were subjected to high grazing pressure are different to transformed areas by the simple distinction that these areas are able to recover to a natural status under correct management.

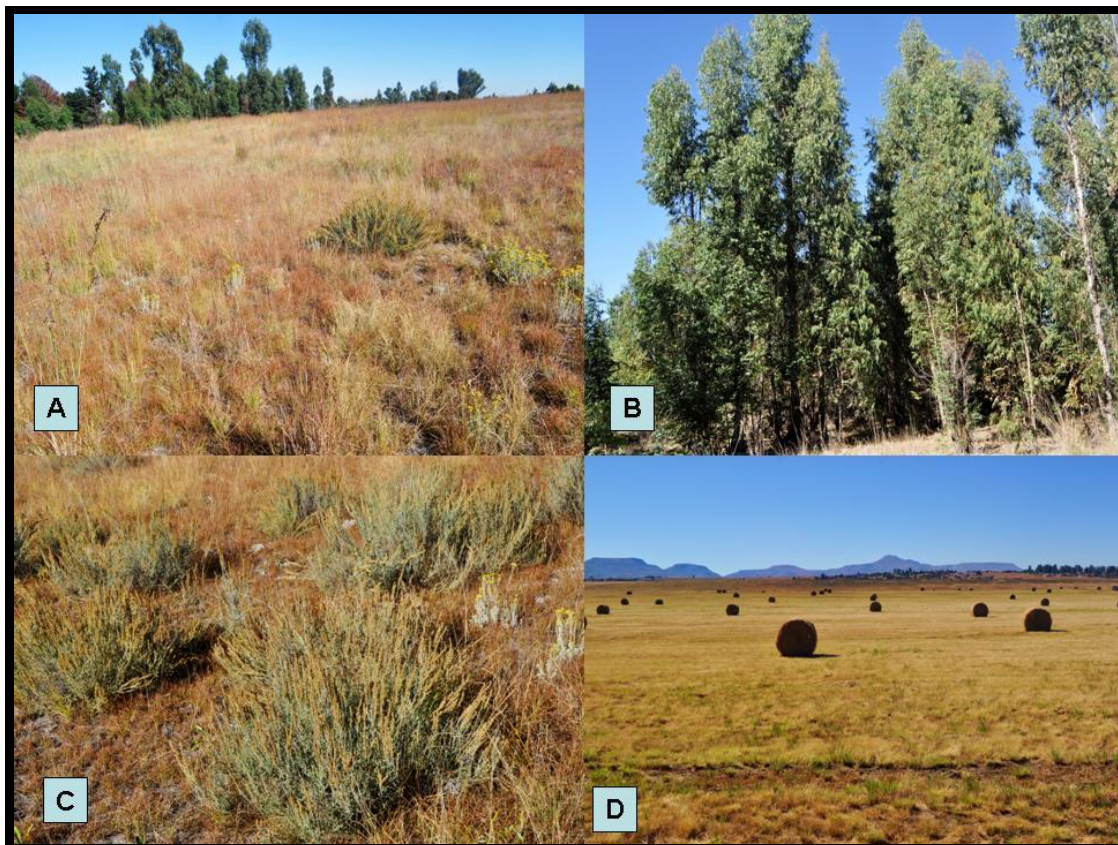


FIGURE 8: (A, B, C &D): A CONGLOMERATE OF PHOTOGRAPHS DISPLAYING THE VEGETATION ON THE SITE AND IMMEDIATE ADJACENT AREAS.

A: The species *Aristida* sp., *Eragrostis curvula*, *E. chloromelas*, *Hyparrhenia hirta* and *Hyperthelia dissoluta* are usually particularly dominant and is also a good indicator of the secondary climax status that resulted through succession from a historic disturbance, such as over-grazing or historic agricultural practices such as previous ploughing of soils for dry-land agricultural activities (Teff pastures). The forb and herb species diversity on the site are low B: The southern boundary of the site is dominated by dense stands of *Saligna Gums* (*Eucalyptus grandis**) which were most likely planted as wind-breaks or for woodlots. C: The dwarf shrub *Seriphium plumosum*

is an indicator of overgrazing and trampling by cattle on the site. D: The surrounding vegetation is dominated by dry-land planted pastures for hay production.

The conservation status is regarded as Vulnerable, with a target of 27% (A species is Vulnerable when the best available evidence indicates that it meets at least one of the five IUCN criteria for Vulnerable, indicating that the species is facing a high risk of extinction). None is however formally protected. The study area is situated within a part of the African Grasslands/ Ekangala Initiative Transition Zone, rendering all areas of natural grassland sensitive (ENPAT, National Database, Biosphere). Some 25% of this vegetation type is transformed, predominantly by cultivation (22%). The area is not suited to forestation. Silver Wattle (*Acacia dealbata**) and Black Wattle (*Acacia mearnsii**) and Weeping Willow (*Salix babylonica**) invade drainage areas. Erosion is potential is low except along the valley bottom wetlands which are extensively utilised for livestock grazing and drinking areas.



FIGURE 9: TRANSFORMED OR SECONDARY SUCCESSION GRASSLANDS

5.4 Fauna

The vegetation within and immediately adjacent to the Volksrust Truck Stop and filling station site has been completely transformed during previous ploughing of the soils and vegetation or severely degraded due to alien vegetation invasion (*Eucalyptus grandis**) and offers limited habitat diversity for remaining faunal species.

* alien invasive vegetation

5.4.1 Amphibians

No frog species were recorded during the site visit. Due to extensive habitat transformation on and surrounding the site low frog diversity is expected. No natural wetlands occur on the site or immediately adjacent to the site.

TABLE 6: FROG SPECIES RECORDED ON THE ACTUAL SITE OR ARE LIKELY TO OCCUR ON THE SITE.

Common Name	Scientific Name	Status/ Distribution	Habitat
Guttural Toad	<i>Amietophrynus (Bufo) gutturalis</i>	Common in southern Africa north of Gariiep.	Permanent and semi-permanent ponds and backwaters in open grassland.
Tremelo Sand Frog	<i>Tomopterna cryptotis</i>	Common species in Mpumalanga, Gauteng.	Streams, rivers or other places where water flows slowly but also in lothic or standing water



FIGURE 10: THE SITE OFFERS LIMITED SUITABLE HABITAT FOR FROGS. THE GUTTURAL TOAD (AMIETOPHRYNUS GUTTURALIS) IS AN URBAN EXPLOITER AND COULD POSSIBLY OCCUR ON THE SITE.

Threatened species

Giant Bullfrog (*Pyxicephalus adspersus*)

The Giant Bullfrog is currently assigned as a near-threatened species (IUCN Red List category). Giant Bullfrogs have been not been recorded from the Volksrust area during previous surveys as well as during the South African Frog Atlas Project (SAFAP). No suitable breeding habitat occurs around the site for Giant Bullfrogs. Bullfrog density commonly varies within certain habitats (open grassland habitat). High densities are often associated with specific microhabitats or patches (hygrophytic or aquatic ephemerophytic grass and sedge dominated temporary pans) that can be identified and randomly sampled. Loskopdam Nature Reserve is the only provincial protected reserve in Mpumalanga where the Giant Bullfrog was recorded (Jacobsen et al 1986). For this reason the species is considered vulnerable in the Province (Theron 2002). The majority of the records are of migrating adult males including several road fatalities. Limited knowledge exists on the viable (>500 breeding adults) populations and breeding areas within the Mpumalanga Province. The site offers no suitable habitat for Giant Bullfrogs and amphibians in general.

5.4.2 Reptiles

Reptile lists require intensive surveys conducted for several years. Reptiles are extremely secretive and difficult to observe during field surveys. The majority reptile species are sensitive to severe habitat alteration and fragmentation. Due to the high levels of habitat destruction and degradation within the study area due to agricultural and residential activities coupled with increased levels of disturbances are all causal factors in the alteration of reptile species occurring on the site and surrounding areas. As a result of human presence in the area as well as on the site; coupled with extensive habitat destruction from agricultural activities and high levels of disturbances, alterations to the original reptilian fauna are expected to have already occurred. Removal of Eucalyptus during the clearing of stands and dead trunks for firewood collection destroys numerous habitats for remaining reptile species. Clearing of rock material from agricultural lands and for building materials destroys vital habitat for numerous rupicolous reptile species including the Agamids, Cordylids, Geckonids and Skinks. The majority of snake species hibernate in old tree trunks, termite mounds or under suitable rocks. No major rocky outcrops or rock piles are found on the site. One reptile species namely the Variable Skink (*Trachylepis varia*) was observed on the proposed site. Low reptile diversity is expected from the transformed areas on the site. A probable species list is provided in Table 7 below.

TABLE 7: REPTILE SPECIES THAT OCCUR OR ARE LIKELY TO OCCUR IN THE STUDY AREA DUE TO SUITABLE HABITAT, AND MAY THEREFORE BE PRESENT.

COMMON NAME	SCIENTIFIC NAME
Cape Skink	<i>Trachylepis (Mabuya) capensis</i>
Striped Skink	<i>Trachylepis (Mabuya) punctatissima</i>
*Variable Skink	<i>Trachylepis (Mabuya) varia</i>

Yellow-throated Plated Lizard	<i>Gerrhosaurus flavigularis</i>
Flap-Necked Chameleon	<i>Chamaeleo dilepis</i>
Herald or Red-lipped Snake	<i>Crotaphopeltis hotamboeia</i>
Common or Rhombic Night Adder	<i>Causus rhombeatus</i>
Common or Rhombic Egg Eater	<i>Dasypeltis scabra</i>
Bibron's Blind Snake	<i>Typhlops bibronii</i>
Cape and Eastern Thread Snake	<i>Leptotyphlops conjunctus</i>
Peters' Thread Snake	<i>Leptotyphlops scutifrons</i>

* recorded during brief field survey

Actual species lists will most likely contain far fewer species due to high levels of habitat transformation.

5.4.3 AVIFAUNA/BIRDS

Twenty two (22) bird species were recorded during the brief field survey (total 6 hours). Species recorded during the field survey are common, widespread and typical of a degraded grassland and rural-agricultural environment.

TABLE 8: BIRD SPECIES RECORDED DURING BRIEF FIELD SURVEY (6HRS)

Roberts' Number	Common name	Scientific Name
94	Hadedda Ibis	<i>Bostrychia hagedash</i>
119	Amur Falcon	<i>Falco amurensis</i>
297	Spotted Thick-Knee	<i>Burhinus capensis</i>
352	Red-Eyed Dove	<i>Streptopelia semitorquata</i>
354	Cape Turtle Dove	<i>Streptopelia capicola</i>
355	Laughing Dove	<i>Streptopelia senegalensis</i>

383	White-rumped Swift	<i>Apus caffer</i>
424	Speckled Mousebird	<i>Colius striatus</i>
435	Brown-Hooded Kingfisher	<i>Halycon albiventris</i>
464	Blackcollared Barbet	<i>Lybius torquatus</i>
473	Crested Barbet	<i>Tracchyphonus vailantii</i>
523	Cape Crow	<i>Corvus capensis</i>
545	Black-Headed Oriole	<i>Oriolus larvatus</i>
548	Pied Crow	<i>Corvus albus</i>
646	Levaillant's Cisticola	<i>Cisticola tinniens</i>
568	Dark-capped (Black-eyed) Bulbul	<i>Pycnonotus barbatus</i>
576	African Stonechat	<i>Saxicola torquatus</i>
707	Common Fiscal	<i>Lanius collaris</i>
746	Pied Starling	<i>Spreo bicolor</i>
758	Common Myna	<i>Acridothermes tristis</i>
796	Cape White-Eye	<i>Zosterops pallidus</i>
801	House Sparrow	<i>Passer domesticus</i>

Threatened species

Due to time constraints no comprehensive bird lists could be compiled. According to the second South African Bird Atlas Project (SABAP2) 61 bird species have been recorded in the pentad (2720_2950) in which the site is situated. The majority of species recorded during field survey are common, widespread and typical highveld species. Numbers of bird species in the Volksrust-Amersfoort area have declined mainly due to extensive habitat transformation due to increased urban sprawl and agricultural and mining activities; as well as severe habitat degradation of the wetlands as well as rivers. Increased levels of human disturbances (quad and off-road bikes) have resulted in the disappearance of the more secretive species. Human activity has transformed grasslands in South Africa to a point where few pristine examples exist (Low & Rebelo 1996; Barnes 1998). Factors such as agricultural intensification, increased pasture management (overgrazing), decrease in grassland management due to frequent fires and land-use alteration (urbanisation) as well as continuing pressure on sensitive wetland and surrounding open grassland habitat are largely responsible for the decline of the threatened avifaunal species.

Bird distribution data of the Southern African Bird Atlas Project 1 (SABAP1 – Harrison et al, 1997) and its successor, Southern African Bird Atlas Project 2, (SABAP2) was accessed as a means to ascertain which species occur within the study area as listed in Table 9 below:

TABLE 9: RED LIST SPECIES RECORDED IN VOLKSRUST 2720_2950 PENTAD (SABAP2.ADU.ORG.ZA).

SPECIES	CONSERVATION STATUS (BARNES 2000)	REPORTING RATE SABAP2 (2600_2815)	HABITAT REQUIREMENTS (BARNES 2000; HOCKEY ET AL 2005; HARRISON ET AL 1997; PERSONAL OBSERVATIONS)
Southern Bald Ibis <i>Geronticus calvus</i>	Vulnerable (A2c; C1; C2b)	50 %	High rainfall (>700mm) sour and alpine grassland. It occurs mainly within the mountain grasslands in Mpumalanga. It forages preferentially on recently burned ground and areas of older burns with short, post fire re-growth is emerging. It also feeds within large expansive lawns (pers. obs. University of Limpopo campus)

Southern Bald Ibis may utilise the site during certain times of the year for foraging purposes especially after fires. Lesser Kestrels may utilise the large stands of Eucalyptus for temporary roosting areas as well as foraging on grasshoppers within the secondary succession grasslands. No threatened bird species were recorded during the brief survey. It is highly unlikely that the site consisting of transformed and severely degraded grassland vegetation forms critical habitat for any threatened bird species.

4.4 MAMMALS

Limited suitable refuges such as burrows, artificially created wood piles, stumps were observed. Porcupine burrows as well as Natal Multimammate Mice were observed on the site as well as evidence of Common Duiker. Several mounds of the African Molerat were observed within the sandier sections of the site. Mammal species recorded within the study area as well as those that may occur within the study area, on the basis of available distribution records and known habitat requirement, are included in the Table 7 below.



FIGURE 11: A CONGLOMERATE OF PHOTOGRAPHS DISPLAYING ANIMAL BURROWS OBSERVED ON THE SITE.

A: larger burrows of the cape porcupine were observed in the old eucalyptus stands. Several of the larger burrows were unoccupied. B & C: smaller rodent burrows were observed in the sandier sections adjacent to the recently felled trees. The burrows are possibly used by natal multimammate mouse or highveld gerbils. D: several fresh african molerat mounds were observed on the site. As a precautionary measure the area around the burrows should be carefully excavated and the animals removed or allowed to move away from the site. If any sungazers are discovered the relevant conservation authorities should be notified as well as the consultant with 24 hours of the discovery so that appropriate mitigatory measures can be recommended.

TABLE 10: MAMMAL SPECIES RECORDED DURING FIELD SURVEY

COMMON NAME	SCIENTIFIC NAME
African Molerat	<i>Cryptomys hottentotus</i>
Natal Multimammate Mouse	<i>Mastomys natalensis</i>
Striped Mouse	<i>Rhabdomys pumilio</i>
Common Duiker	<i>Sylvicapra grimmia</i>
Slender Mongoose	<i>Galarella sanguinea</i>
Striped Polecat	<i>Ictonyx striatus</i>
Large-spotted Genet	<i>Genetta tigrina</i>
Porcupine	<i>Hystrix africaeaustralis</i>

Species in bold were recorded during the brief survey. Identification was determined by visual observations and animal tracks (footprints and droppings). Actual species lists will most likely contain fewer species due to high levels of habitat destruction surrounding the site.

Threatened species

No sensitive or endangered mammals were recorded within the study area. The majority of larger mammal species are likely to have been eradicated or have moved away from the area during the previous agricultural and residential developments. This is mainly a result of increased development pressure and human disturbances such as hunting and poaching (wire snares), as well as habitat alteration and degradation by vegetation clearance and frequent fires. Smaller mammal species are extremely vulnerable to snares and poaching activities as well as feral cats. It is highly unlikely that the proposed site constitutes significant habitat for any species of threatened mammal species.

5.4.4 Geohydrology (Groundwater)

5.4.4.1 Ground Water flow

The geology of the area comprises mainly Mudstone and shale with a negligible dip, however due to the topography the flow is expected to be in a south-easterly direction toward the lower lying Buffalo River located some 9km south-east of the site. Groundwater flow is predominantly through fractured and jointed bedrock, therefore the aquifers are considered secondary aquifers, but no significant deep seated aquifers appear to be present.

5.4.4.2 Groundwater Recharge

The area groundwater recharge in the area is entirely rainfall dependant and is estimated at 3-5% of the MAP, which is about 856mm. Precipitation which does not recharge the groundwater table runs off directly to surface water courses or evaporates before infiltration. Factors on site that may affect the amount of precipitation reaching the water table and recharging the groundwater flow systems include:-

- High water holding capacity of the soils – especially if the rainfall events are short and relatively infrequent;
- Shape and slope of ground surface - rainfall on steep slopes will tend to run off quickly;
- Type and density of vegetation cover.

Using the various methods available for calculating the recharge, the estimated recharge varies from 3% to 6% of mean annual precipitation (MAP of 856mm/annum). Due to the relatively thick and continuous clay layer overlying the area, the method based on soil information is preferred which proposes a recharge value of 3% of MAP or some 238.2 m³/day (9.925 m³/hr) which appear to be *moderate* as a result of soft side slopes and therefore slower run off and higher infiltration, coupled with the occurrence of moderate impermeable clayey silt residuum. for the effective catchment from groundwater sources within the proposed Volksrust truck stop area. This recharge value is crucial, because should more groundwater be extracted than the recharge over the area, a regional lowering of the groundwater table will result with negative influence on neighbouring users. Slow infiltration or surface run-off is further aided by these low permeable cover soils and underlying silty clay residuum. The low recharge rates, low permeable residuum and low groundwater potential aquifer of limited aerial extent, lowers the risk of groundwater pollution. However, insufficient hydrochemical and geohydrological records results in numerous assumptions in terms of the water quality and quantity. Groundwater sources can be preliminary summarized as neutral, fresh, soft with slightly elevated TDS value. Therefore, in our opinion it can be expected that despite the slightly higher TDS values, pollution has not taken place and the effective catchment can be classified in terms of quality as moderately modified with low levels of localized contamination

5.4.4.3 Groundwater Levels

No existing borehole records could be obtained from the available Department of Water Affairs' National Groundwater Archive (NGA) or GRIP data bases within a 3km radius of the proposed site. However, data from the DWA's GRDM software data set indicates the average water level depth as 12.9m below ground level (mbgl). Groundwater levels in general follow the topography and are generally deeper in higher lying areas and shallower near drainage areas like local streams. Local exceptions may however occur.

5.4.4.4 Current Groundwater Use

Despite the apparent lack of existing borehole data, the lack of formal water supply in the study area necessitates the use of groundwater either as direct or indirect source. Most farm homesteads in the area are expected to use groundwater directly from boreholes or springs while some river abstractions are used for both domestic or irrigation purposes.

Water for the proposed development will not be obtained from the abstraction of ground water from the site. The developer will obtain potable water for the proposed development from a water source provided by the municipality and conveyed to the site by water tankers and stored on site in suitably designed reservoirs.

5.4.4.5 *Aquifer Assessment*

The proposed conceptual model based on available information comprises:

- A shallow (0.45m) layer of dark brown colluvium followed by relatively deep (at least 3m) layer of red-brown becoming light grey silty clay derived from in-situ decomposed or completely weathered Mudstone / Sandstone, which is unsaturated and with a low hydraulic conductivity. A seasonal aquifer perched on the bedrock probably forms in this layer, especially after high rainfall events. Flow would be expected to follow the surface contours closely.
- The next tens of meters will be highly to moderately weathered, fractured Mudstone bedrock with low hydraulic conductivity. The permanent groundwater level resides in this unit and is about 10 – 50mbgl. The water level is influenced by regional topography and for the site it would be in general south-easterly.
- Below a few tens of meters the fracturing of the aquifer is less frequent and the fractures less open due to increased pressure. This results in an aquifer of low hydraulic conductivity and very slow groundwater flow velocities. As in the previous unit the flow is expected to be south-easterly.

Fracturing of the bedrock could consist of both minor dolerite structures (even though none were observed on site) and/or minor pressure-relieve joints. Groundwater, originating from the vertical infiltration of rainwater through the upper layers (s) up to groundwater level, will flow mostly horizontally in the directions as discussed above. Water flow volumes and velocities will, on average, decrease gradually with depth.

5.4.4.6 *Hydrochemical Trends Of Groundwater*

The lack of existing water quality data for groundwater sources limits the hydrochemical model of the area, however we highlight the following based on information supplied by the GRDM software data set.

- TDS value of approximately 416mg/l

These water quality values are proposed as background values and therefore a level for comparing future water quality results in order to determine water quality trends.

5.4.4.7 *Hydro census*

The data base search for existing groundwater sources yielded no existing boreholes in a 3km radius of the proposed site. A brief hydrocensus was then conducted within a one kilometre (1km) radius of the proposed site by means of a drive-over survey. A total of six existing boreholes were identified on site where only two are working and used domestic purposes. These boreholes, some equipped and in working condition, others vandalized, unequipped and not working are summarized in Table 2 of the hydrogeological specialist report in Appendix **G2**

5.4.4.8 *Flood Line Determination*

As part of Department of Water Affairs (DWA) requirements, a 1 in 100 year flood line determination should be carried out on any rivers and streams in the vicinity of the site. No substantial rivers are found on or near the proposed site and a flood line determination was carried out by Messrs. S.E. Lauterbach & Associates which

confirmed that the 1:100 year flood line is not applicable for site Portion 9 of Smalkloof No. 122-HS as the closest stream is located 400m eastwards of the site, with an altitude difference of approximately 5 metres.

5.5 Climate and Local Weather Conditions

The study area is situated in a semi-arid zone within the Central Highveld, a region that is characterized by cool, dry winters (May to August) and warm, wet summers (October to March), with April and September being transition months.

Wind roses comprise of 16 spokes which represent the directions from which winds blew during January 2006 – December 2010 period. The colours reflect the different categories of wind speeds. The dotted circles provide information regarding the frequency of occurrence of wind speed and direction categories.

Based on an evaluation of the meteorological data provided, winds for both stations (SASOL club and Langverwacht) generally predominate from the north-easterly and north-westerly sectors (Figure 12). However, winds at the Club station have a higher frequency of occurrence from the north-westerly sector than observed at the Langverwacht station. In general, moderate to fast winds are recorded at both stations, although faster winds are noted to occur at the Langverwacht station. Calm wind speeds, which are designated as wind speeds less than 0.5 m/s, occur infrequently at both stations.

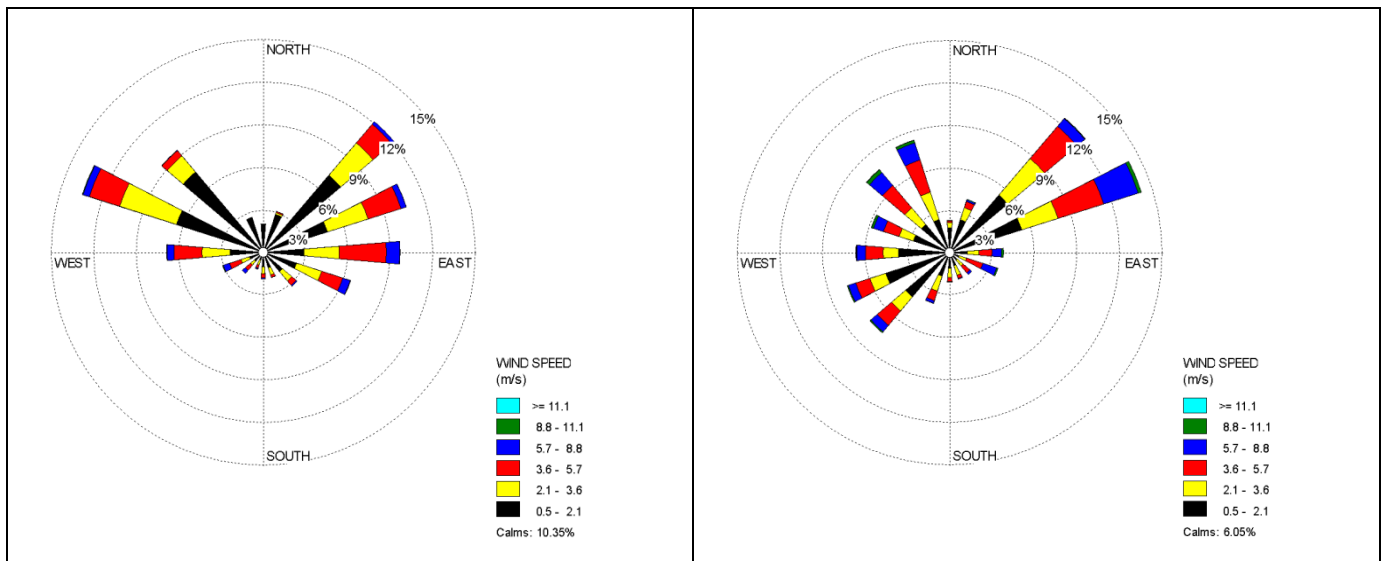


FIGURE 12: PERIOD WIND ROSE FOR THE SASOL CLUB (LEFT) AND LANGVERWACHT (RIGHT) MONITORING STATIONS FOR THE PERIOD JAN 2006 – DEC 2010

5.5.1 Atmospheric Stability

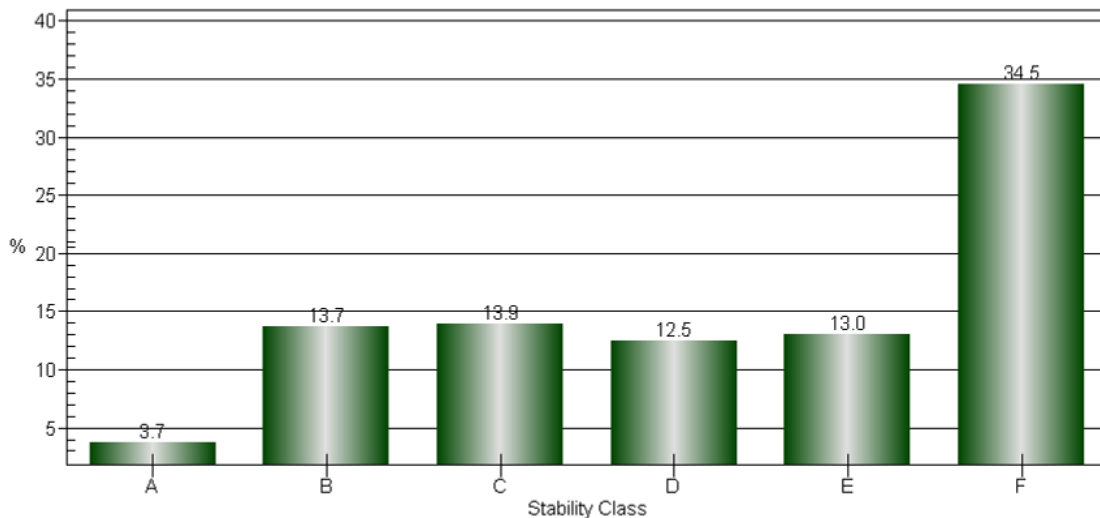
Atmospheric stability is commonly categorised into six stability classes (Table 11). The atmospheric boundary layer is usually unstable during the day due to turbulence caused by the sun's heating effect on the earth's surface. The depth of this mixing layer depends mainly on the amount of solar radiation, increasing in size gradually from sunrise to reach a maximum at about 5 - 6 hours after sunrise. The degree of thermal turbulence is

increased on clear warm days with light winds. During the night-time a stable layer, with limited vertical mixing, exists. During windy and/or cloudy conditions, the atmosphere is normally neutral.

TABLE 11: ATMOSPHERIC STABILITY CLASSES

A	Very unstable	Calm wind, clear skies, hot daytime conditions
B	Moderately unstable	Clear skies, daytime conditions
C	Unstable	Moderate wind, slightly overcast daytime conditions
D	Neutral	High winds or cloudy days and nights
E	Stable	Moderate wind, slightly overcast night-time conditions
F	Very stable	Low winds, clear skies, cold night-time conditions

In general, the monitoring station sites experience very stable (Class F) atmospheric conditions (Figure 13: stability class frequency distribution for sasol club (top) and langerwacht (bottom) monitoring stations). This is expected given the predominance of a high-pressure anticyclone over South Africa which produces stable, clear conditions.



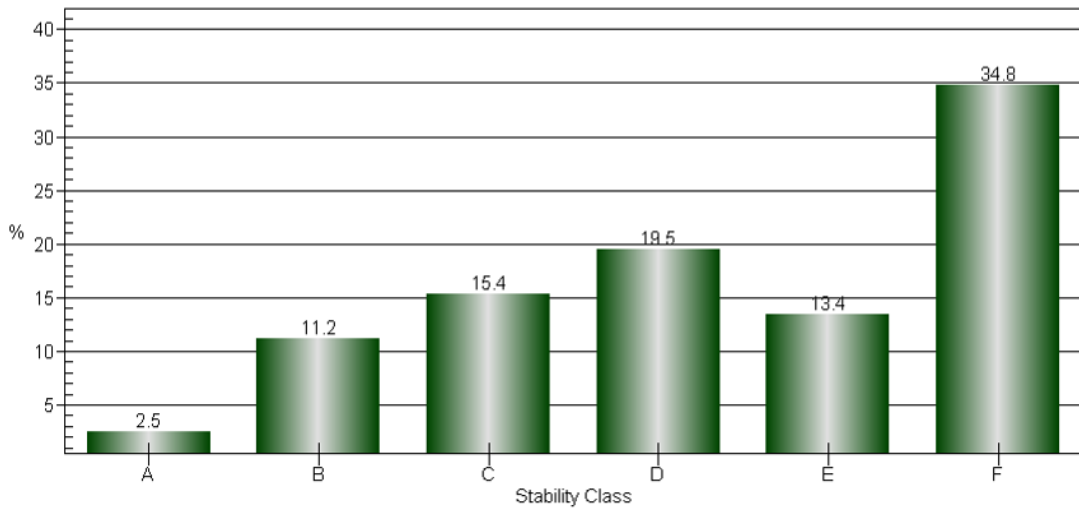


FIGURE 13: STABILITY CLASS FREQUENCY DISTRIBUTION FOR SASOL CLUB (TOP) AND LANGERWACHT (BOTTOM) MONITORING STATIONS

5.5.2 Temperature and Humidity

Temperature affects the formation, action, and interactions of pollutants in various ways². Chemical reaction rates tend to increase with temperature and the warmer the air, the more water it can hold and hence the higher the humidity. When relative humidity exceeds 70%, light scattering by suspended particles begins to increase, as a function of increased water uptake by the particles³. This results in decreased visibility due to the resultant haze. Many pollutants may also dissolve in water to form acids. Temperature also provides an indication of the rate of development and dissipation of the mixing layer.

Average monthly temperature and humidity at both stations for the period Jan 2006 – Dec 2010 is given in Figure 14. Daily average summer temperatures range between ~18°C and ~19 °C while winter temperatures range between ~7 °C and ~11 °C. Relative humidity is lowest during autumn and winter and highest in summer and spring.

² Kupchella, C.E. and M.C. Hyland, 1993. Environmental Science. Living Within the System of Nature. Prentice Hall, New Jersey.

³ CEPA/FPAC Working Group, 1999. National Ambient Air Quality Objectives for Particulate Matter. Part 1: Science Assessment Document. Minister, Public Works and Government Services, Ontario. Available at URL: <http://www.hc-sc.gc.ca/bch>.



FIGURE 14: AVERAGE MONTHLY TEMPERATURE AND HUMIDITY FOR SASOL CLUB (TOP) AND LANGVERWACHT (BOTTOM) FOR THE PERIOD JAN 2006 – DEC 2010

5.5.3 Precipitation

The area under investigation lies in the summer rainfall region of South Africa, receiving a total annual rainfall of 418 mm for the Club site during 2006 and 603.6 mm for the Langverwacht site during the same period.

5.6 Air Quality

On 23 November 2007 the Highveld was declared a priority area, referred to as the Highveld Priority Area, in terms of section 18(1) of the National Environmental Management: Air Quality Act, 2004 (Act No 39 of 2004). This implies that the ambient air quality within the Highveld Priority Area exceeds or may exceed ambient air quality standards, alternatively, that a situation exists within the Highveld Priority Area, which is causing or may cause a significant negative impact on air quality in the area, and that the area requires specific air quality management action to rectify the situation.

The area declared as such, includes inter alia the local municipalities of Govan Mbeki, Dipaleseng, Lekwa, Msukaligwa, and Pixley ka Seme. Hence, five of the seven local municipalities constituting the District form part of the Highveld Priority Area. This project aims to identify the potential air quality impacts associated with the operation of a truck stop within the Highveld priority area, to determine if the emissions generated from the vehicles is likely to cause significant air quality concerns in the area, as well as the development of a monitoring programme for the site to ensure compliance and identify where additional mitigation may be required.

5.7 Noise

The R23 is characterised by high volume vehicle movements between Standerton and Volksrust in the form of public transport (minibuses, busses), commercial freight vehicles (trucks) as well as passenger vehicles. The site is highly accessible by light and heavy vehicles. There are 1,828 light vehicles and 667 heavy vehicles passing the proposed site in a 24 hour period. Due to the current existing noise level in the area, it is highly unlikely that there will be a substantial increase in noise due to the proposed truck stop. In mitigation a new line of trees will be planted between the site of the proposed development and the guest house and together with the installation of sound reducing devices and landscaping, would help to reduce noise levels, all of which will be installed as part of the development as agreed between the proponent and the owner of Smalkloof guest house and all other relevant stakeholders.

5.8 Socio-Economic Aspects

Information on this section is taken from the feasibility study conducted for the proposed development (Attached in **Appendix C**). The socio-economic aspects list the characteristics and preferences of the identified market areas. These characteristics and preferences are analysed to identify the potential property buyers and consumers. The purpose of the socio-economic aspects is to provide an overview of the main characteristics of the market population that need to be intercepted with the proposed development. These characteristics will indicate to a certain extent the capacity of the market population to sustain consumer related developments.

Population Profile

Population size and growth are important indicators in any land development research study. The population growth and size indicate the demand for a new development and determine the possibility of a sustainable development. The current population figures for the purpose of this study are derived from projected growth estimates.

Table 12 provides the population and household estimates for 2012 along with their individual five year average growth rates based on population growth projections from the Statistics South Africa Population Census, 2011.

TABLE 12: POPULATION AND HOUSEHOLD PROFILE, 2012

	Population 2011	Population Growth Rate	Population 2012	Households 2012	Average Household Size
Pixley Ka Seme	83,235	1.8%	84,733	19,897	4.26

Source: Urban-Econ Calculations based on Census 2011 data from Statistics South Africa, 2012

The total local market population under analysis consist of approximately 84,733 people accommodated in approximately 19,897 households, which relates to an average household size of 4.2 persons per household. The average population and household growth rates of 1.8% exhibited by the local market are greatly above the national averages of 1.2%. However, the average household size of 4.2 persons per household is slightly above the national average of 3.8 persons per household.

Age Profile

The age profile of an area illustrates the total population in terms of age groups. This indicates how many residents within the market area qualify to be economically active and the extent of the dependency burden on the working population.

Table 13 explains these concepts.

TABLE 13: AGE PROFILE CLASSIFICATION

Age	Category	Socio-economic contribution	Dependence
Younger than 14 years	Junior population	Non-working population which do not generate any form of income	Dependent on adult to provide to their needs
Between 15 to 64 years	Potentially Economically Active (PEA) population	The working population and main generators of income.	Independent/Usually provides for the other groups
65 years and older	Senior population	Retired population which are no longer productive within the working environment	Dependent on government or relatives to provide to their needs

Figure 15 presents the age profile of the areas under analysis.

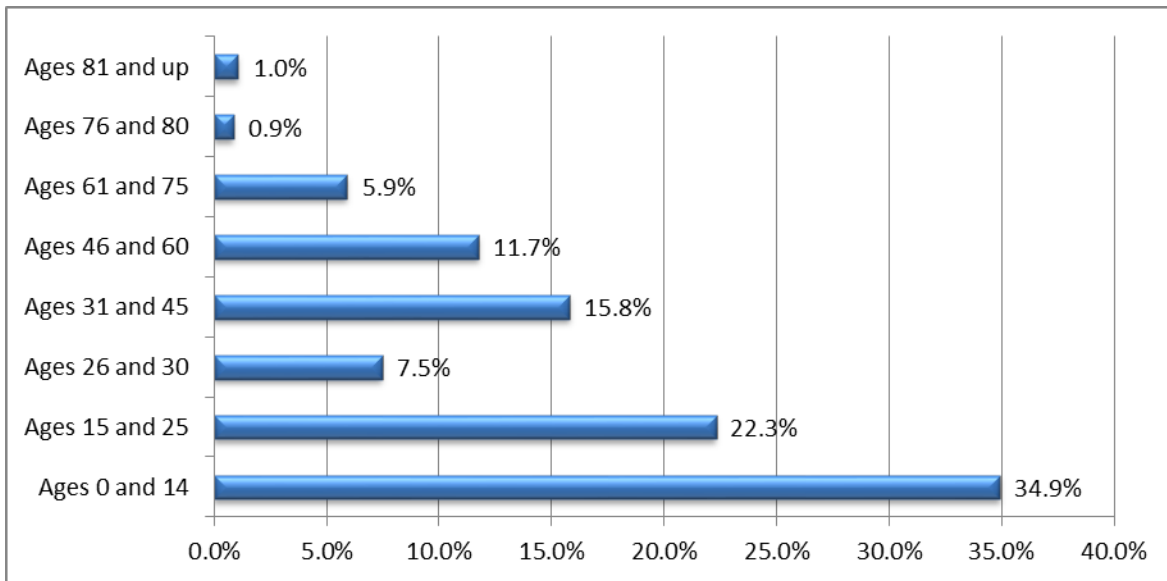


FIGURE 15: AGE PROFILE, 2011

Source: Urban-Econ Calculations based on Census 2011 data from Statistics South Africa, 2012

The local market area is characterised by large youth population with almost 35% of the population aged between 0 and 14 years and approximately 22% are aged between 15 and 25 years.

Education Profile

The education profile indicates the level of community education and development, which provides further insight in terms of the quality and size of the potential labour pool. The level of skill is often directly proportional to the income and remuneration received by workers.

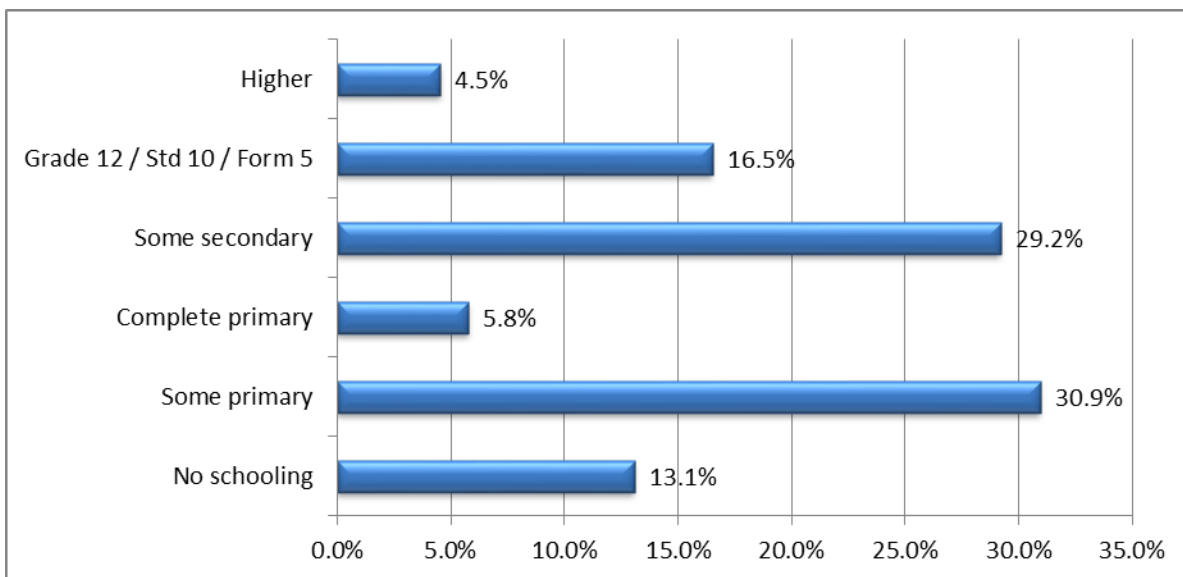


FIGURE 16: LEVEL OF EDUCATION, 2011.

Source: Urban-Econ Calculations based on Census 2011 data from Statistics South Africa, 2012

Though the level of education has improved slightly over the last decade, it is still an area characterised by low levels of education due to the rural nature of the market area and the lack of quality education centres.

Employment Profile

The employment and occupation profile of an area is a great indicator of human development within the mentioned area. It forms a basis for disposable income and the expenditure capacity and possible vehicle ownership of the population.

This section distinguishes between three major groups of employment:

- Employed individuals:
 - Working population
- Unemployed individuals:
 - Persons who has not worked within the last seven days
 - Persons who wants to work and is available to start within two weeks
 - Persons who took active steps to look for work or business in the preceding four weeks
- The Not Economically Active (NEA) portion of the population:
 - Portion of the workforce who decide not to work
 - Including students, housewives and any other non-working person of working age
 - Greatly dependent on others for their wellbeing

The employment profile is illustrated in Figure 17:

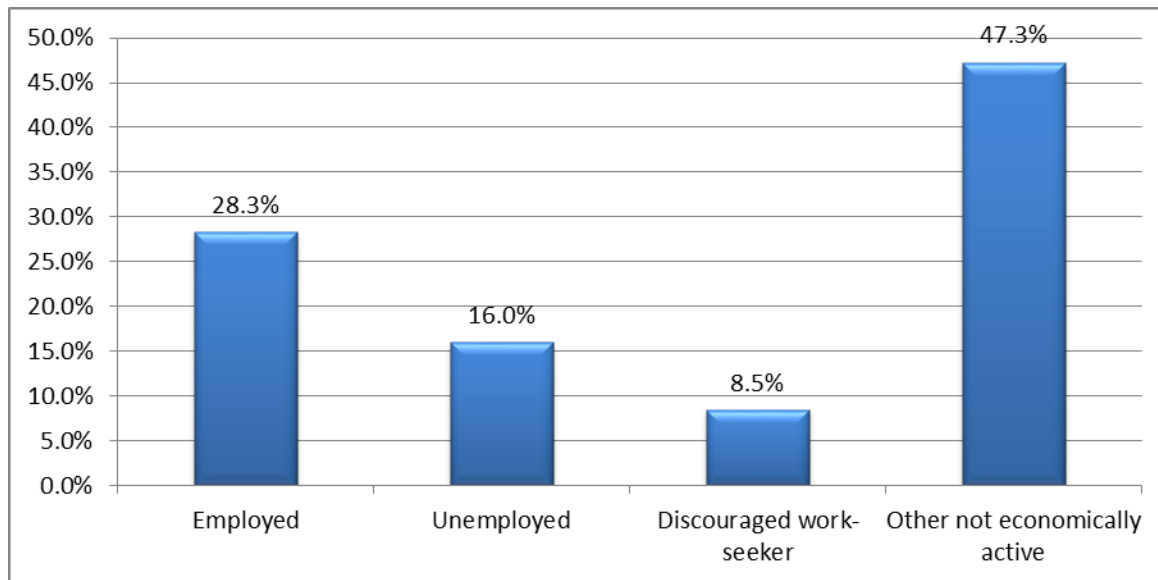


FIGURE 17: EMPLOYMENT PROFILE, 2011

Source: Urban-Econ Calculations based on Census 2011 data from Statistics South Africa, 2012

Though the unemployed population is only 16% it is important to note that 8.5% are discouraged work seekers and 47.3% of the population is not active.

It is important to examine the sector employment of the working population. Figure 3.4 illustrates the sector employment of the working population.

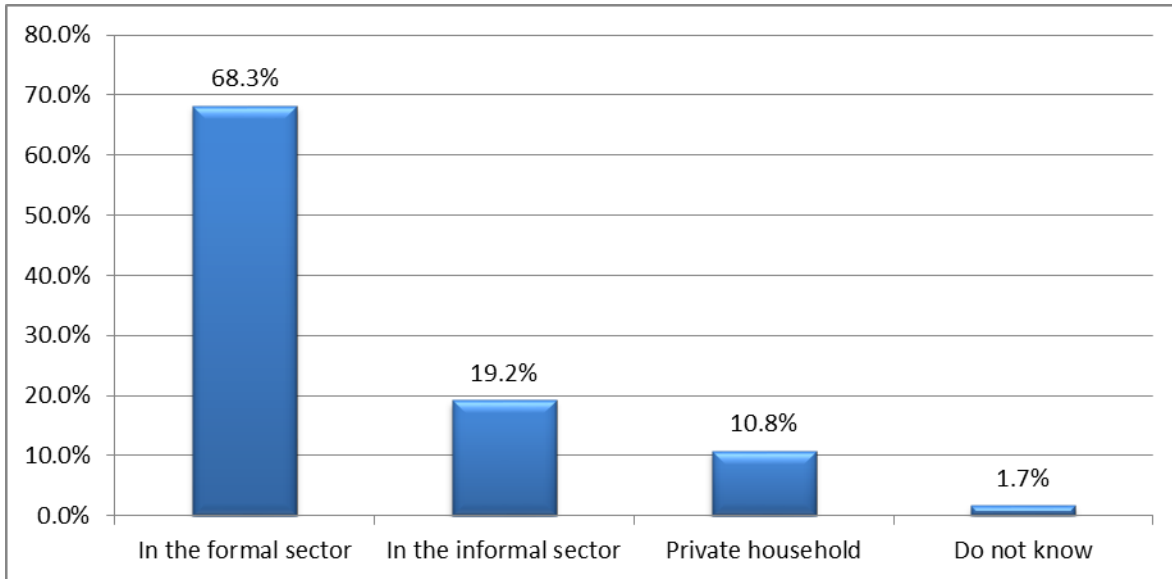


FIGURE 18: SECTOR EMPLOYMENT OF THE WORKING POPULATION, 2011

Source: Urban-Econ Calculations based on Census 2011 data from Statistics South Africa, 2012

The majority (68.3%) of the workforce is employed in the formal sector while 19.2% are employed in the informal sector.

Household Income

Following the analysis of key factors influencing household income, the household income profile is provided. The level of disposable income is often a reflection of the capacity of the consumer market income which could be related to expenditure on consumables such as fuel etc.

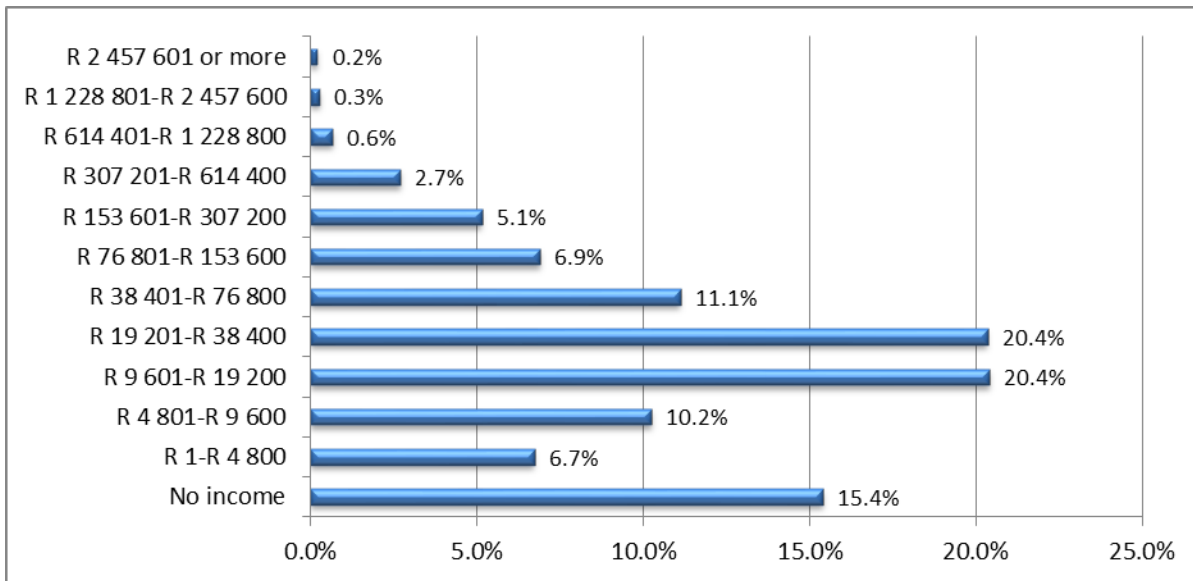


FIGURE 19: AVERAGE ANNUAL HOUSEHOLD INCOME, 2011

Source: Urban-Econ Calculations based on Census 2011 data from Statistics South Africa, 2012

The higher the disposable income; the greater the opportunity for expenditure on retail products, consumables and services which in turn presents stronger local support for the proposed development. To summarise; the income profile indicates the affordability within the market area.

The income groups identified are as follows:

- **Low Annual Household Income:** R0 – R38 400 - (73.1%)
- **Middle Annual Household Income:** R38 401 – R614 400 - (25.8%)
- **High Annual Household Income:** R614 400+ - (1.1%)

The majority of households fall within the low income bracket with 73.1% of households in this category. This middle income bracket contributes 25.8% of total households while only 1.1% of households fall within the high income bracket.

Mode of Transport

The transport profile is analysed to better understand the character of transportation in the local area. Figure 3.6 illustrates the main mode of transport for people within the market area.

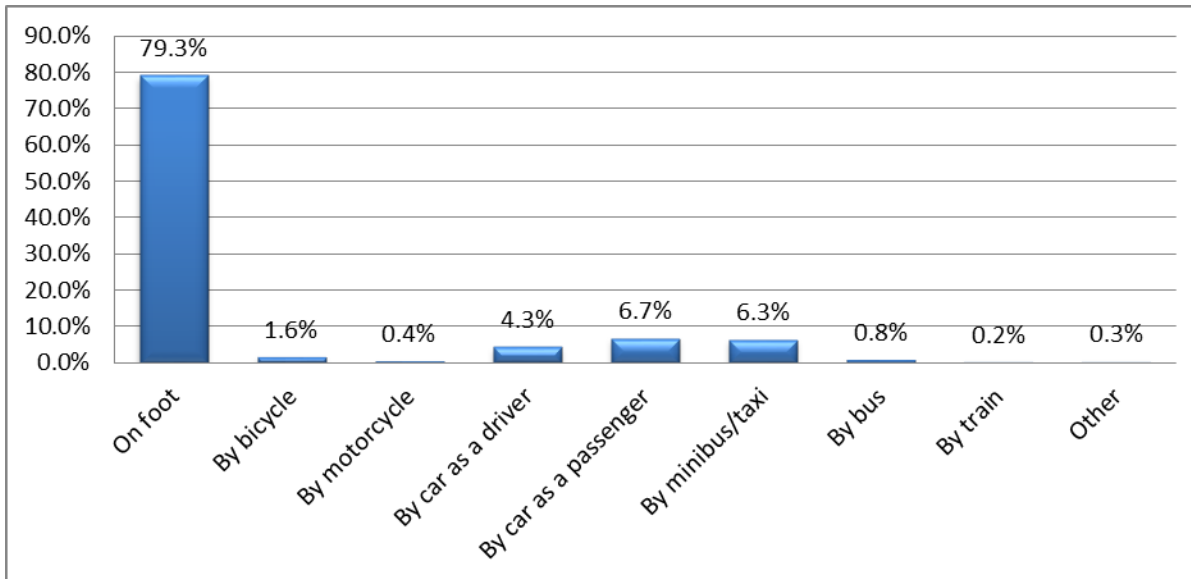


FIGURE 20: MAIN MODE OF TRANSPORT, 2001

Source: Urban-Econ Calculations based on Census 2001 data from Statistics South Africa, 2012

The figure illustrates that almost 80% of the population travel on foot as their main mode of transport while 4.3% travel by car as the driver. The data is based on Census 2001 data as the mode of transport data from Census 2011 has not yet been released by Statistics South Africa.

5.9 Land-use

The area originally was Highveld grassland. The proposed development area was later used as maize fields even though it is currently used for grazing and a portion close to the road is planted with eucalyptus trees used for firewood. The neighbourhood of the immediate surrounding is predominantly agricultural to the north with some mixed use or small holding activities to the south and south west of the subject site. A guest house is located to the north east of the development site.

In terms of the relevant Deed of Transfer for the subject site, the property may be used for a 'Service Station' and a 'Motel', which use was permitted in 1921 when the site was created and subdivided from the original farm portion.

5.10 Heritage

According to the National Heritage Resources Act No 25 of 1999, provisions are made to protect national heritage and this forms an integral part of the environmental assessment process. According to the heritage study carried

out on this property, the only structure that was identified on the site is the ruin of a structure which possibly was used as a pig sty (varkhok). This structure most probably dates to the 1970/80`s and has no heritage value – see photograph.



5.11 Visual

Visual Impact Assessment (VIA) is an integral part of managing the environments visual heritage ensuring the integrity of a unique visual environment is preserved. The process involves the evaluation of the sustainability of a proposed landscape modification as a component of an EIA Process.

The subject site is situated in the north western outskirts of Volksrust and located on a secondary watershed within a general westerly sloping relief, with a south-north lying hill forming the eastern horizon. The eastern and northern primary watershed, lying east-west, forms a natural barrier. The surrounding area is sparsely populated with homesteads within the immediate surroundings.

The location of the subject site is higher than the central business district of the town, however approximately on the same level as the northern residential suburbs of the town, approximately 1,9 km direct line of sight between outer edges of the property boundaries to the southeast of the subject site. Due to the tertiary northeast-southwest watershed to the southeast of the subject site, the subject sight is not visible from the residential area as one exits the town on the R23 and only becomes visible approximately 400 meters from the southern boundary of the site. The homestead, beyond the southern watershed, ± 850 m from the southern boundary of the subject site, is not visible from the site.

Approaching the subject site on the R23 from the northwest, the subject site is obstructed from view by a primary northeast-southwest lying watershed, some 800 meters from the site. From the east, northeast and north, the subject site is obscured from view by a hill 1,4 km from the boundary of the subject site, except for the Smalkloof Guest Farm directly 600 meters northeast of the subject site on the slopes of the hill. Two other homesteads to

the north of the subject site are respectively 600 and 1400 meters from the boundary of the subject site, however, due to the watershed partially obscured from direct vision.

To west of the subject site, four homesteads are immediately situated across the R23 road from the subject site and are visually affected by the proposed development, of which the northern homestead is 600 m north with marginal visibility, which visibility is obscured by a stand of gum trees, a homestead directly across the ingress/egress to the subject site and two more homesteads south of the subject site, respectively one opposite the southern edge of the boundary of the subject site on the R23 and one 240 m directly south.

The subject site is longish semi-rectangular shape property situated on an outer side of a bend in the road alignment of the R23. The effect of the location of the subject site is that the lights from vehicular traffic passing the site are directed over the site as they pass, which tendency is an existing occurrence by road users.

In order to reduce the visual impact of the development of the site, lanes of approximately 2000 indigenous trees will be planted and maintained along the boundary of the property, which, once established, will keep the visual of the development mostly between the boundaries of the subject site. In the roofing of the buildings, non-reflective material will be used and colours will blend into the natural environment as close as possible. Flood light for security will be directed on site only and precaution will be ensconced for light not to be directed at passing traffic, homestead and surroundings. Walkways, pathways and driveways will be laminated with low intensity emitting devices not more than 1m above ground level.

The structures associated with the truck stop, in particular the canopy and buildings, may cause a visual intrusion into the surrounding area. Lighting associated with the truck station is a very important factor, as the light spill caused by a truck stop may have an important impact on the night time scene of the area, and the lighting may cause an important visual intrusion. However the presence of trees on the site and on the boundary of the residential areas to the south and the guest house on the north will assist in effectively screening the light emitted from the proposed truck stop.

6 IMPACTS ASSESSMENT METHODOLOGY

The potential environmental impacts associated with the project will be evaluated according to its nature, extent, duration, intensity, probability and significance of the impacts, whereby:

- **Nature:** A brief written statement of the environmental aspect being impacted upon by a particular action or activity;
- **Extent:** The area over which the impact will be expressed;
- **Duration:** Indicates what the lifetime of the impact will be;
- **Intensity:** Describes whether an impact is destructive or benign;
- **Probability:** Describes the likelihood of an impact actually occurring; and
- **Cumulative:** In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

TABLE 14: CRITERIA USED FOR THE RATING OF IMPACTS

CRITERIA	DESCRIPTION			
EXTENT	National (4) The whole of South Africa	Regional (3) Provincial and parts of neighbouring provinces	Local (2) Within a radius of 2 km of the construction site	Site (1) Within the construction site
	Permanent (4) Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient	Long-term (3) The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory	Medium-term (2) The impact will last for the period of the construction phase, where after it will be entirely negated	Short-term (1) The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase
INTENSITY	Very High (4) Natural, cultural and social functions and processes are altered to extent that they permanently cease	High (3) Natural, cultural and social functions and processes are altered to extent that they temporarily cease	Moderate (2) Affected environment is altered, but natural, cultural and social functions and processes continue	Low (1) Impact affects the environment in such a way that natural, cultural and social functions and

			albeit in a modified way	processes are not affected
PROBABILITY OF OCCURANCE	Definite (4) Impact will certainly occur	Highly Probable (3) Most likely that the impact will occur	Possible (2) The impact may occur	Improbable (1) Likelihood of the impact materialising is very low

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

TABLE 15: SIGNIFICANT RATING OF CLASSIFIED IMPACTS

Low impact (4 - 6 points)	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
Medium impact (7 - 9 points)	Mitigation is possible with additional design and construction inputs.
High impact (10 - 12 points)	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.
Very High impact (13 - 16 points)	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a “very high impact” is likely to be a fatal flaw.
Status	Denotes the perceived effect of the impact on the affected area.
Positive (+)	Beneficial impact.
Negative (-)	Deleterious or adverse impact.
Neutral (/)	Impact is neither beneficial nor adverse.

The suitability and feasibility of all proposed mitigation measures will be included in the assessment of significant impacts. This will be achieved through the comparison of the significance of the impact before and after the proposed mitigation measure is implemented. Mitigation measures identified as necessary will be included in an EMP. The EMP will form part of the Basic Assessment Report (BAR).

7 IMPACTS ASSESSMENT AND MANAGEMENT MEASURES

This section aims to identify the potential positive and negative impacts (both biophysical and social) associated with the proposed truck stop. The following potential environmental impacts have been considered for the proposed project for the phases of the project (refer to Table 16).

TABLE 16 : DIFFERENT PHASES OF THE PROJECT LIFE-CYCLE

Category	Phase	Description
Category A	Design and planning	This section of the EMPr provides management principles for the design and planning phase of the project. Environmental actions, procedures and responsibilities as required within this phase are specified and will be the responsibility of TOWB Trading.
Category B	Construction	This section of the EMPr provides management principles for the construction phase of the project. Environmental actions, procedures and responsibilities as required within the construction phase are specified. These specifications will form part of the contract documentation and, therefore, the Contractor (or Contractors, including sub-contractors) will be required to comply with the specifications to the satisfaction of the Project Manager in terms of the construction contract.
Category C	Operations and Maintenance	This section of the EMPr provides management principles for the operation phase of the project. Environmental actions, procedures and responsibilities as required from TOWB Trading within the operation and maintenance phase are specified.
Category D	Decommissioning	This section includes principles for the decommissioning phase of the project. This section of the EMPr will be required to be revisited and updated at the time of decommissioning.

7.1 Category A: Design and Planning Phase

TABLE 17: POTENTIAL PLANNING AND DESIGN PHASE IMPACTS RELATING TO THE CONSTRUCTION OF A TRUCK STOP FOR BOTH-OPTIONS

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<p>Access Roads</p> <p>New access roads and haulage routes could impact on areas of sensitivity (fauna and flora, etc.).</p>	<p>Extent: Site (-1)</p> <p>Duration: Long-term (-3)</p> <p>Intensity: Moderate (-2)</p> <p>Probability: Possible (-2)</p> <p>Significance: Medium (-8)</p>	<ul style="list-style-type: none"> • Temporary access and haulage routes must be designed prior to construction commencing to ensure that the most preferable access and haulage routes has been identified. • Road safety must be taken into account when planning access to the site off the R23. • Use should be made of existing roads as far as possible. 	<p>Extent: Site (-1)</p> <p>Duration: Medium-term (-2)</p> <p>Intensity: Low (-1)</p> <p>Probability: Improbable (-1)</p> <p>Significance: Low (-5)</p>

7.2 Category B: Construction Phase

TABLE 18: POTENTIAL CONSTRUCTION PHASE IMPACTS RELATING TO THE CONSTRUCTION OF A TRUCK STOP INCLUDING FILLING STATION AND ENTRANCE – OPTION 1

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<p>Geology: Destabilization of surface geology as a result of development of foundations,</p>	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: High (-2) Probability: Definite (-4)</p> <p>Significance: High (-10)</p>	<ul style="list-style-type: none"> • A geotechnical study recommendations have to be implemented • Storm water drains should be constructed • All site disturbances must be limited to the areas where structures will be constructed. • Consider using any excess rocks and boulders that are excavated from the construction site for any erosion protection work which is required on site. • Excess material as a result of excavation activities together with construction rubble must be removed, once construction is completed and appropriately disposed of. • Suitable excavated material is to be stockpiled next to excavations for use as backfill and all unsuitable or excess material must be loaded onto trucks and hauled to designated areas. • Backfill material must be from excavated material. • Areas to be backfilled must be cleared of all unsuitable material and debris. • No building rubble may be used in backfill. 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability: Definite (-4)</p> <p>Significance: Medium (-8)</p>

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<p>Topography and Soils:</p> <ul style="list-style-type: none"> Alteration of topography due to stockpiling of soil, building material, debris and waste material on site. Potential erosion, degradation and loss of topsoil due to construction activities as well as surface and stormwater runoff. 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability: Highly Probable (-3) Significance: Medium (-8)</p>	<ul style="list-style-type: none"> Topsoil should only be exposed for minimal periods of time and adequately stockpiled to prevent the topsoil loss and runoff. All stockpiles must be restricted to designated areas. Land disturbance must be minimised in order to prevent erosion and run-off – this includes leaving exposed soils open for a prolonged period of time. Areas susceptible to erosion must be protected by installing the necessary temporary and/or permanent drainage works as possible to prevent surface water from being concentrated in streams. Any tunnels or erosion channels developed during the construction period shall be backfilled and compacted, and the area restored to a proper condition. Implement the appropriate topsoil and stormwater runoff control management measures to prevent the loss of topsoil. Soil excavated on the site is to be appropriately stored for later use in back-filling. Sub-soil and topsoil (the top +/- 30-50 cm of the soil) should be stored separately. Soil stockpiles are to be protected from possible erosion, e.g. through covering of 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability: Possible (-2) Significance: Low (-6)</p>

POTENTIAL IMPACTS	SIGNIFICANCE OF IMPACTS	RATING	OF PROPOSED MITIGATION	SIGNIFICANCE OF IMPACTS AFTER MITIGATION:
			<p>the stockpiles with tarpaulin, and limiting the height and angle of the stockpile. Soil stockpiles should not exceed 2 m in height.</p> <ul style="list-style-type: none"> • Soil stockpiling areas must be sufficiently situated away from the drainage areas. • Any erosion channels developed during the construction period or during the vegetation establishment period should be backfilled and compacted, and the areas restored to a proper condition. • The Contractor should ensure that cleared areas are effectively stabilised to prevent and control erosion. 	
<p>Geohydrology (groundwater) and Hydrology (surface water):</p> <ul style="list-style-type: none"> • Contamination of surface and groundwater due to spillage, leakage, incorrect storage and handling of chemicals; oils; lubricants, cement, fuels and other hazardous materials. 	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: High (-3) Probability: Highly Probable (-3)</p>	<p>Significance: Medium (-10)</p>	<ul style="list-style-type: none"> • The base of the fuel tank excavations should be flat and free from rocks and other foreign objects and covered by 150mm thick backfill of acceptable quality, compacted to specification with the correct backfill material and prepared using accepted construction practices to ensure stability of underground tanks. • Adequate stormwater drainage should be constructed and no water should be allowed to pond. • All hazardous substances must be stored on an impervious surface in a designated bunded area, able to contain 110% of the total volume of materials stored at any 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability: Possible (-2)</p> <p>Significance: Low (-6)</p>

POTENTIAL IMPACTS	SIGNIFICANCE OF IMPACTS	RATING	OF	PROPOSED MITIGATION	SIGNIFICANCE OF IMPACTS AFTER MITIGATION:	RATING	OF
				<p>given time.</p> <ul style="list-style-type: none"> • The integrity of the impervious surface and bunded area must be inspected regularly and any maintenance work conducted must be recorded in a maintenance report. • Shallow groundwater needs to be tested and diverted to an appropriate destination to avoid contamination. • Provide proper warning signage to make people aware of the activities within designated areas. • Employees should be provided with absorbent spill kits and disposal containers to handle spillages. • Train employees and contractors on the correct handling of spillages and precautionary measures that need to be implemented to minimise potential spillages. • All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. No repairs may be undertaken beyond the contractor lay-down area. • Employees should record and report any spillages to the responsible person. • An Emergency Preparedness and Response Plan will be developed and 			

POTENTIAL IMPACTS	SIGNIFICANCE OF IMPACTS	RATING	OF PROPOSED MITIGATION	SIGNIFICANCE OF IMPACTS AFTER MITIGATION:
			<p>implemented should an incident occur.</p> <ul style="list-style-type: none"> • Access to storage areas on site must be restricted to authorised employees only. • Ensure the establishment of stormwater diversion berms around the contractor laydown area and other potential contaminated areas (e.g. diesel storage tanks or refuelling station). • All contaminated standing water should be immediately removed and treated or disposed of appropriately. • All incidents must be reported to the responsible site officer as soon as it occurs. • Care must be taken to ensure that no water from the construction site enters the natural watercourse. • Preventative measures include establishing sumps from where contaminated water can be either treated in situ or removed to an appropriate waste site. • Wastewater should be directed into proper stormwater drains. • Sewage water should not be channelled through stormwater drains or be allowed to flow freely or stagnate on the soil surface. • Stormwater management structures (channels, bunded areas, sumps) should be designed into the project to trap any 	

POTENTIAL IMPACTS	SIGNIFICANCE OF IMPACTS	RATING	OF PROPOSED MITIGATION	SIGNIFICANCE OF IMPACTS AFTER MITIGATION:
			<p>potentially contaminated stormwater and return it to the relevant process or allow it to be stored and properly disposed off.</p> <ul style="list-style-type: none"> Excess or spilled concrete should be confined within the works area and then removed to a waste site. 	
<p>Biodiversity (fauna and flora) Habitat destruction and alteration will take place within the footprint of the construction site and the development</p> <p>There is also a possibility that existing fauna on the site could be harmed through construction activities.</p>	<p>Extent: Site (-1) Duration: Short- long term (-3) Intensity: Low (-1) Probability: Possible (-2)</p>	<p>Significance: Medium (-7)</p>	<ul style="list-style-type: none"> Workers must be limited to areas under construction within the site and access to the undeveloped areas must be strictly regulated (“no-go” areas during construction as well as operational activities). Mobile toilets must be provided in order to minimize un-authorized traffic of construction workers outside of the designated areas. All temporary stockpile areas including litter and dumped material and rubble must be removed on completion of construction. All alien invasive plants should be removed from the site to prevent further invasion. Firearms or any other hunting weapons must be prohibited on site. Contract employees must be educated about the value of wild animals and the importance of their conservation. Severe contractual fines must be imposed and immediate dismissal on any contract employee who is found attempting to snare 	<p>Extent: Site (-1) Duration: Short- long term (-2) Intensity: Low (-1) Probability: Improbable (-1)</p> <p>Significance: Medium (-5)</p>

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<p>or otherwise harm remaining faunal species.</p> <ul style="list-style-type: none"> The Contractor must ensure that no faunal species are disturbed, trapped, hunted or killed during the construction phase. All animals captured must be released in appropriate habitat away from the development. Building of temporary access roads should be kept to a minimum to prevent unnecessary impact on the surrounding vegetation. Close site supervision must be maintained during construction. 	
<p>Air Quality: The following activities have been identified as possible sources of fugitive dust during construction operations at the site:</p> <ul style="list-style-type: none"> Dust from access roads. Dust from bare area cleared for construction. Debris handling. Emissions from construction machinery and equipment. Trucks transporting spoil 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: High (-3) Probability: Highly Probable (-3) Significance: Medium (-9)</p>	<ul style="list-style-type: none"> There should be strict speed limits on site roads to prevent the liberation of dust into the atmosphere. Dust must be suppressed on the construction site, temporary dirt roads and during the transportation of material during dry periods by the regular application of water. Water used for this purpose must be used in quantities that will not result in the generation of run-off. All site workers during construction will need to wear the appropriate PPE to avoid any exposure to contaminated dust particles. 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability: Possible (-2) Significance: Low (-6)</p>

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
and fill material.			
<p>Noise: During the construction phase there is likely to be an increase in noise pollution. The following possible sources of noise could potentially generate noise pollution during construction:</p> <ul style="list-style-type: none"> • Construction activities (excavating and site clearing). • Construction vehicles and construction staff. • Operation of cement mixer machine at the site. • Blasting and or drilling. 	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: High (-3) Probability: Highly Probable (-3) Significance: Medium (-10)</p>	<ul style="list-style-type: none"> • Provide all equipment with standard silencers. Maintain silencer units in vehicles and equipment in good working order. • Construction staff working in area where the 8-hour ambient noise levels exceed 85dBA must have the appropriate Personal Protective Equipment (PPE). • Work should be carried out between 7am and 5pm and no work should be carried out during weekends. 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability: Possible (-2) Significance: Low (-6)</p>
<p>Waste: Waste generation during the construction phase will have a negative impact on the environment, if not controlled adequately. Waste on site</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability: Highly Probable (-3) Significance: Medium (-9)</p>	<ul style="list-style-type: none"> • General waste disposal bins will be made available for employees to use throughout the construction phase. • Where possible construction waste on site should be recycled or reused. • Waste will be temporarily stored on site 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability: Possible (-2) Significance: Low (-6)</p>

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	RATING OF	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<p>includes domestic waste, spent grinding material, mixed concrete, paint cans and brushes, insulation material, building rubble and other construction waste.</p>			<p>(less than 90 days) before being disposed off appropriately.</p> <ul style="list-style-type: none"> • General waste should be placed in a water tight container and disposed of on a regular basis. • Records of all waste being taken off site must be recorded and kept as evidence. • Evidence of correct disposal must be kept. • Building rubble will be used, where possible, in construction or buried with the necessary town planning approvals. Where this is not possible, the rubble will be disposed of at an appropriate site. • Burning of waste material will not be permitted. • Hazardous materials will be generated if there are spillages during construction and maintenance periods. This waste should be cleaned up using absorbent material provided in spill kits on site, and must be disposed of accordingly at a hazardous waste landfill. • Absorbent materials used to clean up spillages should be disposed of in a separate hazardous waste bin. • The storage area for hazardous material must be concreted, bunded, covered, labelled and well ventilated. 	

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<ul style="list-style-type: none"> Provide employees with appropriate PPE for handling hazardous materials. All hazardous waste will be disposed of in a registered hazardous waste disposal facility. 	
<p>Employment: Opportunities Employment opportunities will be created</p>	<p>Extent: Local (+2) Duration: Short-term (+1) Intensity: Low (+1) Probability: Possible (+2) Significance: Low (+6)</p>	<ul style="list-style-type: none"> All labour (skilled and unskilled) and contractors should be sourced locally where possible. During the construction phase approximately 250 employment opportunities will be created, of which 70% of the position will be of local content.. 	<p>Extent: Local (+2) Duration: Short-term (+1) Intensity: Low (+1) Probability: Possible (+2) Significance: Low (+6)</p>
<p>Traffic: The construction phase is likely to generate additional traffic in terms of construction vehicles and heavy vehicles delivering materials to the site.</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability: Highly Probable (-3) Significance: Medium (-9)</p>	<ul style="list-style-type: none"> Caution will be taken to ensure construction vehicles are not parked close to the road and do not block the way to the neighbouring farm and guesthouse. Clear signs should be displayed along the main road (R23) and entrance to the guest house indicating a construction site and turning construction vehicles. 	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability: Possible (-2) Significance: Medium (-8)</p>

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<p>Visual Intrusion & Light Pollution: will occur due to the following:</p> <ul style="list-style-type: none"> Littering and illegal dumping on the site may result in an alteration of the visual character of the site. The development will result in the removal of vegetation and the construction of buildings which may be visually intrusive. Lights from the contractor's camp and the construction site will be visually intrusive. 	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Highly Probable (-3) Significance: High (-10)</p>	<ul style="list-style-type: none"> The building area is to be physically screened off with a shade cloth fence at least 1.8m in height. The site must be managed appropriately and all rubbish and rubble removed to a recognised waste facility. Excess soil and bedrock should be disposed of at an appropriate facility. A certificate of disposal must be obtained for any waste that is disposed of. Waste must not remain on site for more than 2 weeks. Refuse bins must be provided by the Contractor for rubbish to be placed by staff. Excess concrete must be disposed of correctly and at an appropriate facility. No waste may be placed in any excavations on site. The construction camp must be located as far from other properties as possible. Indigenous plants or trees should be planted next to buildings to break the lines of the buildings making them less visually intrusive. Advertising signs should blend in with the environment. Light pollutions should be minimised. 	<p>Extent: Site (-1) Duration: Long-term (-3) Intensity: Low (-1) Probability: Low (-1) Significance: Medium (-6)</p>

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<ul style="list-style-type: none"> The construction foot print must be minimised. Construction / management activities must be limited to the daylight hours. Lighting on site is to be sufficient for safety and security purposes, but shall not be intrusive to neighbouring residents, disturb wildlife, or interfere with road traffic. Should overtime/night work be authorised, the Contractor shall be responsible to ensure that lighting does not cause undue disturbance to neighbouring residents. In this situation low flux and frequency lighting shall be utilised. 	
<p>Safety: A construction site can be a dangerous place and thus could result in harm to people and property and by their nature act as a magnet to the unemployed, so large numbers of people maygather on or around the site.</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability: Possible (-2) Significance: High (-8)</p>	<ul style="list-style-type: none"> The subject site will be fenced to prohibit unauthorized entry. Ensure the appointment of a Safety Officer to continuously monitor the safety conditions during construction. All construction staff must have the appropriate PPE. The construction staff handling chemicals or hazardous materials must be trained in the use of the substances and the environmental, health and safety consequences of incidents. Report and record any environmental, health and safety incidents to the 	<p>Extent: Site (-1) Duration: Short-term (-1) Intensity: Low (-1) Probability: Low (-1) Significance: Low (-4)</p>

POTENTIAL IMPACTS	SIGNIFICANCE OF IMPACTS	RATING	OF	PROPOSED MITIGATION	SIGNIFICANCE OF IMPACTS AFTER MITIGATION:	RATING	OF
				<p>responsible person.</p> <ul style="list-style-type: none"> • Signs should be erected on all entrance gates indicating that no temporary jobs are available, thereby limiting opportunistic labourers and crime. • The site and crew are to be managed in strict accordance with the Occupational Health and Safety Act (Act No. 85 of 1993) and the National Building Regulations • All structures that are vulnerable to high winds must be secured (including scaffolds and toilets). • All manhole openings are to be covered and clearly demarcated with danger tape. • Potentially hazardous areas such as trenches are to be cordoned off and clearly marked at all times. • The Contractor is to ensure traffic safety at all times, and shall implement road safety precautions for this purpose when works are undertaken on or R23. • All vehicles and equipment used on site must be operated by appropriately trained and / or licensed individuals in compliance with all safety measures as laid out in the Occupational Health and Safety Act (Act No. 85 of 1993) (OHSA). • An environmental awareness training 			

POTENTIAL IMPACTS	SIGNIFICANCE OF IMPACTS	RATING	OF PROPOSED MITIGATION	SIGNIFICANCE OF IMPACTS AFTER MITIGATION:
			<p>programme for all staff members shall be put in place by the Contractor. Before commencing with any work, all staff members shall be appropriately briefed about the EMPr and relevant occupational health and safety issues.</p> <ul style="list-style-type: none"> • All construction workers shall be issued with ID badges and clearly identifiable uniforms. • Access to fuel and other equipment stores is to be strictly controlled. • No unauthorized firearms are permitted on site. • Emergency procedures must be produced and communicated to all the employees on site. This will ensure that accidents are responded to appropriately and the impacts thereof are minimised. This will also ensure that potential liabilities and damage to life and the environment are avoided. • Adequate emergency facilities must be provided for the treatment of any emergency on the site. • The nearest emergency service provider must be identified during all phases of the project as well as its capacity and the magnitude of accidents it will be able to handle. Emergency contact numbers are to be displayed conspicuously at prominent 	

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	RATING OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<ul style="list-style-type: none"> locations around the construction site and the construction crew camps at all times. The Contractor must have a basic spill control kit available at each construction crew camp and around the construction site. 	

TABLE 19: POTENTIAL CONSTRUCTION PHASE IMPACTS RELATING TO THE CONSTRUCTION OF A TRUCK STOP INCLUDING FILLING STATION AND ENTRANCE – OPTION 2 (PREFERRED)

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	RATING OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<p>Geology: Destabilization of surface geology as a result of development of foundations,</p>	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: High (-2) Probability: Definite (-4) Significance: High (-10)</p>	<ul style="list-style-type: none"> A geotechnical study recommendations have to be implemented Storm water drains should be constructed All site disturbances must be limited to the areas where structures will be constructed. Consider using any excess rocks and boulders that are excavated from the construction site for any erosion protection work which is required on site. Excess material as a result of excavation activities together with construction rubble must be removed, once construction is completed and appropriately disposed of. Suitable excavated material is to be stockpiled next to excavations for use as 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability: Definite (-4) Significance: Medium (-8)</p>

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	RATING OF	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
			<p>backfill and all unsuitable or excess material must be loaded onto trucks and hauled to designated areas.</p> <ul style="list-style-type: none"> • Backfill material must be from excavated material. • Areas to be backfilled must be cleared of all unsuitable material and debris. • No building rubble may be used in backfill. 	
<p>Topography and Soils:</p> <ul style="list-style-type: none"> • Alteration of topography due to stockpiling of soil, building material, debris and waste material on site. • Potential erosion, degradation and loss of topsoil due to construction activities as well as surface and stormwater runoff. 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability: Highly Probable (-3) Significance: Medium (-8)</p>		<ul style="list-style-type: none"> • Topsoil should only be exposed for minimal periods of time and adequately stockpiled to prevent the topsoil loss and runoff. • All stockpiles must be restricted to designated areas. • Land disturbance must be minimised in order to prevent erosion and run-off – this includes leaving exposed soils open for a prolonged period of time. • Areas susceptible to erosion must be protected by installing the necessary temporary and/or permanent drainage works as possible to prevent surface water from being concentrated in streams. • Any tunnels or erosion channels developed during the construction period shall be backfilled and compacted, and the area restored to a proper condition. • Implement the appropriate topsoil and stormwater runoff control management 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability: Possible (-2) Significance: Low (-6)</p>

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<p>measures to prevent the loss of topsoil.</p> <ul style="list-style-type: none"> • Soil excavated on the site is to be appropriately stored for later use in back-filling. Sub-soil and topsoil (the top +/- 30-50 cm of the soil) should be stored separately. • Soil stockpiles are to be protected from possible erosion, e.g. through covering of the stockpiles with tarpaulin, and limiting the height and angle of the stockpile. Soil stockpiles should not exceed 2 m in height. • Soil stockpiling areas must be sufficiently situated away from the drainage areas. • Any erosion channels developed during the construction period or during the vegetation establishment period should be backfilled and compacted, and the areas restored to a proper condition. • The Contractor should ensure that cleared areas are effectively stabilised to prevent and control erosion. 	
<p>Geohydrology (groundwater) and Hydrology (surface water):</p> <ul style="list-style-type: none"> • Contamination of surface and groundwater due to 	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: High (-3) Probability: Highly Probable (-3) Significance: Medium (-10)</p>	<ul style="list-style-type: none"> • The base of the fuel tank excavations should be flat and free from rocks and other foreign objects and covered by 150mm thick backfill of acceptable quality, compacted to specification with the correct backfill material and prepared using accepted construction practices to ensure 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability: Possible (-2) Significance: Low (-6)</p>

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	RATING OF	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<p>spillage, leakage, incorrect storage and handling of chemicals; oils; lubricants, cement, fuels and other hazardous materials.</p>			<p>stability of underground tanks.</p> <ul style="list-style-type: none"> • Adequate stormwater drainage should be constructed and no water should be allowed to pond. • All hazardous substances must be stored on an impervious surface in a designated bunded area, able to contain 110% of the total volume of materials stored at any given time. • The integrity of the impervious surface and bunded area must be inspected regularly and any maintenance work conducted must be recorded in a maintenance report. • Shallow groundwater needs to be tested and diverted to an appropriate destination to avoid contamination. • Provide proper warning signage to make people aware of the activities within designated areas. • Employees should be provided with absorbent spill kits and disposal containers to handle spillages. • Train employees and contractors on the correct handling of spillages and precautionary measures that need to be implemented to minimise potential spillages. • All earth moving vehicles and equipment 	

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	RATING OF	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
			<p>must be regularly maintained to ensure their integrity and reliability. No repairs may be undertaken beyond the contractor lay-down area.</p> <ul style="list-style-type: none"> • Employees should record and report any spillages to the responsible person. • An Emergency Preparedness and Response Plan will be developed and implemented should an incident occur. • Access to storage areas on site must be restricted to authorised employees only. • Ensure the establishment of stormwater diversion berms around the contractor laydown area and other potential contaminated areas (e.g. diesel storage tanks or refuelling station). • All contaminated standing water should be immediately removed and treated or disposed of appropriately. • All incidents must be reported to the responsible site officer as soon as it occurs. • Care must be taken to ensure that no water from the construction site enters the natural watercourse. • Preventative measures include establishing sumps from where contaminated water can be either treated in situ or removed to an appropriate waste site. 	

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<ul style="list-style-type: none"> Wastewater should be directed into proper stormwater drains. Sewage water should not be channelled through stormwater drains or be allowed to flow freely or stagnate on the soil surface. Stormwater management structures (channels, bunded areas, sumps) should be designed into the project to trap any potentially contaminated stormwater and return it to the relevant process or allow it to be stored and properly disposed off. Excess or spilled concrete should be confined within the works area and then removed to a waste site. 	
<p>Biodiversity (fauna and flora)</p> <p>Habitat destruction and alteration will take place within the footprint of the construction site and the development</p> <p>There is also a possibility that existing fauna on the site could be harmed through construction activities.</p>	<p>Extent: Site (-1)</p> <p>Duration: Short- long term (-3)</p> <p>Intensity: Low (-1)</p> <p>Probability: Possible (-2)</p> <p>Significance: Medium (-7)</p>	<ul style="list-style-type: none"> Workers must be limited to areas under construction within the site and access to the undeveloped areas must be strictly regulated (“no-go” areas during construction as well as operational activities). Mobile toilets must be provided in order to minimize un-authorized traffic of construction workers outside of the designated areas. All temporary stockpile areas including litter and dumped material and rubble must be removed on completion of construction. All alien invasive plants should be removed from the site to prevent further invasion. 	<p>Extent: Site (-1)</p> <p>Duration: Short- long term (-2)</p> <p>Intensity: Low (-1)</p> <p>Probability: Improbable (-1)</p> <p>Significance: Medium (-5)</p>

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	RATING OF	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
			<ul style="list-style-type: none"> • Firearms or any other hunting weapons must be prohibited on site. • Contract employees must be educated about the value of wild animals and the importance of their conservation. • Severe contractual fines must be imposed and immediate dismissal on any contract employee who is found attempting to snare or otherwise harm remaining faunal species. • The Contractor must ensure that no faunal species are disturbed, trapped, hunted or killed during the construction phase. All animals captured must be released in appropriate habitat away from the development. • Building of temporary access roads should be kept to a minimum to prevent unnecessary impact on the surrounding vegetation. • Close site supervision must be maintained during construction. 	
<p>Air Quality: The following activities have been identified as possible sources of fugitive dust during construction operations at the site:</p>	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: High (-3) Probability: Highly Probable (-3) Significance: Medium (-9)</p>		<ul style="list-style-type: none"> • There should be strict speed limits on site roads to prevent the liberation of dust into the atmosphere. • Dust must be suppressed on the construction site, temporary dirt roads and during the transportation of material during 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability: Possible (-2) Significance: Low (-6)</p>

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<ul style="list-style-type: none"> Dust from access roads. Dust from bare area cleared for construction. Debris handling. Emissions from construction machinery and equipment. Trucks transporting spoil and fill material. 		<p>dry periods by the regular application of water. Water used for this purpose must be used in quantities that will not result in the generation of run-off.</p> <ul style="list-style-type: none"> All site workers during construction will need to wear the appropriate PPE to avoid any exposure to contaminated dust particles. 	
<p>Noise: During the construction phase there is likely to be an increase in noise pollution. The following possible sources of noise could potentially generate noise pollution during construction:</p> <ul style="list-style-type: none"> Construction activities (excavating and site clearing). Construction vehicles and construction staff. Operation of cement mixer machine at the site. 	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: High (-3) Probability: Highly Probable (-3) Significance: Medium (-10)</p>	<ul style="list-style-type: none"> Provide all equipment with standard silencers. Maintain silencer units in vehicles and equipment in good working order. Construction staff working in area where the 8-hour ambient noise levels exceed 85dBA must have the appropriate Personal Protective Equipment (PPE). Work should be carried out between 7am and 5pm and no work should be carried out during weekends. 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability: Possible (-2) Significance: Low (-6)</p>

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<ul style="list-style-type: none"> Blasting and or drilling. 			
<p>Waste: Waste generation during the construction phase will have a negative impact on the environment, if not controlled adequately. Waste on site includes domestic waste, spent grinding material, mixed concrete, paint cans and brushes, insulation material, building rubble and other construction waste.</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability: Highly Probable (-3) Significance: Medium (-9)</p>	<ul style="list-style-type: none"> General waste disposal bins will be made available for employees to use throughout the construction phase. Where possible construction waste on site should be recycled or reused. Waste will be temporarily stored on site (less than 90 days) before being disposed off appropriately. General waste should be placed in a water tight container and disposed of on a regular basis. Records of all waste being taken off site must be recorded and kept as evidence. Evidence of correct disposal must be kept. Building rubble will be used, where possible, in construction or buried with the necessary town planning approvals. Where this is not possible, the rubble will be disposed of at an appropriate site. Burning of waste material will not be permitted. Hazardous materials will be generated if there are spillages during construction and maintenance periods. This waste should be cleaned up using absorbent material provided in spill kits on site, and must be 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability: Possible (-2) Significance: Low (-6)</p>

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<p>disposed of accordingly at a hazardous waste landfill.</p> <ul style="list-style-type: none"> • Absorbent materials used to clean up spillages should be disposed of in a separate hazardous waste bin. • The storage area for hazardous material must be concreted, bunded, covered, labelled and well ventilated. • Provide employees with appropriate PPE for handling hazardous materials. • All hazardous waste will be disposed of in a registered hazardous waste disposal facility. 	
<p>Employment: Employment opportunities will be created</p>	<p>Extent: Local (+2) Duration: Short-term (+1) Intensity: Low (+1) Probability: Possible (+2) Significance: Low (+6)</p>	<ul style="list-style-type: none"> • All labour (skilled and unskilled) and contractors should be sourced locally where possible. • During the construction phase approximately 250 employment opportunities will be created, of which 70% of the position will be of local content. 	<p>Extent: Local (+2) Duration: Short-term (+1) Intensity: Low (+1) Probability: Possible (+2) Significance: Low (+6)</p>

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<p>Traffic: The construction phase is likely to generate additional traffic in terms of construction vehicles and heavy vehicles delivering materials to the site.</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability: Highly Probable (-3) Significance: Medium (-9)</p>	<ul style="list-style-type: none"> • Caution will be taken to ensure construction vehicles are not parked close to the road and do not block the way to the neighbouring farm and guesthouse. • Clear signs should be displayed along the main road (R23) and entrance to the guest house indicating a construction site and turning construction vehicles. 	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Low (-1) Probability: Possible (-2) Significance: Medium (- 7)</p>
<p>Visual Intrusion & Light Pollution: will occur due to the following:</p> <ul style="list-style-type: none"> • Littering and illegal dumping on the site may result in an alteration of the visual character of the site. • The development will result in the removal of vegetation and the construction of buildings which may be visually intrusive. • Lights from the contractor's camp and the construction site will be visually intrusive. 	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible (-2) Significance: Medium (-9)</p>	<ul style="list-style-type: none"> • The building area is to be physically screened off with a shade cloth fence at least 1.8m in height. • The site must be managed appropriately and all rubbish and rubble removed to a recognised waste facility. • Excess soil and bedrock should be disposed of at an appropriate facility. • A certificate of disposal must be obtained for any waste that is disposed of. • Waste must not remain on site for more than 2 weeks. • Refuse bins must be provided by the Contractor for rubbish to be placed in by staff. • Excess concrete must be disposed of correctly and at an appropriate facility. • No waste may be placed in any excavations on site. • The construction camp must be located as 	<p>Extent: Site (-1) Duration: Long-term (-3) Intensity: Low (-1) Probability: Low (-1) Significance: Low (-6)</p>

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<p>far from other properties as possible.</p> <ul style="list-style-type: none"> Indigenous plants or trees should be planted next to buildings to break the lines of the buildings making them less visually intrusive. Advertising signs should blend in with the environment. Light pollutions should be minimised. The construction foot print must be minimised. Construction / management activities must be limited to the daylight hours. Lighting on site is to be sufficient for safety and security purposes, but shall not be intrusive to neighbouring residents, disturb wildlife, or interfere with road traffic. Should overtime/night work be authorised, the Contractor shall be responsible to ensure that lighting does not cause undue disturbance to neighbouring residents. In this situation low flux and frequency lighting shall be utilised. 	
<p>Safety: A construction site can be a dangerous place and thus could result in harm to people and property and by their nature act as a magnet to the unemployed, so large numbers of people</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability: Possible (-2) Significance: Medium (-8)</p>	<ul style="list-style-type: none"> The subject site will be fenced to prohibit unauthorized entry. Ensure the appointment of a Safety Officer to continuously monitor the safety conditions during construction. All construction staff must have the 	<p>Extent: Site (-1) Duration: Short-term (-1) intensity: Low (-1) Probability: Low (-1) Significance: Low (-4)</p>

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	RATING OF	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<p>may gather on or around the site.</p>			<p>appropriate PPE.</p> <ul style="list-style-type: none"> • The construction staff handling chemicals or hazardous materials must be trained in the use of the substances and the environmental, health and safety consequences of incidents. • Report and record any environmental, health and safety incidents to the responsible person. • Signs should be erected on all entrance gates indicating that no temporary jobs are available, thereby limiting opportunistic labourers and crime. • The site and crew are to be managed in strict accordance with the Occupational Health and Safety Act (Act No. 85 of 1993) and the National Building Regulations • All structures that are vulnerable to high winds must be secured (including scaffolds and toilets). • All manhole openings are to be covered and clearly demarcated with danger tape. • Potentially hazardous areas such as trenches are to be cordoned off and clearly marked at all times. • The Contractor is to ensure traffic safety at all times, and shall implement road safety precautions for this purpose when works 	

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	RATING OF	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
			<p>are undertaken on or R23.</p> <ul style="list-style-type: none"> • All vehicles and equipment used on site must be operated by appropriately trained and / or licensed individuals in compliance with all safety measures as laid out in the Occupational Health and Safety Act (Act No. 85 of 1993) (OHSA). • An environmental awareness training programme for all staff members shall be put in place by the Contractor. Before commencing with any work, all staff members shall be appropriately briefed about the EMPr and relevant occupational health and safety issues. • All construction workers shall be issued with ID badges and clearly identifiable uniforms. • Access to fuel and other equipment stores is to be strictly controlled. • No unauthorized firearms are permitted on site. • Emergency procedures must be produced and communicated to all the employees on site. This will ensure that accidents are responded to appropriately and the impacts thereof are minimised. This will also ensure that potential liabilities and damage to life and the environment are avoided. • Adequate emergency facilities must be 	

POTENTIAL IMPACTS	SIGNIFICANCE RATING OF IMPACTS	RATING OF	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
			<p>provided for the treatment of any emergency on the site.</p> <ul style="list-style-type: none"> The nearest emergency service provider must be identified during all phases of the project as well as its capacity and the magnitude of accidents it will be able to handle. Emergency contact numbers are to be displayed conspicuously at prominent locations around the construction site and the construction crew camps at all times. The Contractor must have a basic spill control kit available at each construction crew camp and around the construction site. 	

TABLE 20: SUMMARY OF IMPACTS AND AVERAGE POINTS ALLOCATED TO BOTH ALTERNATIVES DURING THE CONSTRUCTION PHASE

IMPACTS	Option 1 - Without Mitigation	Option 1 - With Mitigation	Option 2 - Without Mitigation	Option 2 - With Mitigation
Geology	-10	-8	-10	-8
Topography and Soils	-8	-6	-8	-6
Water Resources	-10	-6	-10	-6
Biodiversity	-7	-5	-7	-5
Air Quality	-9	-6	-9	-6
Noise	-10	-6	-10	-6
Waste	-9	-6	-9	-6
Employment	+6	+6	+6	+6
Traffic	-9	-7	-9	-7
Safety	-8	-4	-8	-4
Visual	-10	-6	-9	-6
Average Total	-7.5	-5.0	-7.5	-4.9

7.3 CATEGORY C: Operational Phase

TABLE 21: POTENTIAL OPERATIONAL PHASE IMPACTS RELATING TO THE TRUCK STOP – OPTION 1

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<p>Cleaning and equipment maintenance (e.g. fuel storage tanks, pumps etc.). will result in soil and water pollution.</p>	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: High (-3) Probability: Highly Probable (-3)</p> <p>Significance: Medium (-9)</p>	<ul style="list-style-type: none"> Maintenance on major equipment must be carried out during times of low inflow preferably during May, June and July. In upset conditions (e.g. equipment malfunctioning) the flow must be diverted to available process equipment. Chemicals that have been used for cleaning should be disposed off correctly. MSDSs should always be available. A specialised waste disposal company can be contracted to ensure the safe handling, storage and transportation of the chemical waste. Emergency plan and procedures should be in place in the event of spillage. 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability: Possible (-2)</p> <p>Significance: Low (-6)</p>
<p>Ecology: Destruction of habitat</p>	<p>Extent: Site (-1) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible(-2)</p> <p>Significance: Medium (-8)</p>	<ul style="list-style-type: none"> Artificial lighting must be restricted to areas under construction and not directed towards the drainage furrow in order to minimize the potential negative effects of the lights on the natural nocturnal activities. Where lighting is required for safety or security reasons, this should be targeted 	<p>Extent: Site (-1) Duration: Long-term (-3) Intensity: Low (-1) Probability: Improbable (-1)</p> <p>Significance: Low (-6)</p>

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<p>at the areas requiring attention.</p> <ul style="list-style-type: none"> • Yellow sodium lights should be prescribed as they do not attract as many invertebrates (insects) at night and will not disturb the existing wildlife. • Exposed areas especially adjacent to the proposed station and service station development should be rehabilitated with a grass mix that blends in with the surrounding vegetation. The grass mix should consist of indigenous grasses adapted to the local environmental conditions. • The use of the exotic species should be avoided and only indigenous species such as Couch Grass <i>Cynodon dactylon</i> or Buffalo Turf Grass <i>Stenotaphrum secundatum</i> should be used • Fences should have low impact to surrounding vegetation as well as allow for the natural migratory movements onto and away from the site. Ideally palisade fencing with a minimum 15cm wide gap should be erected around the site. Non-migratory fences or reverse curbing should be used to restrict the migratory movements of certain animals into high risk areas such as the service station. 	

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<ul style="list-style-type: none"> • Unauthorised entry, stockpiling, dumping or storage of equipment or materials shall be strictly prohibited within the demarcated “no go” areas. • Reasonable speeds will be maintained at all times in order to prevent accidents, excessive noise and dust and road fatalities of migrating animals. 	
<p>Geohydrology (groundwater) and Hydrology (surface water): Increased or uncontrolled contaminant handling or other processes associated with the proposed development of filling station (Contamination of groundwater due to. Domestic waste generated from the kiosk and the subsequent potential for leachate formation; Spillage that may occur during refuelling; Leaking underground storage tanks and fittings resulting in possible hydrocarbon contamination; Dysfunctional sewerage plant and sewerage spills).</p>	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: High (-3) Probability: Highly Probable (-3) Significance: High (-11)</p>	<ul style="list-style-type: none"> • Management and discharge of treated effluent water together with sufficient waste spill control measures should, maintain the unpolluted, ‘stable’ aquifer vulnerability status and ensure a minimal risk of groundwater pollution • The drive way areas around the dispensers/pumps where spillage may occur during refuelling should be graded to allow effluent to first pass through a gravity separator. • Precautions should be taken to ensure that surface run-off, potential leaks or spills do not flow into the sewer system without first passing through a simple gravity separator /settlement pond or similar protective installation. • The monitoring of ground water sampling data should be reviewed by a hydrogeologist to establish performance 	<p>Extent: Site (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible (-2) Significance: Medium (-8)</p>

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<p>and water quality trends.</p> <ul style="list-style-type: none"> • The existing production boreholes and monitoring wells should be sampled regularly in terms of water quality (SANS 241) guidelines for domestic use. • Initially, quarterly groundwater quality monitoring of production wells and monitoring wells is recommended. • Where water is supplied for human consumption, guidelines in terms of a water service provider should be adhered to. • A proper groundwater quality monitoring program must be implemented as soon as possible, where initial sampling and analysis should allow for all major chemical, physical and bacteriological constituents as per (SANS 241). Follow-up sampling could monitor elements in excess only as well as for traces of hydrocarbon contamination. • An early warning system must be considered for placement within the monitoring wells or beneath the storage tanks. • Wellheads on boreholes down gradient of the proposed facility must be constructed to prevent any ingress of surface water 	

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<p>either from a spill or flooding.</p> <ul style="list-style-type: none"> Shallow monitoring wells must be installed around the storage tanks to ensure any potential leakage from the lagoon is detected in time. These wells must be of uPVC or HDPE material and have an internal diameter of at least 50mm. A minimum of one up gradient and two down gradient wells be installed. The depth of the well must be at least 2m below the depth of the storage tank. Piezometers must be installed in all wells and water level monitoring carried out and recorded either manually or with data loggers Any spill should be cleaned up immediately and contaminated soil should be disposed off at a designated site 	
<p>Risks of Fires & Explosions: Storage, handling and transport of fuel is potentially dangerous to humans and properties due to the risk of fire and explosions.</p>	<p>Extent: Local (-2) Duration: Short-term (-1) Intensity: Very High (-4) Probability: Highly Probable (-3) Significance: High (-12)</p>	<ul style="list-style-type: none"> Fire extinguishers must be easily accessible and all vehicles should have fire extinguishers. Employees should be trained on fire safety and there should be fire marshals. Local emergency fire brigade number should be known to everybody The prescribed fire safety precautions in terms of the Occupational Health and Safety Act must be adhered to. 	<p>Extent: Local (-2) Duration: Short-term (-1) Intensity: High (-3) Probability: Possible (-2) Significance: Medium (-8)</p>

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<ul style="list-style-type: none"> • The UST's, underground pipes and dispensing pumps should be monitored regularly for leaks. • Tanker delivery driver must be present during delivery of fuel with the emergency cut off switch and a fire extinguisher. • The filling station management must develop an EMERGENCY PLAN. All staff must be adequately trained in the implementation of this plan. • The following signs must be installed: <ul style="list-style-type: none"> ○ "NO SMOKING" ○ "NO NAKED FLAME" ○ "NO CELLPHONES" 	
<p>Waste management: – i.e. used oil, other hazardous and general wastes generated during maintenance and operational activities could cause pollution of surface and groundwater if not used / disposed of properly.</p>	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate(-2) Probability: Highly Probable(-3) Significance: High (-10)</p>	<ul style="list-style-type: none"> • To lower the potential for leachate formation, domestic waste should be placed in a water tight container and disposed of on a regular basis. • Used oil must be disposed off in accordance with the correct procedures. • All equipment that has the potential for spillages or leakages shall be equipped with drip-trays. • Ensure that care is taken to ensure that spillages of oils and effluent are limited during maintenance. In the event of a spill/leak, the source of the spill or leak must be identified and addressed. 	<p>Extent: Site (-1) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible (-2) Significance: Medium (-8)</p>

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<ul style="list-style-type: none"> The oil/effluent spill/leak must be cleaned immediately and any contaminated soil must be removed and disposed off through a recognisable waste disposal method. 	
<p>Increased traffic due to movement of truck to and from the filling station may increase traffic congestion and accidents.</p>	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: High (-3) Probability: Highly probable (-3)</p> <p>Significance: High (-11)</p>	<ul style="list-style-type: none"> The access, being on an important national route will need to meet certain criteria: It is recommended that a high standard of intersection be constructed with dedicated right turn lanes Should the entrance to the site be security controlled this is to be positioned a minimum distance of 80m from the edge of the provincial road. On both R23 approaches to the proposed site intersection a priority crossroad sign with information plate “heavy vehicles turning” is required. All signage and road markings for the proposed site intersection should be in accordance with the South African Road Traffic Signs Manual”. 	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: High (-3) Probability: Possible (-2)</p> <p>Significance: Low (-6)</p>
<p>Air Quality–Vehicle exhausts emissions trucks that will remain idling for the duration of the time at the truck stop and Vapours produced by fuel odour.</p>	<p>Extent: Site(-1) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible (-2)</p> <p>Significance: Medium (-8)</p>	<ul style="list-style-type: none"> Ensure and instruct all drivers to switch off the trucks once correctly parked, and avoid idling as much as possible All operators should wear appropriate PPE to minimize exposure to fuel odours (e.g. gas masks). 	<p>Extent: Site(-1) Duration: Short-term (-1) Intensity: Moderate (-2) Probability: Improbable (-1)</p> <p>Significance: Low (-5)</p>

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<p>Safety: Safety of staff, customers, property and neighbouring properties may be compromised as a result of the fire risk associated with a filling station as well by crime.</p>	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible (-2) Significance: Medium (-9)</p>	<ul style="list-style-type: none"> • Appropriate measures should be in place for the correct storage and handling of fuel as well as the procedures for dealing with dangerous situations. • Staff should be adequately trained with respect to dealing with crime. • Equipment and materials must be handled by staff that have been supervised and adequately trained. • Staff must be regularly updated about the safety procedures. • Emergency facilities must be available and adequately supplied for use by staff and customers. • Emergency contact details for the police, security company and fire department must be readily available. 	<p>Extent: Site (-1) Duration: Long-term (-3) Intensity: Low (-1) Probability: Low (-1) Significance: Medium (-6)</p>
<p>Visual Intrusion & Light Pollution :will occur due to the following</p> <ul style="list-style-type: none"> • Alteration of the site will alter the visual characteristics of the site and the surroundings. • Littering, rubbish and illegal dumping on the site 	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: High (-3) Probability: Possible (-2) Significance: High (-10)</p>	<ul style="list-style-type: none"> • Light pollution should be minimised. • Lighting on site is to be sufficient for safety and security purposes, but shall not be intrusive to neighbouring residents, disturb wildlife, or interfere with road traffic. • Littering, rubbish and illegal dumping on the site is NOT allowed. • Refuse must be contained and disposed of at the Municipal land fill site. 	<p>Extent: Site (-1) Duration: Long-term (-3) Intensity: Low (-1) Probability: Improbable (-1) Significance: Medium (-6)</p>

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE OF IMPACTS	RATING OF	PROPOSED MITIGATION	SIGNIFICANCE OF IMPACTS AFTER MITIGATION:
<p>is visually intrusive.</p> <ul style="list-style-type: none"> The buildings and advertising signs may be visually intrusive. Lights from the filling station may be visually intrusive. 			<ul style="list-style-type: none"> Refuse bins must be provided. These must be sufficient in number (at the pumps, shop, fast food outlets and kitchen). The buildings may not be visually intrusive. The buildings must be regularly painted. All lights used for non-security purposes should be energy efficient for example compact fluorescent lights(CFL). Outside lights will have to be downward shining (eyelid type), low wattage and should not be positioned higher than 1m above the ground surface. Fluorescent lamps give five times the light and last up to 10 times as long as ordinary bulbs. Signs must conform to the standards of South African Manual for Outdoor Advertising Control (SAMOAC). Areas that have been landscaped must be maintained. 	
<p>Socio-Economic: Possible local filling station minor reduction in fuel sales.</p>	<p>Extent: Regional (-3) Duration: Long-term (-3) Intensity: High (-3) Probability: Highly Probable (-3)</p>		<ul style="list-style-type: none"> Secure and safe parking for trucks will be provided reducing exposure to social misconduct; Facilities for the truck will be provided contributing to employment opportunities which would otherwise be for the public to 	<p>Extent: Regional (-3) Duration: Long-term (-3) Intensity: High (-3) Probability: Highly Probable (-3)</p>
	<p>Significance: High (-12)</p>			<p>Significance: High (-12)</p>

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<p>clean-up; improved health conditions for vehicle operators;</p> <ul style="list-style-type: none"> • Health and road safety awareness programs will be directed to the source due to common venue for the trucks; • Life expectancy of roads in the residential areas will be extended as a saving to public expenditure on road maintenance; • Vehicular traffic flow through town will improved, especially at night, causing existing outlets to be more accessible with a potential increase in passing trade; • By providing secure parking outside of the residential area will positively influence the night environment of the town. 	
<p>Employment: Employment opportunities will be created</p>	<p>Extent: Regional (+3) Duration: Long-term (+3) Moderate: Low (+2) Probability: Moderate (+2)</p> <p>Significance: Low (+10)</p>	<ul style="list-style-type: none"> • Thirty people will permanently be employed in the operational phase • 	<p>Extent: Regional (+3) Duration: Long-term (+3) Moderate: Low (+2) Probability: Moderate (+2)</p> <p>Significance: Low (+10)</p>
<p>Noise: During operational phase there is likely to be an increase in noise to the people around the proposed truck</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: High (-3) Probability: Highly Probable (-3)</p>	<ul style="list-style-type: none"> • Provide all equipment with standard silencers. Maintain silencer units in vehicles and equipment in good working order. • Construction staff working in area where 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability: Possible (-2)</p>

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<p>stop i.e the guest house. The following possible sources of noise could potentially generate noise pollution during operation:</p> <ul style="list-style-type: none"> Trucks filling and idling for a long time at the truck stop Truck drivers during rest time. <p>Presence of truck stop staff, truck drivers and possibly sex workers and people looking for lift.</p>	<p>Significance: Medium (-10)</p>	<p>the 8-hour ambient noise levels exceed 85dBA must have the appropriate Personal Protective Equipment (PPE).</p> <ul style="list-style-type: none"> Work should be carried out during normal working hours and no work should be carried out during weekends. 	<p>Significance: Low (-6)</p>
CUMULATIVE			
<p>Surface Water Pollution: Spillages of oil, lubricants and fuel from construction vehicles, plant and machinery has the potential to contaminate surface water. This surface water will flow into the drainage lines. Flora and fauna in these areas where contamination occurs will die.</p>	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: High (-3) Probability: Definite (-4) Significance: High (-12)</p>	<p>Refer to geohydrology impacts mitigation above</p>	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability: Possible (-2) Significance: Medium (-7)</p>

TABLE 22: POTENTIAL OPERATIONAL PHASE IMPACTS RELATING TO THE OPERATION OF A TRUCK STOP INCLUDING FILLING STATION AND ENTRANCE – OPTION 2 (PREFERRED)

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<p>Cleaning and equipment maintenance (e.g. fuel storage tanks, pumps etc.). will result in soil and water pollution.</p>	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: High (-3) Probability: Highly Probable (-3)</p> <p>Significance: Medium (-9)</p>	<ul style="list-style-type: none"> Maintenance on major equipment must be carried out during times of low inflow preferably during May, June and July. In upset conditions (e.g. equipment malfunctioning) the flow must be diverted to available process equipment. Chemicals that have been used for cleaning should be disposed off correctly. MSDSs should always be available. A specialised waste disposal company can be contracted to ensure the safe handling, storage and transportation of the chemical waste. Emergency plan and procedures should be in place in the event of spillage. 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability: Possible (-2)</p> <p>Significance: Low (-6)</p>
<p>Ecology: Destruction of habitat</p>	<p>Extent: Site (-1) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible(-2)</p> <p>Significance: Medium (-8)</p>	<ul style="list-style-type: none"> Artificial lighting must be restricted to areas under construction and not directed towards the drainage furrow in order to minimize the potential negative effects of the lights on the natural nocturnal activities. Where lighting is required for safety or security reasons, this should be targeted at the areas requiring attention. Yellow sodium lights should be prescribed 	<p>Extent: Site (-1) Duration: Long-term (-3) Intensity: Low (-1) Probability: Improbable (-1)</p> <p>Significance: Low (-6)</p>

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE OF IMPACTS	RATING	OF PROPOSED MITIGATION	SIGNIFICANCE OF IMPACTS AFTER MITIGATION:
			<p>as they do not attract as many invertebrates (insects) at night and will not disturb the existing wildlife.</p> <ul style="list-style-type: none"> Exposed areas especially adjacent to the proposed station and service station development should be rehabilitated with a grass mix that blends in with the surrounding vegetation. The grass mix should consist of indigenous grasses adapted to the local environmental conditions. The use of the exotic species should be avoided and only indigenous species such as Couch Grass <i>Cynodon dactylon</i> or Buffalo Turf Grass <i>Stenotaphrum secundatum</i> should be used Fences should have low impact to surrounding vegetation as well as allow for the natural migratory movements onto and away from the site. Ideally palisade fencing with a minimum 15cm wide gap should be erected around the site. Non-migratory fences or reverse curbing should be used to restrict the migratory movements of certain animals into high risk areas such as the service station. Unauthorised entry, stockpiling, dumping or storage of equipment or materials shall 	

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	RATING OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<p>be strictly prohibited within the demarcated “no go” areas.</p> <ul style="list-style-type: none"> Reasonable speeds will be maintained at all times in order to prevent accidents, excessive noise and dust and road fatalities of migrating animals. 	
<p>Geohydrology (groundwater) and Hydrology (surface water): Increased or uncontrolled contaminant handling or other processes associated with the proposed development of filling station (Contamination of groundwater due to. Domestic waste generated from the kiosk and the subsequent potential for leachate formation; Spillage that may occur during refuelling; Leaking underground storage tanks and fittings resulting in possible hydrocarbon contamination; Dysfunctional sewerage plant and sewerage spills).</p>	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: High (-3) Probability: Highly Probable (-3) Significance: High (-11)</p>	<ul style="list-style-type: none"> Management and discharge of treated effluent water together with sufficient waste spill control measures should, maintain the unpolluted, ‘stable’ aquifer vulnerability status and ensure a minimal risk of groundwater pollution The drive way areas around the dispensers/pumps where spillage may occur during refuelling should be graded to allow effluent to first pass through a gravity separator. Precautions should be taken to ensure that surface run-off, potential leaks or spills do not flow into the sewer system without first passing through a simple gravity separator /settlement pond or similar protective installation. The monitoring of ground water sampling data should be reviewed by a hydrogeologist to establish performance and water quality trends. The existing production boreholes and 	<p>Extent: Site (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible (-2) Significance: Medium (-8)</p>

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE OF IMPACTS	RATING OF PROPOSED MITIGATION	SIGNIFICANCE OF IMPACTS AFTER MITIGATION:
		<p>monitoring wells should be sampled regularly in terms of water quality (SANS 241) guidelines for domestic use.</p> <ul style="list-style-type: none"> Initially, quarterly groundwater quality monitoring of production wells and monitoring wells is recommended. Where water is supplied for human consumption, guidelines in terms of a water service provider should be adhered to. A proper groundwater quality monitoring program must be implemented as soon as possible, where initial sampling and analysis should allow for all major chemical, physical and bacteriological constituents as per (SANS 241). Follow-up sampling could monitor elements in excess only as well as for traces of hydrocarbon contamination. An early warning system must be considered for placement within the monitoring wells or beneath the storage tanks. Wellheads on boreholes down gradient of the proposed facility must be constructed to prevent any ingress of surface water either from a spill or flooding. Shallow monitoring wells must be installed 	

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	RATING OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<p>around the storage tanks to ensure any potential leakage from the lagoon is detected in time. These wells must be of uPVC or HDPE material and have an internal diameter of at least 50mm. A minimum of one up gradient and two down gradient wells be installed. The depth of the well must be at least 2m below the depth of the storage tank.</p> <ul style="list-style-type: none"> • Piezometers must be installed in all wells and water level monitoring carried out and recorded either manually or with data loggers • Any spill should be cleaned up immediately and contaminated soil should be disposed off at a designated site 	
<p>Risks of Fires & Explosions: Storage, handling and transport of fuel is potentially dangerous to humans and properties due to the risk of fire and explosions.</p>	<p>Extent: Local (-2) Duration: Short-term (-1) Intensity: Very High (-4) Probability: Highly Probable (-3) Significance: High (-12)</p>	<ul style="list-style-type: none"> • Fire extinguishers must be easily accessible and all vehicles should have fire extinguishers. • Employees should be trained on fire safety and there should be fire marshals. • Local emergency fire brigade number should be known to everybody • The prescribed fire safety precautions in terms of the Occupational Health and Safety Act must be adhered to. • The UST's, underground pipes and dispensing pumps should be monitored 	<p>Extent: Local (-2) Duration: Short-term (-1) Intensity: High (-3) Probability: Possible (-2) Significance: Medium (-8)</p>

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	RATING OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<p>regularly for leaks.</p> <ul style="list-style-type: none"> • Tanker delivery driver must be present during delivery of fuel with the emergency cut off switch and a fire extinguisher. • The filling station management must develop an EMERGENCY PLAN. All staff must be adequately trained in the implementation of this plan. • The following signs must be installed: <ul style="list-style-type: none"> ○ “NO SMOKING” ○ “NO NAKED FLAME” ○ “NO CELLPHONES” 	
<p>Waste management: – i.e. used oil, other hazardous and general wastes generated during maintenance and operational activities could cause pollution of surface and groundwater if not used / disposed of properly.</p>	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate(-2) Probability: Highly Probable(-3) Significance: High (-10)</p>	<ul style="list-style-type: none"> • To lower the potential for leachate formation, domestic waste should be placed in a water tight container and disposed of on a regular basis. • Used oil must be disposed off in accordance with the correct procedures. • All equipment that has the potential for spillages or leakages shall be equipped with drip-trays. • Ensure that care is taken to ensure that spillages of oils and effluent are limited during maintenance. In the event of a spill/leak, the source of the spill or leak must be identified and addressed. • The oil/effluent spill/leak must be cleaned immediately and any contaminated soil 	<p>Extent: Site (-1) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible (-2) Significance: Medium (-8)</p>

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		must be removed and disposed off through a recognisable waste disposal method.	
<p>Increased traffic due to movement of truck to and from the filling station may increase traffic congestion and accidents.</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability: Highly probable (-3)</p> <p>Significance: Medium (-9)</p>	<ul style="list-style-type: none"> The access, being on an important national route will need to meet certain criteria: It is recommended that a high standard of intersection be constructed with dedicated right turn lanes Should the entrance to the site be security controlled this is to be positioned a minimum distance of 80m from the edge of the provincial road. On both R23 approaches to the proposed site intersection a priority crossroad sign with information plate “heavy vehicles turning” is required. All signage and road markings for the proposed site intersection should be in accordance with the South African Road Traffic Signs Manual”. 	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability: Low (-1)</p> <p>Significance: Medium (-9)</p>
<p>Air Quality – Vehicle exhausts emissions trucks that will remain idling for the duration of the time at the truck stop and Vapours produced by fuel odour.</p>	<p>Extent: Site(-1) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible (-2)</p> <p>Significance: Medium (-8)</p>	<ul style="list-style-type: none"> Ensure and instruct all drivers to switch off the trucks once correctly parked, and avoid idling as much as possible All operators should wear appropriate PPE to minimize exposure to fuel odours (e.g. gas masks). 	<p>Extent: Site(-1) Duration: Short-term (-1) Intensity: Moderate (-2) Probability: Improbable (-1)</p> <p>Significance: Low (-5)</p>

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<p>Safety: Safety of staff, customers, property and neighbouring properties may be compromised as a result of the fire risk associated with a filling station as well by crime.</p>	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible (-2) Significance: Medium (-9)</p>	<ul style="list-style-type: none"> • Appropriate measures should be in place for the correct storage and handling of fuel as well as the procedures for dealing with dangerous situations. • Staff should be adequately trained with respect to dealing with crime. • Equipment and materials must be handled by staff that have been supervised and adequately trained. • Staff must be regularly updated about the safety procedures. • Emergency facilities must be available and adequately supplied for use by staff and customers. • Emergency contact details for the police, security company and fire department must be readily available. 	<p>Extent: Site (-1) Duration: Long-term (-3) Intensity: Low (-1) Probability: Improbable (-1) Significance: Medium (-6)</p>
<p>Visual Intrusion & Light Pollution :will occur due to the following</p> <ul style="list-style-type: none"> • Alteration of the site will alter the visual characteristics of the site and the surroundings. • Littering, rubbish and illegal dumping on the site is visually intrusive. 	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: Moderate (-2) Probability: Possible (-2) Significance: Medium (-9)</p>	<ul style="list-style-type: none"> • Light pollution should be minimised. • Lighting on site is to be sufficient for safety and security purposes, but shall not be intrusive to neighbouring residents, disturb wildlife, or interfere with road traffic. • Littering, rubbish and illegal dumping on the site is NOT allowed. • Refuse must be contained and disposed of at the Municipal land fill site. • Refuse bins must be provided. These must be sufficient in number (at the 	<p>Extent: Site (-1) Duration: Long-term (-3) Intensity: Low (-1) Probability: Improbable (-1) Significance: Medium (-6)</p>

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<ul style="list-style-type: none"> The buildings and advertising signs may be visually intrusive. Lights from the filling station may be visually intrusive. 		<p>pumps, shop, fast food outlets and kitchen).</p> <ul style="list-style-type: none"> The buildings may not be visually intrusive. The buildings must be regularly painted. All lights used for non-security purposes should be energy efficient for example compact fluorescent lights(CFL). Outside lights will have to be downward shining (eyelid type), low wattage and should not be positioned higher than 1m above the ground surface. Fluorescent lamps give five times the light and last up to 10 times as long as ordinary bulbs. Signs must conform to the standards of South African Manual for Outdoor Advertising Control (SAMOAC). Areas that have been landscaped must be maintained. 	
<p>Socio-Economic: Possible local filling station minor reduction in fuel sales.</p>	<p>Extent: Regional (-3) Duration: Long-term (-3) Intensity: High (-3) Probability: Highly Probable (-3)</p> <p>Significance: High (-12)</p>	<ul style="list-style-type: none"> Secure and safe parking for trucks will be provided reducing exposure to social misconduct; Facilities for the truck will be provided contributing to employment opportunities which would otherwise be for the public to clean-up; improved health conditions for vehicle operators; 	<p>Extent: Local (+2) Duration: Long-term (+2) Intensity: High Moderate (+1) Probability: Highly Probable (+2)</p> <p>Significance: Medium (-12+8)</p>

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<ul style="list-style-type: none"> Health and road safety awareness programs will be directed to the source due to common venue for the trucks; Life expectancy of roads in the residential areas will be extended as a saving to public expenditure on road maintenance; Vehicular traffic flow through town will improved, especially at night, causing existing outlets to be more accessible with a potential increase in passing trade; By providing secure parking outside of the residential area will positively influence the night environment of the town. 	
<p>Employment: Employment opportunities will be created</p>	<p>Extent: Regional (+3) Duration: Long-term (+3) Moderate: Low (+2) Probability: Moderate (+2)</p> <p>Significance: High (+10)</p>	<ul style="list-style-type: none"> Thirty local people will permanently be employed in the operational phase 	<p>Extent: Regional (+3) Duration: Long-term (+3) Moderate: Low (+2) Probability: Moderate (+2)</p> <p>Significance: High (+10)</p>
<p>Noise: During operational phase there is likely to be an increase in noise to the people around the proposed truck stop i.e the guest house. The following</p>	<p>Extent: Local (-2) Duration: Medium-term (-2) Intensity: High (-3) Probability: Highly Probable (-3)</p> <p>Significance: High (-10)</p>	<ul style="list-style-type: none"> Provide all equipment with standard silencers. Maintain silencer units in vehicles and equipment in good working order. Construction staff working in area where the 8-hour ambient noise levels exceed 85dBA must have the appropriate 	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Low (-1) Probability: Possible (-2)</p> <p>Significance: Low (-6)</p>

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<p>possible sources of noise could potentially generate noise pollution during operation:</p> <ul style="list-style-type: none"> Trucks filling and idling for a long time at the truck stop Truck drivers during rest time. <p>Presence of truck stop staff, truck drivers and possibly sex workers and people looking for lift.</p>		<p>Personal Protective Equipment (PPE).</p> <ul style="list-style-type: none"> Work should be carried out during normal working hours and no work should be carried out during weekends. 	
CUMULATIVE			
<p>Surface Water Pollution: Spillages of oil, lubricants and fuel from construction vehicles, plant and machinery has the potential to contaminate surface water. This surface water will flow into the drainage lines. Flora and fauna in these areas where contamination occurs will die.</p>	<p>Extent: Local (-2) Duration: Long-term (-3) Intensity: High (-3) Probability: Definite (-4) Significance: High (-12)</p>	<p>Refer to geohydrology impacts mitigation above</p>	<p>Extent: Site (-1) Duration: Medium-term (-2) Intensity: Moderate (-2) Probability: Possible (-2) Significance: Medium (-7)</p>

TABLE 23: SUMMARY OF IMPACTS AND AVERAGE POINTS ALLOCATED TO BOTH ALTERNATIVES DURING THE OPERATION PHASE

IMPACTS	Option 1 - Without Mitigation	Option 1 - With Mitigation	Option 2 - Without Mitigation	Option 2 - With Mitigation
Cleaning	-9	-6	-9	-6
Ecology	-8	-6	-8	-6
Geohydrology	-11	-8	-11	-8
Fire	-12	-8	-12	-8
Waste	-10	-8	-10	-8
Traffic	-11	-10	-9	-7
Safety	-9	-6	-9	-6
Air Quality	-8	-5	-8	-5
Noise	-9	-6	-9	-6
Socio-Economic	-12	+8	-12	+8
Employment	+10	+10	+10	+10
Visual	-10	-6	-10	-6
Cumulative: Surface Water Pollution	-12	-7	-12	-7
Average Total	-8.5	-4.5	-8.4	-4.2

7.4 CATEGORY D: Decommissioning Phase

At this point of the project planning process, the necessity for and timing of the decommissioning of the proposed project is not known. In order to minimise the extent of rehabilitation activities required during the decommissioning phase, TOWB will ensure that constant effort is applied to rehabilitation activities throughout the construction, operation and maintenance phases of the project. TOWB will further ensure upon site closure and decommissioning of the authorised activity, an application in terms of Listing Notice 1 and 2 of the EIA Regulations (2010) for the relevant Environmental Authorisation will be lodged if applicable. However the potential impacts associated with site alternatives that are likely to occur during the decommissioning or closure phase are listed on table 22 below:

TABLE 24: POTENTIAL DECOMMISSIONING IMPACTS APPLICABLE TO THE ENTIRE TRUCK STOP AND ASSOCIATED FILLING STATION PROJECT

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
<p>Waste: Waste generation during the decommissioning phase will have a negative impact on the environment, if not controlled adequately. Waste includes general waste or hazardous waste.</p>	<p>Extent: Site (-1) Duration: Short-term (-1) Intensity: High (-3) Probability: Highly Probable (-3) Significance: Medium (-8)</p>	<ul style="list-style-type: none"> Disposal of waste must be in accordance with relevant legislative requirements. Waste must be disposed off in the appropriate manner at a licensed disposal site. 	<p>Extent: Site (-1) Duration: Short-term (-1) Intensity: Low (-1) Probability: Possible (-2) Significance: Low (-5)</p>
<p>Pollution of soil and ground water (If decommissioning does not take place the UST's may start to leak as they age as they have a limited life span this would result in soil and</p>	<p>Extent: Site (-1) Duration: Short-term (-1) Intensity: High (-3) Probability: Highly Probable (-3) Significance: Medium (-8)</p>	<ul style="list-style-type: none"> Decommissioning should take place during the dry winter months. All the fuel must be removed from the UST's and the site in sealed containers. Drained fuel must be transported back to the depot by an accredited transporter. Dismantling of equipment must be 	<p>Extent: Site (-1) Duration: Short-term (-1) Intensity: Low (-1) Probability: Possible (-2) Significance: Low (-5)</p>

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE OF IMPACTS	RATING OF PROPOSED MITIGATION	SIGNIFICANCE OF IMPACTS AFTER MITIGATION:
ground water contamination		<p>conducted by an accredited contractor.</p> <ul style="list-style-type: none"> The sludge remaining in the UST's must be disposed of at an accredited hazardous waste facility. Once the tanks and pipes have been degassed they can be cut up. The excavations where the UST's and pipes were present must be surveyed for contamination. If contaminated they must be decontaminated. Deep excavations must be cordoned off prior to being back filled. Certificates must be obtained for all actions performed. Once the site has been filled it must be rehabilitated 	
<p>Pollution of surface water: Surface spillage of fuel contamination of the soil, surface and ground water as a result of minor spillages during the siphoning of the Underground Storage Tanks (UST's) and fuel dispensing pumps on the forecourt</p>	<p>Extent: Local (-2) Duration: Short-term (-1) Intensity: High (-3) Probability: Highly Probable (-3) Significance: Medium (-8)</p>	<ul style="list-style-type: none"> Fuel dispenser pumps must be located on a hardened surface to contain spillages. The pump, refuelling and forecourt areas should all be located on a hardened surface which drains into a common drain. This drain must feed onsite oil and water separator such as a Zorbit Grease Trap The accumulated grease and oil must be removed by an accredited company. Overfill and spillages during tanker 	<p>Extent: Local (-2) Duration: Short-term (-1) Intensity: Moderate (-2) Probability: Possible (-2) Significance: Medium (-7)</p>

POTENTIAL IMPACTS/ACTIVITY	SIGNIFICANCE RATING OF IMPACTS	OF PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACTS AFTER MITIGATION:
		<p>refuelling and fuel dispensing should be prevented by the installation of automatic cut off devices.</p> <ul style="list-style-type: none"> • Tanker delivery driver must be present during delivery of fuel with the emergency cut off switch. • In the event of the pump dispenser or the hoses being knocked over or ripped off the fuel supply must be cut off by shear off valves. • Strict procedures for the management of the site must be developed and adhered to. • Staff must be trained to prevent spillages during fuel dispensing. 	
<p>Risks of Fires & Explosions: Storage, handling and transport of fuel is potentially dangerous to humans and properties due to the risk of fire and explosions.</p>	<p>Extent: Site (-1) Duration: Short-term (-1) Intensity: High (-3) Probability: Highly Probable (-3) Significance: Medium (-8)</p>	<ul style="list-style-type: none"> • Fire safety should be considered and all vehicles should have fire extinguisher • Employees should be trained on fire safety and there should be fire marshals. • Local emergency fire brigade number should be known to everybody 	<p>Extent: Site (-1) Duration: Short-term (-1) Intensity: High (-3) Probability: Possible (-2) Significance: Medium (-7)</p>
<p>Soil Erosion: All adjacent and surrounding areas disturbed during construction and operation are to be rehabilitated to avoid erosion.</p>	<p>Extent: Site (-1) Duration: Short-term (-1) Intensity: High (-3) Probability: Highly Probable (-3) Significance: Medium (-8)</p>	<ul style="list-style-type: none"> • Erosion monitoring and control should be conducted. This should be in the form of inspections subsequent to rains. Topsoil should be replaced in all areas that have been eroded. 	<p>Extent: Site (-1) Duration: Short-term (-1) Intensity: Low (-1) Probability: Possible (-2) Significance: Low (-5)</p>

TABLE 25: SUMMARY OF IMPACTS AND AVERAGE POINTS ALLOCATED FOR THE DECOMMISSIONING PHASE

IMPACTS	Option 1 & 2 - Without Mitigation	Option 1& 2 – With Mitigation
Waste	-8	-5
Soil pollution	-8	-5
Water Pollution	-8	-7
Fire	-8	-7
Soil Erosion	-8	-5
Socio-Economic	-13	-6
Average Total	-6.2	-4.2

TABLE 26: SUMMARY OF AVERAGE POINTS ALLOCATED FOR ALL PHASES OF THE PROJECT

IMPACTS	Option 1 – With Mitigation	Option 2 – With Mitigation
Design and Planning	-5	-5
Construction	-5	-4.9
Operation	-4.5	-4.2
Decommissioning	-4.2	-4.2
Average Total	-4.675	-4.575

8 ENVIRONMENTAL IMPACT STATEMENT

This Basic Assessment (BA) study for the proposed truck stop has been undertaken in accordance with the Environmental Impact Assessment Regulations (2010) published in Government Notices R. 543 of 18 June 2010 read with Section 44, of the National Environmental Management Act, 1998 (Act No. 107 of 1998).

This BA study provides an assessment of both the benefits and potential negative impacts anticipated as a result of the truck stop development. The findings conclude that the opening of the proposed truck stop is likely to have both negative and positive socio-economic impacts with the most significant impact being the potential shift in employment and possible slight reductions in fuel sales at the existing local filling stations. The feasibility study has concluded that the existing market is not large enough for a further filling station. At this point in time the development of a fully fledged filling station is not proposed as there is not a sufficient demand for a filling station at the proposed site due to low traffic volumes of 2,495 vehicles a day and the estimated fuel sales of between 70,000 and 141,000 litres a month which is far below the industry standard of 350,000 litres a month that is not sufficient to sustain a filling station, hence this may cause the already existing filling stations to experience a reduction in fuel turn over. In an overall context potential job losses at smaller existing station must be balanced against job creation at the distant future filling station. The truck stop is being proposed to cater for a component of the traffic volume within and moving through the Volksrust area – heavy vehicle traffic - that is currently poorly catered for by existing filling stations. The development has been spatially positioned so as not to cater for the day to day local refuelling trade. Although the development may make the existing filling stations less able to cater for this market segment by creating a more viable and attractive option for heavy vehicle operators, the proposed development has also been positioned to take heavy vehicle traffic away from the town of Volksrust, thus resulting substantially in the reduction of a number of nuisance factors currently associated with the overnighting of the heavy vehicles in the town.

Even though the proposed truck stop will in some instances compete directly with the existing filling stations in the town, and is likely to 'capture' a portion of their sales and turnover. The proposed development will take advantage of certain traffic streams in the area that are not fully catered for by existing filling stations as there is no truck stop in Volksrust. The proposed development is excellently placed to take advantage of future growth in the area. The increase of convenience for the trucks and the reduction of congestion of trucks in town are also likely to result in a most significant positive socio-economic impact for the community of Volksrust.

Considering the above socio- economic impact, TOWB will only be implementing the first phase of the project whereby the truck stop will be build with only two diesel pumps installed for the trucks. The other associated facilities will be considered in the next phase when the need arises due to the planned expansions anticipated in the area. During the Impact Assessment, it was determined that the proposed project has no biophysical (air, water, noise etc) environmental fatal flaws provided that the recommended mitigation and management measures contained in the preceding chapter and Environmental Management Programme (EMPr) are implemented (refer to Appendix H) however the social impacts as indicated in the report need to be considered. The EMPr would be used to ensure compliance with environmental specifications and management measures. The implementation of

this EMPr for the entire life cycle of the project is considered to be vital in achieving the appropriate environmental management standards as detailed for this project.

Furthermore, the no-go option is not preferred as the economical and social challenges for the town and its immediate surrounding and further beyond will persist. Should the proposed project not proceed, the current state will worsen considerably whereby Volksrust town will still experience the following:

- Continuous, increasingly rapid, deterioration of local roads within the town and neighbourhoods as a result of heavy vehicles parking and manoeuvring on the local streets due to the lack of transport facilities like a truck stop
- Increased number of accidents as a result of congestion and obstructions caused by trucks parking overnight in town or attempting to refuel at existing fuel stations not suitable for the refuelling of trucks
- Increase in noise and air pollution around residential neighbourhoods where the trucks park to overnight
- The proposed investment of R35 million into the project will bring much needed economic stimulation and job creation for up to 200 people during the construction period and 30 permanent people during operation should the project not go ahead this will not realise and the further decline of the local transport sector becomes a reality

The owner of Smalkloof guest house may also lose some business due to altered view from the guest house yet could gain other guest from the truck stop.

It must also be noted that a separate process is currently underway to also obtain town planning approval for the development, and that this would also be an important approval and requirement for the final authorization of the proposed development.

The abovementioned must be considered by the Department in its evaluation of the environmental authorisation application.

APPENDICES

APPENDIX A: CONCEPTUAL DESIGN

APPENDIX B: DEVELOPMENT MOTIVATION MEMORANDUM

APPENDIX C: FEASIBILITY STUDY

APPENDIX D: SPECIALIST STUDIES

MDEDET REF.NO.: 17/3/2-GS110 :- PROPOSED TRUCK STOP WITH FILLING STATION AND ANCILLARY USES KNOWN AS MEERKAT TRUCK STOP ON REMAINING EXTENT OF POTION 9 (A PORTION OF PORTION 5) OF THE FARM SMALKLOOF 122 REGISTRATION DIVISION HS VOLKSRUST, MPUMALANGA PROVINCE

APPENDIX E: MINUTES OF THE MEETING OF IDP REPRESENTATIVE FORUM

APPENDIX F: PUBLIC PARTICIPATION

MDEDET REF.NO.: 17/3/2-GS110 :- PROPOSED TRUCK STOP WITH FILLING STATION AND ANCILLARY USES KNOWN AS MEERKAT TRUCK STOP ON REMAINING EXTENT OF POTION 9 (A PORTION OF PORTION 5) OF THE FARM SMALKLOOF 122 REGISTRATION DIVISION HS VOLKSRUST, MPUMALANGA PROVINCE

APPENDIX F1: SITE NOTICE PHOTOS

MDEDET REF.NO.: 17/3/2-GS110 :- PROPOSED TRUCK STOP WITH FILLING STATION AND ANCILLARY USES KNOWN AS MEERKAT TRUCK STOP ON REMAINING EXTENT OF POTION 9 (A PORTION OF PORTION 5) OF THE FARM SMALKLOOF 122 REGISTRATION DIVISION HS VOLKSRUST, MPUMALANGA PROVINCE

APPENDIX F2: NEWSPAPER ADVERTISEMENT

APPENDIX G: SPECIALIST STUDIES

APPENDIX H: ENVIRONMENTAL MANAGEMENT PROGRAMME