ENVIRONMENTAL IMPACT ASSESSMENT REPORT EIAR FOR THE PROPOSED DEVELOPMENT OF MAPUTO DRY PORT IN ENHLAZENI DISTRICT WITHIN THE NKOMAZI LOCAL MUNICIPALITY IN THE MPUMALANGA PROVINCE.

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1. INTRODUCTION

Ponye Trading and Projects has been appointed to be an independent Environmental Assessment Practitioner by TLG Corporate Services (Pty) Ltd (Herein referred to as the applicant). The applicant propose the development of a dry port facility. Ponye Trading and Projects will facilitate the application for Environmental Authorisation as per requirements of Environmental Impact Assessment Regulations of 2014 and National Environmental Management Act 1998, with the Competent Authority Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs (DARDLEA).

According to EIA Regulations, an Environmental Impact process must be undertaken for the proposed Dry Port Facility with the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs (DARDLEA) as the competent authority in this regard.

A dry port in form of an inland border-based port offering a rail to road linkage for tucks is proposed. In 2007, the Lebombo border dry port was initiated in the area. This port is about 3km north-west of the site. The existing dry port has shown to be inadequate in handling of the trucks that passes from South Africa to Mozambique and vice versa along the N4. Hence TLG Corporate Services (Pty)Ltd saw the need to build another Dry port facility to aid the existing one with the ever long line of trucks and to provide more services that will promote a much quicker way for the truckers to deliver their goods to the neighbouring country. Furthermore, the port will make use of rail system to allow for a quicker delivery to Maputo.

The proposed site is accessed via N4 road. The total area of the site measures 28 hectares. The site falls within the Nkomazi Local Municipality of Ehlanzeni District Municipality in Mpumalanga Province. The development can be found at the following geographic co-ordinates: 25°26'59.94"South and 31°57'32.87"East located on portions 19, 20, 21, 22, 26 and the remainder of portion 6 of the farm Lembombo 186 JU.

1.1. Purpose of Report

This report represents Environmental Impact Assessment Report and has been prepared in accordance with the EIA Regulations published in Government Notice No. R 984 of 2014. These regulations fall under Section 24(5) read with Section 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended) (NEMA).

NEMA Section 24(5) stipulates that "listed activities" (i.e., those activities that have been recognised as having a detrimental effect on the environment) require environmental authorisation from the competent authority.

Government Notice No. R 984, Listing Notice 2 (NEMA EIA Regulations, 2014) identifies the following listed activity associated with the proposed project that requires environmental authorisation by means of conducting an EIA:

Government Notice	***Activity No***	***Listed activity description***	***Applicability to Project***
GNR 327, Listing Notice 1	**Activity 12(i)(a)**	"The development of infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs within a watercourse"	The proposed development will involve the installation of Culverts at the natural stream
GNR 327, Listing Notice 1	**Activity 14**	"The development and related operation 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 cubic metres or more but not exceeding 500 cubic metres."	The development will also have a fuel depot which constitute 400 cubic meters storage tanks of Above Storage Tanks to for 50ppm diesel (5x80 cubic metres)
GNR 327, Listing Notice 1	**Activity 28(ii)**	"Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture on or after 1 April 1998 and where such development will occur outside an urban area where the total land to be developed is bigger than one hectare."	The establishment of the a new dry port facility on the farm Lembombo 186-JU
GNR 327, Listing Notice 2	**Activity 12**	"The development of railway lines."	A railway line is proposed to extend to the property from the existing railway line close to the proposed development.

1.2. EIA Process

The EIA process is controlled through Regulations published under Government Notice No. R. 984 and associated guidelines promulgated in terms of Chapter 5 of the National Environmental Management Act (Act 107 of 1998 as amended in 2014).

Three phases in the EIA process are typically recognized:

- Application Phase - **Completed**
- Scoping Phase - **Completed**
- EIA Phase – **We are here!**

1.2.1. Application Phase

The Application Phase consists of completing the appropriate application form by the Environmental Assessment Practitioner (EAP), the proponent and the subsequent submission and registration of the project with the competent authority. An application was completed and submitted to Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs (DARDLEA) on the 28 July 2022.

(a) **CONTACT DETAILS OF THE COMPETENT AUTHORITY**

Competent Authority	**Mpumalanga Department of Agriculture, Rural Development, Land And Environmental Affairs (DARDLEA)**
Contact Person	**Robyn Luyt**
Physical Address	20 Hans van Rensburg Street, Polokwane, 0700
Contact No.	013 759 4039/ 082 672 7868
E-mail	rluyt@mpg.gov.za

(b) **CONTACT DETAILS OF THE APPLICANT**

Applicant	**TLG Corporate Services (Pty) Ltd**
Contact Person	**Mr Ferdie Potgieter**
Contact No.	083 300 7247
Telefax No..	015 519 3294
E-mail	ferdie@tlg.co.za / Wfp@tlc.land

1.2.2 Scoping Phase

The Scoping Phase aims to identify the key environmental issues associated with the project, in part through public consultation; consider project alternatives; and provide focus for the EIA Phase. At the end of the EIA Phase a report is compiled, known as an EIA Report. As per Regulation, a scoping Report was compiled and provided the public with an opportunity to comment prior to submission of this EIA Report to the authority.

The aim of the Scoping Report is to document the outcome of the Scoping Phase. The report included:

- Details of the Environmental Assessment Practitioner undertaking the EIA
- Details of the project proposal
- Details of alternatives considered in formulating the project proposal
- Description of the legislation and guidelines applicable to the proposed activity
- A description of the receiving environment
- A register of Interested and Affected Parties
- Documentation of the process and outcome of the public participation
- An identification of environmental issues and impacts associated with the project proposal and alternatives
- A description of the issues that require further investigation
- A description of the methodology to be used in the assessment of impacts
- A Plan of Study for Environmental Impact Assessment that will include a description of the public participation process.

The application was lodged with the Competent Authority on 28 July 2022. The Scoping Report was subjected to a 30-day comment period for I&AP's and authorities from the date of submission. Once the draft Scoping Report was reviewed by I&APs, comments were collected, final scoping report was amended appropriately and finalised. The final Scoping Report was submitted together with the Plan of Study for Environmental Impact Assessment to DARDLEA on the 12 September 2022. The final Scoping Report and the Plan of Study for EIA have been accepted by DARDLEA on the 30 September 2022, the project proceeded into its detailed EIA Phase. (See appendix for all the correspondence with Competent Authority)

1.2.3 EIA Phase

During the EIA phase (this phase), a draft Environmental Impact Assessment Report (EIAR), which takes into consideration all the identified key issues and associated impacts from the Scoping Phase, together with a draft Environmental Management Programme, which specifies the way proposed mitigation measures are to be implemented, was produced by Ponye Trading and Projects Ltd. The draft EIAR will be made available to registered I&APs to review and comment upon for a period of 30 days. The I&AP comments will be integrated into the final EIAR and it is submitted to DARDLEA for consideration.

1.2.4 Public participation process undertaken in EIA phase

- A newspaper advert was placed on a local newspaper calling for Interested and affected parties to register their names and comment on the report.
- Notices were placed around the site and in komatipoort
- Circulation of report to organs of state.

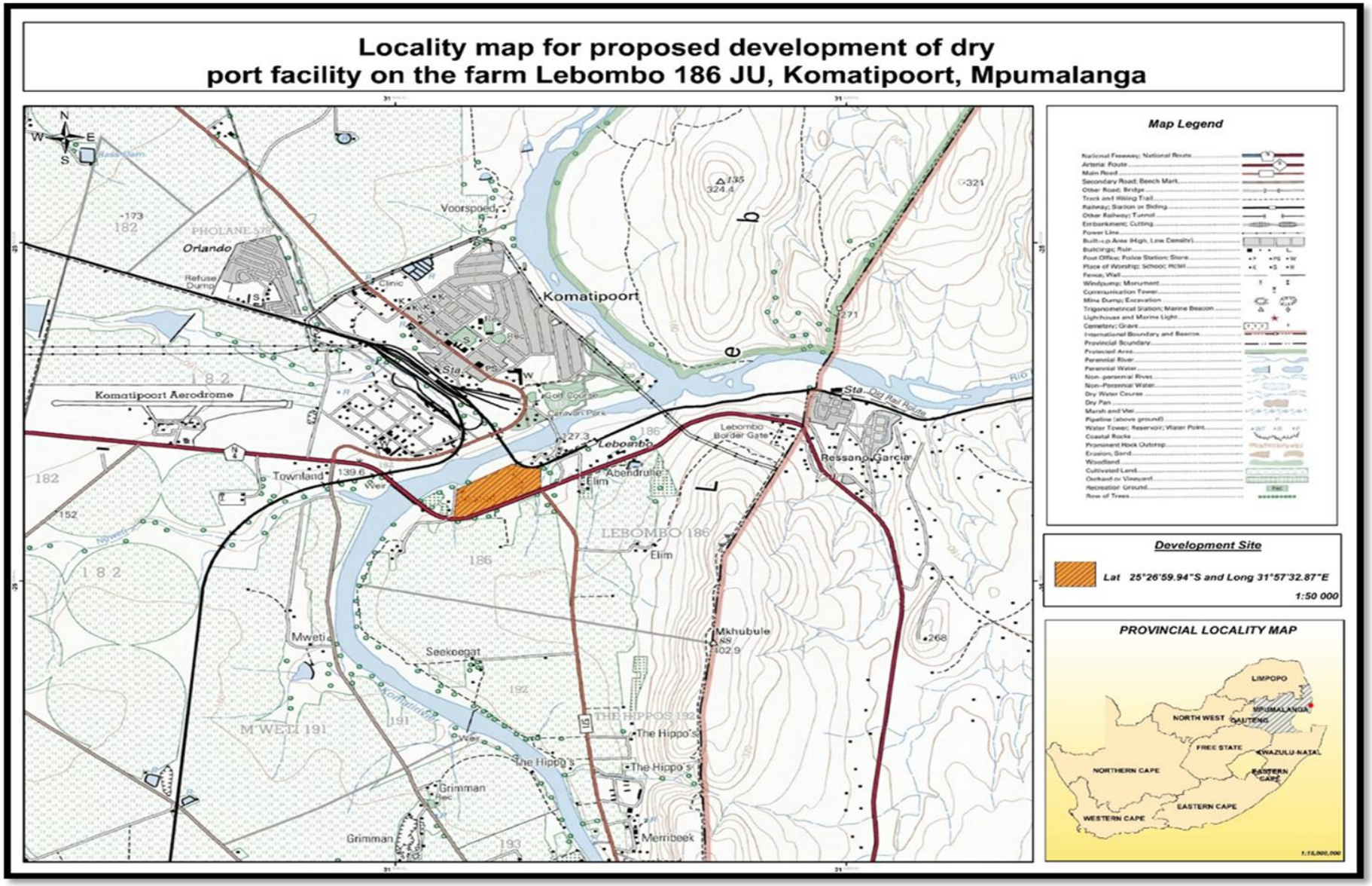
2. PROPOSED ACTIVITY

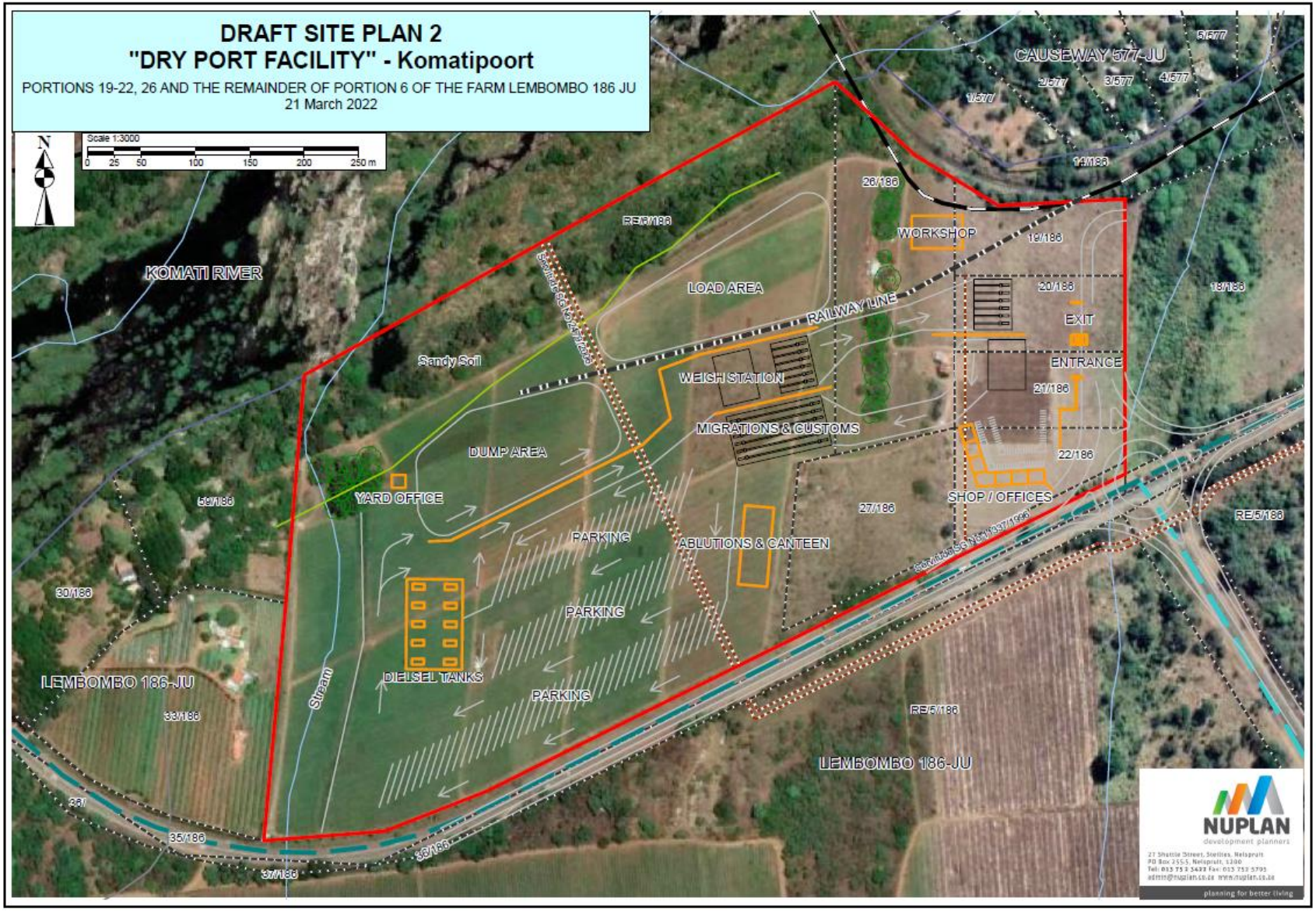
2.1 Location of the Proposed Activity

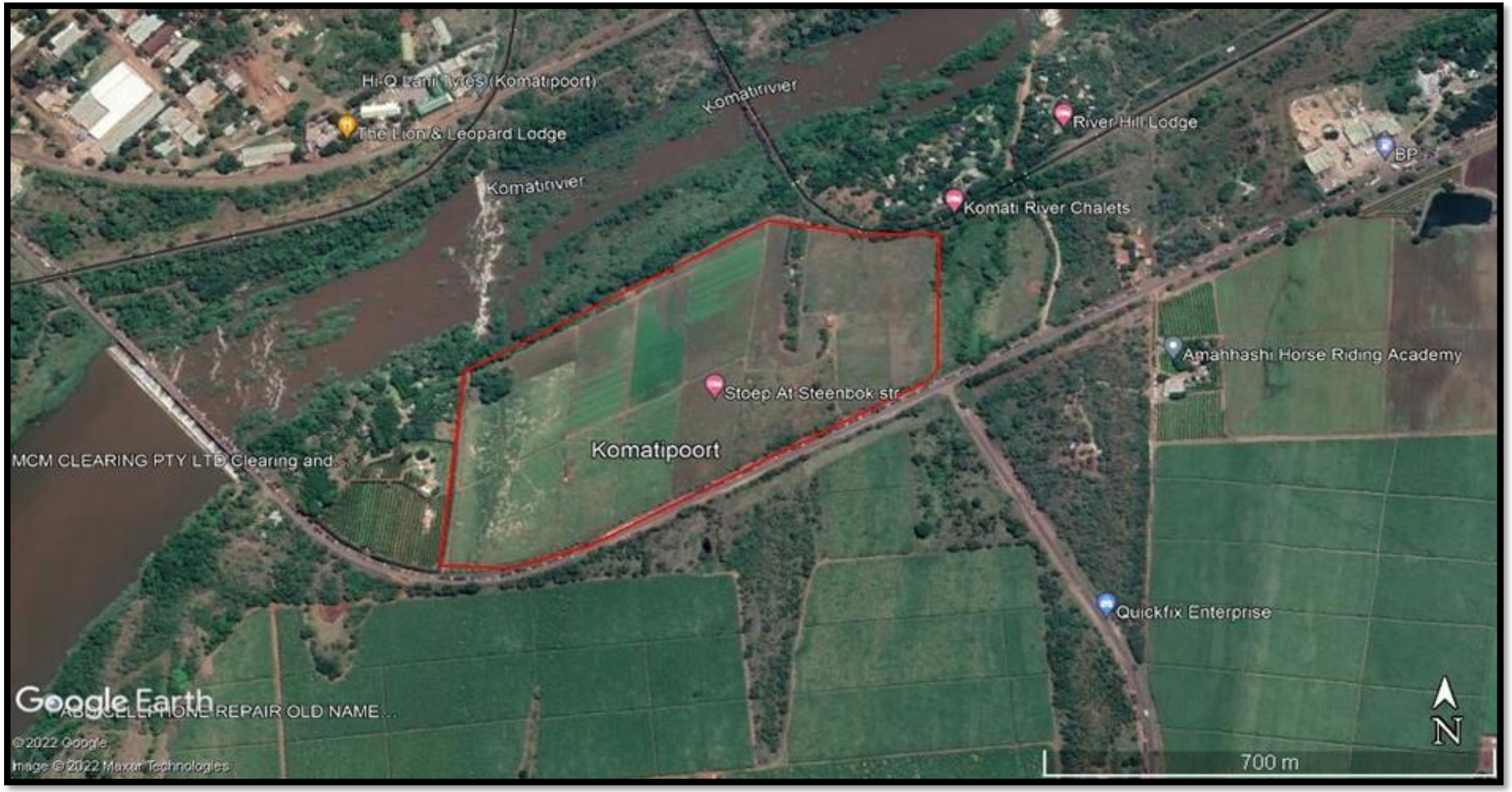
The proposed site is accessed via N4 road located on portions 19, 20, 21, 22, 26 and the remainder of portion 6 of the farm Lembombo 186 JU. The total area of the site measures 28 hectares. The site falls within the Nkomazi Local Municipality of Ehlanzeni District Municipality in Mpumalanga Province.

The development can be found at the following geographic co-ordinates**: 25°26'59.94"**South and **31°57'32.87"**East located on portions 19, 20, 21, 22, 26 and the remainder of portion 6 of the farm Lembombo 186 JU. The 21-digit survey general's code of the farm is;

- **T0JU00000000018600019;**
- **T0JU00000000018600020;**
- **T0JU00000000018600021;**
- **T0JU00000000018600022;**
- **T0JU00000000018600026 and**
- **T0JU00000000001860000 (Remaining Extent).**


Locality map for proposed development of dry port facility on the farm Lebombo 186 JU, Komatipoort, Mpumalanga
Map Legend
Development Site
Lat 25°26'59.94"S and Long 31°57'32.87"E
1:50 000
PROVINCIAL LOCALITY MAP
LIMPOPO
NORTH WEST
MPUMALANGA
GAUTENG
FREE STATE
KWAZULU-NATAL
NORTHERN CAPE
EASTERN CAPE
WESTERN CAPE
Komatipoort
Komatipoort Aerodrome
Orlando
Voorspoed
Lebombo
Elim
Abendrulie
Townland
Mweti
Seekoegat
Mkhubule
Grimman
Merribeek
The Hippo's
LEBOMBO 186
M'WETI 191
THE HIPPOS 192


DRAFT SITE PLAN 2
"DRY PORT FACILITY" - Komatipoort
PORTIONS 19-22, 26 AND THE REMAINDER OF PORTION 6 OF THE FARM LEMBOMBO 186 JU
21 March 2022
N
Scale 1:3000
0 25 50 100 150 200 250 m
KOMATI RIVER
CAUSEWAY 577-JU
1/577
2/577
3/577
4/577
5/577
RE/6/186
26/186
14/186
WORKSHOP
19/186
20/186
18/186
LOAD AREA
RAILWAY LINE
EXIT
ENTRANCE
Sandy Soil
WEIGH STATION
21/186
MIGRATIONS & CUSTOMS
DUMP AREA
22/186
YARD OFFICE
SHOP / OFFICES
28/186
27/186
RE/5/186
PARKING
ABLUTIONS & CANTEEN
30/186
PARKING
LEMBOMBO 186-JU
DIESEL TANKS
Stream
PARKING
RE/5/186
33/186
LEMBOMBO 186-JU
35/186
37/186
NUPLAN
development planners
planning for better living


Hi-Q Fani Tyres (Komatipoort)
The Lion & Leopard Lodge
Komatirivier
Komatirivier
River Hill Lodge
BP
Komati River Chalets
Amahhashi Horse Riding Academy
Steep At Steenbok str
Komatipoort
MCM CLEARING PTY LTD Clearing and...
Quickfix Enterprise
Google Earth
©2022 Google
Image © 2022 Maxar Technologies
700 m
N

2.2 Description of Proposed Activity

The proposed development mainly involves transformation of agricultural land to township establishment consisting of a mixed land use model with residential, educational, business, community and open spaces uses (Appendix C). If approved, the proposed development will consist of the following on on portions 19, 20, 21, 22, 26 and the remainder of portion 6 of the farm Lembombo 186 JU, Nkomazi Local Municipality of Ehlanzeni District Municipality in Mpumalanga Province.

LAND USES	
1.Convenient store	Canteen / shop
2.Staff complex – included as follows	Governmental x 20 people / 10 offices Clearing Agents x 20 people / 10 offices General workers x 30 people Canteen area – 30 seated Boardroom – 20 seated Generator room
3.Diesel (50 ppm)	400,000 litter capacity Electrical Point 8 trucks ability to fill Above storage tanks
4.Weight Bridges	Weighbridges x 3
5.Rail	Extension of Rail line into property
6.Road	All internal roads paved Road linking to Transnet service road next to rail line Traffic circle(N4)
6.Offloading / Loading area – Open yard / Stockpiling	Paved Area – Stockpile for loading the trains Type of Products **Chrome** **Manganese** **Iron Ore** **Magnetite** **Coal, etc.**

7.Parking bay	Parking bay x 1000 trucks
8.Ablution facility	Toilets Basins Showers
9. Others	Work shop Yard Office Migration &Customs Purification Plant Fire reservoir-160KL Load area Dumping area Truck wash bay Pipelines

The subject property covers a total area of 28 hectares and the proposed development will take place on the total extent of the property.

In terms of sector classification, the proposed activity conforms to the following sector classifications as identified in the national electronic register: Sector 8: Greenfield transformation to urban or industrial form; and Sector 10: Township development

2.3 Bulk Services

2.3.1 Roads

The proposed development lies in close proximity to N4 road and R571 road boadering the southern side of the site. Access to the development is planned to be at the intersection of the roads. Therefore, the applicant intends to upgrade the existing N4 road to have a new roundabout at the N4 / R571 intersection (see figure below).

South African National Road Agency Limited has been consulted regarding access and upgrades to the above mentioned roads.

An access intersection will be directly opposite the R571 intersection as to form one intersection. The existing N4 / R571 intersection will be upgraded to a double-lane roundabout with the addition of the fourth leg (access to the dry port).

The above upgrades have been investigated and the development is supported from a traffic engineering point of view with following the recommendations:

- That the existing N4 / R571 intersection be upgraded to a double lane roundabout from which access to the development will be provided;
- This roundabout shall be designed in accordance with the latest SANRAL details and specifications;
- That the existing gravel road between the N4 and Komatipoort be re-aligned to gain access from the above-mentioned roundabout as well.
- That a future roads master plan of this area as attached to the traffic engineering study be accepted;
- In light of the above, once the future interchange is being constructed, the following will apply (refer annexure C):

- The existing R571 will be re-aligned towards the east and link with the existing "informal" Komatipoort gravel access road;

- The R571 will link with the N4 in the form of a Parclo Interchange with the R571 overbridge located at the existing N4 cutting which is located at a natural high point approximately 105m east of the existing gavel road intersection;

- With the re-alignment of the R571, the existing N4 / R571 intersection will fall away and access to the Dry Port facility will be provided from the interchange as well;

2.3.2 Water

The site has a borehole and a water use certificate from the Komati river irrigation board. According to approval from the board, the client is entitled to 218,900 m³/ annum (9,950m3 / ha / annum) from the Komati river. The development intends to source raw water from the Komati River. This raw water will then be pumped through to a water treatment facility in order to ensure that the quality guidelines in terms of SANS 241- 1:2015 are met.

The distribution of water within the development will be based on the recommended design criteria as contained in the Guidelines for Human Settlement Planning and Design as advised by the engineer.

The size of the development is of such a nature that the domestic water demand exceeds the fire water demand. Hence the development is proposed to have raw water/fire reservoir 160 KL capacity and domestic reservoir with a capacity of 200 KL. The internal water network will therefore be designed to accommodate the domestic water demand and will be distributed by means of various HDPE and uPVC class pipelines.

According to the engineering specialist, water is available for this development to be self-sufficient. Based on the water entitlement of 22ha water rights from the Komati River Irrigation Board when converted indicates 419.8 KL of domestic water with the development estimated daily water demand of approximately 151.94 KL per day.

The domestic water quality needs to be sampled on a regular basis in order to ensure that the quality guidelines in terms of SANS 241-1:2015 are met. In conclusion, the Department of Water and Sanitation must be consulted for water use license.

2.3.3 Sewer Drainage Network

No municipal bulk sewer in the vicinity of the proposed development. The applicant will develop a waterborne internal sewerage network for the proposed development. The sewerage reticulation system will be made up of various pipelines which consist of a minimum diameter of 160mm heavy duty Class 4 PVC which will yield sufficient network capacity.

The sewer system will be designed in accordance with SANS 1200LD, which will connect to the proposed modular package plant. Location of the plant within the site will take into account the gravity flow at a suitable gradient.

The engineering specialists recommends that the treated sewer be irrigated on the lawns and gardens at a maximum volume of 25mm / week water depth over the property area.

The sewerage purification plant (package plant) must be placed as such that all of the buildings (existing and future) will be able to drain towards this plant (taking cognisance of minimum slope gradients).

It must also be ensured that the plant will not be located within the 1:100 year floodline.

This type of system should consist of the following three major components:

- Pre-digestion in the form of the septic tanks;
- Bio – Reactor;
- Pathogen Treatment.

A water use licence application must be lodged with the DWS regarding the operation of the proposed modular package plant.

2.3.4 Solid Waste

Solid waste generated from the development will be separated at source into recyclables and nonrecyclables. Recyclables will be separated into the various categories, namely paper, plastic, cans and glass and stored in marked wheeled bins located at strategic points throughout the site. Nonrecyclables will be stored in a similar manner. All recyclables and non-recyclables will then be collected from the various points and taken to the refuse storage facility near the entrance gate. This area will be fenced off and screened.

The Nkomazi Local Municipality or private contractor will be communicated with to render collection of waste once per week or as and when needed and taken to the nearest recycling centre and/or landfill site. Currently no consent has been received from the municipality only comments to address regarding the proposed development.

2.3.5 Electricity

The municipality has no authority nor rights to be provider of electricity. At the moment the sole competency resides with ESKOM. There is an existing infrastructure that the development can will connect to near the proposed development. The main Eskom line is mainly the "KOMATIPOORTSONEFE 22kV" powerline – See image below

Figure 2: *Green line depicting Eskom powerline (Source: Eskom GIS Portal)*

Eskom will be consulted for the required demand to sustain the development. An engineer has been appointed to investigate the demand required for the development and communicate with Eskom in this regard.

Based on the engineer, Eskom has indicated that an MV bulk supply to the proposed development could be made available from the 22kV Sonefe Rural subject to the outcome of their investigation, network studies and negotiations. The applicable Eskom line has the power transfer capability to cater for the development with the option to increase the NMD in future which proves sufficient for the development period of the proposed development.

2.3.6 Storm Water Drainage

The removal of storm water from the road surface and the entire development will be via open surface channels and sub-surface storm water pipe networks with a minimum pipe size of 300mm diameter stormwater pipes. A prominent drainage line (south to north) along the eastern boundary of the development exists which will drain stormwater from the majority of the site. The internal drive ways and parking areas for trucks will be paved to provide effective storm water control. The management of storm water for this development will involve the use of kerbs, side drains, surface storm water pipe network, and culverts.

According to the engineer, the management of storm water for this development will therefore be as follow:

- On street kerbing and side drains: 1: 5 year rain storm for the area;
- Sub surface storm water pipe network and kerb inlets: 1: 5 year rain storm for the area;
- Culverts at the natural stream crossing: 1: 50 years;
- No buildings will be allowed within the 1: 100 year flood line;
- Earthworks be shaped in such a way as not to cause stormwater concentration at any point; and
- Stormwater Bio Swale be provided along the northern perimeter of the site

2.4 Alternatives

The EIA Regulations stipulate that a requirement of the EIA Process is to investigate feasible and reasonable alternatives to the project proposal.

The EIA Regulations define "Alternatives", in relation to a proposed activity, as "different means of meeting the general purpose and requirements of the activity, which may include alternatives to –

(a) Property on which or location where it is proposed to undertake the activity;
(b) Type of activity to be undertaken;
(c) Design or layout of the activity;
(d) Technology to be used in the activity; and
(e) Operational aspects of the activity

The concept of alternatives is aimed at ensuring that the best among all possible options in all aspects (environmental, economic, etc.) is selected. The option of not carrying out the proposed actions (no-go option) or developments is discussed to demonstrate environmental conditions without the project.

This means that for any project that is proposed, there should be a number of possible proposals or alternatives for accomplishing the same objectives or meeting the same need. Alternatives that would

still meet the objective of the original proposal, but which would also have an acceptable impact on the environment (referring to physical, biological, aesthetic/visual) must be considered.

Please note there is no other alternative for the activity as the proposed development areas are the only sites available. – site is transformed by the previous land uses for crop farming.

Activity alternatives

"These are sometimes referred to as project alternatives, although the term activity can be used in a broad sense to embrace policies, plans and programmes as well as projects. Consideration of such alternatives requires a change in the nature of the activity. An example is incineration of waste rather than disposal in a landfill, or the provision of public transport rather than increasing the capacity of roads. In view of the substantive differences in the nature of the activities, it is likely that this category is most appropriate at a strategic decision-making level, such as in a Strategic Environmental Assessment" (DEAT:2004d).

The activity does not take place at a strategic decision-making level. Activity alternatives therefore do not apply to this activity.

Location alternatives

"Location alternatives could be considered for the entire proposal or for a component of the proposal, for example the location of a processing plant. The latter is sometimes considered under site layout alternatives. A distinction should also be drawn between alternative locations that are geographically quite separate, and alternative locations that are in close proximity. In the case of the latter, alternative locations in the same geographic area are often referred to as alternative sites. This tends to be the more common application" (DEAT: 2004d).

During the pre-planning phase various location alternatives were considered. All of these alternatives were discarded by the applicant in favour of the development due to the fact that the **site ownership has already been secured.**

Process alternatives

"This type of alternative is particularly relevant to industrial projects. Due to the technical nature of the alternatives, the proponent is expected to play a major role in the identification of alternatives. For this reason, transparency in identification and evaluation of alternatives is crucial" (DEAT:2004d).

Due to the non-industrial nature of the activity, process alternatives do not apply to the development.

Demand alternatives

"Demand alternatives arise when a demand for a certain product or service can be met by some alternative means. Thus, for example, the demand for electricity could be met by supplying more energy or through using energy more efficiently by managing demand" (DEAT:2004d).

Energy efficient alternatives may pose feasible and reasonable alternatives that will be considered during the subsequent prescribed environmental impact assessment process.

Scheduling alternatives

"These are sometimes known as sequencing or phasing alternatives. In this case an activity may comprise a number of components, which can be scheduled in a different order or at different times and as such produce different impacts. For example, activities that produce noise could be scheduled during the day to minimize impacts, and activities that may impact on birds could be scheduled to avoid the migratory season. Such alternatives could be incorporated into the project proposal and so be part of the project description, and hence need not necessarily be evaluated as separate alternatives" (DEAT:2004d).

Scheduling alternatives may pose feasible and reasonable alternatives that will be considered during the subsequent prescribed environmental impact assessment process.

Input alternatives

"By their nature, input alternatives are most applicable to industrial applications that may use different raw materials or energy sources in their processes. For example, an industry may consider using either high sulphur coal or natural gas as a source of fuel. Again, such alternatives could be incorporated into the project proposal and so be part of the project description, and need not necessarily be evaluated as separate alternatives" (DEAT:2004d).

Due to the non-industrial nature of the activity, input alternatives do not apply.

Routing alternatives

"Consideration of alternative routes generally applies to linear developments such as power lines, transport and pipeline routes. In route investigations, various corridors are investigated and compared in terms of their impacts" (DEAT:2004d).

The activity does not represent a linear development and routing alternatives were thus not considered.

Site layout alternatives

"Site layout alternatives permit consideration of different spatial configurations of an activity on a particular site. This may include particular components of a proposed development or may include the entire activity. For example, siting of a noisy plant away from residences, and secondly, siting of a particular structure either prominently to attract attention or screened from view to minimise aesthetic impacts" (DEAT:2004d).

The issues that have been identified as potential impacts may necessitate the consideration of site layout alternatives during the prescribed environmental impact assessment phase subject to the outcome, findings and recommendations of the respective specialist studies.

Scale alternatives

"In some cases, activities that can be broken down into smaller units can be undertaken on different scales. For example, in a housing development there could be the option of 100, 150 or 200 housing units. Each of these scale alternatives may have different impacts" (DEAT:2004d).

The scale of the project proposal has been determined in accordance with perceived needs. Scale alternatives as such were therefore not pursued. It needs to be mentioned that a phased approach to be informed by budgetary considerations may be followed. This approach may influence the eventual scale of the development.

Design alternatives

"Consideration of various designs for aesthetic purposes or different construction materials in an attempt to optimise local benefits and sustainability would constitute design alternatives. Appropriate applications of design alternatives are communication towers. In such cases, all designs are assumed to have different impacts. Generally, the design alternatives could be incorporated into the project proposal and so be part of the project description, and need not be evaluated as separate alternatives" (DEAT: 2004d).

Design alternatives that will enhance the aesthetic character of the area will be embedded into the development's building designs. No specific design alternatives are thus proposed.

2.5 No-go Alternatives

"The "no-go" alternative … assumes that the activity does not go ahead, implying a continuation of the current situation or the status quo. In a situation where the negative environmental impacts have high significance, the "no-go" alternative takes on particular importance" (DEAT:2004d).

The "no-go" alternative normally receives consideration when an activity poses adverse negative impacts to the environment that cannot be successfully mitigated. A preliminary significance assessment did not reveal any potentially adverse negative impacts, either in unmitigated or mitigated form.

3. NEED AND DESIRABILITY

A dry port was originally conceived as an inland terminal to and from which shipping lines could issue their bills of lading, with the concept being initially envisaged as applicable to all types of cargo (UNCTAD, 1982). However, as the concept evolved not only to be closely associated with the rapid expansion of containerization and related changes in cargo handling (UNCTAD, 1991), but also to be applied in a variety of different contexts having the common characteristic of relating simply to „a place inland that fulfils original port functions" (Cullinane and Wilmsmeier, 2011). As a consequence, usage of the term „dry port" has become rather vague, with numerous different definition but for this development an "an inland border based port offering a rail to road linkage for tucks" is proposed.

In 2007, the Lebombo border dry port was initiated. This port is about 3km north-west of the site. The existing dry port has shown to be inadequate in handling of the trucks that passes from South Africa to Mozambique and vice versa along the N4. Hence TLG Corporate Services (Pty)Ltd saw the need to build another Dry port facility to aid the existing one with the ever long line of trucks and to provide more services that will promote a much quicker way for the truckers to deliver their goods to the neighboring country.

According to the latest report by Cross Boarder Road Transport Agency (Cross-Border Flow Calculator Corridor Comparative Economic Impact Assessment) dated March 2022, the extent of delays and the related logistics costs for Lebombo border are quite substantial and worrying. The drivers have to queue for more than 30km and take almost 3 days before they can be cleared to offload the materials in to Maputo and come back to South Africa as a routine.

During the nights they are robbers from informal settlement close to the border who come and rob them of their belongings as they take advantage low police visibility. During site inspection few drivers where interviewed to establish many factors that impact them negatively: weather conditions, food accessibility, ablution facilities and safety There is a great need from the development of this proposed Dry port as it will enable the quickest drop off of material in to the rail immediately when full be shipped into Maputo.

The SARS/custom offices that will be on the proposed site will fast track the processes of clearance and avoid unnecessary delays. The Dry port will assist the drivers with ablution facilities, offer place of refreshment. The ablutions will also limit the unnecessary reliefs closer to the road as well as closer to the farm. The driver will no longer be forced to sleep in to the trucks, rather they can sleep at the Dry Port as there will be rooms for services.

In terms of Regulation 28(1) (i), of National Environmental Management Act, 1998 (Act no. 107 of 1998) Environmental Impact Assessment Regulations. This section discusses the need and desirability of the project.

Desirability based on the feasibility study:

Visibility - Being located on a Principle Arterial and transient route between Mbombela, the Lebombo Border Post and the Mananga Border Post, with no natural obstructions or topography that impairs the visibility, the site is easy visible to passing traffic from a good distance away. The visibility can thus be described as VERY GOOD.

Location The study site is located next to the N4, a national route which feeds raffic to-and from Gauteng, Mbombela, Mozambique and eSwatini, therefore the location of the site is considered to be VERY GOOD.

Trading Market - Considering that this truck stop relies mainly on heavy vehicle transient traffic travelling long distances towards Mozambique as well as from further away places such as Johannesburg and Pretoria along the N4, the trading market is described as GOOD.

Competitor Stations - The nearest existing filling station is situated approx. 800m from the site. There is a total of six (6) filling stations within a 3km radius, including the nearest filling station at approx.

800m. A total of seven (7) existing filling stations are within 5km radius from the site, with existing one truck stop. The study site in terms of Competitors can thus be rated as AVERAGE.

Traffic Volumes - The survey indicated high volumes (approx. 8,170vpd) passing the proposed site in all directions, with heavy vehicles being 2,821 vehicles per day. The exposure to traffic can thus be described as GOOD.

4. LEGISLATION AND POLICY GUIDELINES CONSIDERED

The following table presents the most pertinent relevant legislation for the proposed development.

	ACT	SUMMARY	RELEVANCE TO DEVELOPMENT
4.1	**Constitution (Act 108 of1996)**	Everyone has the right to an unharmful environment which must be protect for the benefit of future generations. This is achieved through measures such as; preventing pollution and degradation, promoting conservation, promoting sustainable development and sustainable use of natural resources.	Ensure conservation principles are promoted, that the proposed activity is ecologically sustainable and will not result in pollution and ecological degradation.
4.2	**National Environment Management Act (No 107 of 1998)**	NEMA creates the legal framework that ensures that environmental rights are guaranteed. The core principal relates to promoting sustainable development. The duty of care concept extends to prevent, control and rehabilitate pollution and degradation. Failure to perform these duties may lead to criminal prosecution. NEMA also introduces the EIA Regulations.	The proposed development should be in accordance with the NEMA principals, where this is not possible, reasons for deviation must be strongly motivated.

4.3	**National Water Act (No. 36 of 1998) and pollution prevention**	The purpose of this Act is to ensure that the nation's water resources are protected, managed and controlled in an environmentally sustainable way. Also, relevant to the proposed activity is Section 19 of the Act which deals with pollution prevention.	Any water use must be investigated, specified, registered and licensed. Developers are responsible for taking measures to prevent pollution of water resources, undertaking necessary clean up procedures and controlling waste.
4.4	**Conservation of Agricultural Resources Act (Act 43 of 1983) (CARA) &CARA Regulations (1984)**	CARA aims to conserve the natural agricultural resources by combating and preventing erosion, weeds and invader plants. No land user must affect the natural flow pattern of run- off water.	The developer will be responsible for weed and invader control, storm water control must also be implemented.
4.5	**National Environmental Management: Waste Management Act (No.95 of2008)**	The Act with its regulations provide a list of waste management activities that have or are likely to have a detrimental effect on the environment	The proposed development falls below thresholds for listed waste management activities.
4.6	**National Heritage Resources Act (No 25 of 1999)**	The protection of archaeological and paleontological sites and material is the responsibility of a provincial heritage resources authority and all archaeological objects are property of the state.	No presence of heritage resources on site that require a permit from heritage authorities. Any artefacts uncovered during the undertaking of the development must be reported to SAHRA.

Additional Acts and Frameworks which have a bearing on the proposed development are *inter alia*:

- Hazardous Substances Act, 15 of 1973;
- Occupational Health and Safety Act, 85 of 1993;
- Development Facilitation Act, 67 of 1995;
- National Road Transport Act, 93 of 1996;
- Extension of Security Tenure Act, 62 of 1997;
- Basic Conditions of Employment Act, 75 of 1997;
- South Africa National Road Agency and National Roads Act, 7 of 1998;
- Promotion for Administrative Justice Act, 3 of 2000;
- Mineral Petroleum Resources Development Act, 28 of 2002;
- The National Environmental Management: Protected Areas Act, 57 of 2003;
- The National Environmental Management: Biodiversity Act, 10 of 2004;
- Traditional Leadership and Governance Framework Amendment Act, 23 of 2009;
- National Railway Safety Regulator Act, 16 of 2002;
- Nkomazi Spatial Development Framework;
- Ehlanzeni policies and by-laws;
- National Development Plan.

5. DESCRIPTION OF RECEIVING ENVIRONMENT

This section provides the environmental status quo of the receiving environment. Information is derived from credible sources and specialist inputs who have developed specific comprehensive report attached to the EIAR. The aim of this section is to provide a glimpse on how the nature of the environment to be affected from a biophysical, social and economic aspects perspective.

5.1 Physical Environment

5.1.1 Climate

The proposed site for the dry depot facility is an area with temperate highland tropical climate with dry winters climate (Classification: Bsh Arid climate)The summer in the study area are hot, muggy, wet, and partly cloudy and the winters are short, comfortable, dry, and clear. Over the course of the year, the temperature typically varies from 14°C to 30°C and is rarely below 11°C or above 35°C.from June - August, with an average daily high temperature below 25°C.

The coldest month of the year in Komatipoort is July, The hot season lasts for 3.5 months, from December - March, with an average daily high temperature above 29°C. The hottest month of the year is January, with an average high of 30°C and low of 21°C. The cool season lasts for 2.2 months, A wet day is one with at least 1.00 millimetres of liquid or liquid-equivalent precipitation. The wetter season lasts 5.3 months, from October to April, with a greater than 24% chance of a given day being a wet day. The month with the wet days in Komatipoort is December, with an average of 13.4 days with at least 1.00 millimeters of precipitation.

5.1.2 Geology

According to the 1:250 000 geological sheet 2530 Barberton, the site is underlain by three different rock types with contacts striking north-south across the site. Basaltic lava of the Sabie River Formation occurs on the eastern third of the site and forms the host rock for the Komatipoort Suite rocks. The Komatipoort Suite comprises Granophyre (Jk1) as well as the olivine gabbro, granophyre gabbro (granophyre) and feldspathic gabbro (Jk2). The granophyric gabbro occurs on the western third of the site with a thin zone of olivine gabbro between the granophyre and basalt as well as right on the western edge.

5.1.3 Hydrology

The Inkomati River catchment is parts of Mpumalanga, Swaziland and Mozambique between the Limpopo River system in the north and the Pongola River system in the south. The total basin area is about 46,800 km2 of which 63% is in South Africa, 5% in Swaziland and 32% in Mozambique. The average discharge of the Inkomati Water Course at the estuary is about 100 m3s-1 to200 m3s-1, corresponding to about 3,600 million m3 per year, to which South Africa contributes 82%, Swaziland about 13% and Mozambique about 4%.This is one of the most important river basins in South Africa and it consists of three adjacent sub-basins, the Komati which is adjacent to the site and also the Crocodile and Sabie

There is no wetlands and any surface stream identified in terms of the National Freshwater Ecosystem Priority Areas (NFEPA) flowing within the footprint of the development site. However, the Komatii river, flows in close proximity to the site. The Komati River catchment is ecologically severely stressed due to the water demands imposed on this catchment. In this catchment ESKOM and agriculture are the major water users. There are also various abstraction weirs that affect the aquatic ecosystem and are creating serious obstructions to fish migrations. Komati River ends at its confluence with the Crocodile River, where after the river is referred to as the Inkomati River or Rio Inkomati as referred to in Mozambique

According to the specialist the there is an aquatic feature which occurs around the study area and within the 500m radius. The proposed development is likely to have moderate impact on the Komati river.

5.1.4 Topography

The terrain morphology (Kruger, 1983) of the area can be classified as Mountains and Foothills. The altitude of the project area is between 671masl and 702masl. The topography of the area where the activities are located is gentle, with a gradient of between 1^{o} and 5^{o} dipping due north.

However, no evidence of unstable natural slope was observed on site during the investigation according to the Muthwa geo-engineering services. The site is of most favourable with a low risk.

5.2 Biological Environment

5.2.1 Flora

The site vegetation type is the Tshokwane-Hlane Basalt Lowveld. This type of vegetation is distributed in the Komatipoort to around Ngwenyeni in the south. Usually fairly flat plains with open tree savanna, often dominated by tall Sclerocarya birrea and Senegalia nigrescens with a moderately developed shrub layer and a dense herbaceous layer. On some sloping areas with shallower soils, trees are stunted. Altitude where it occurs is mostly about 180–400 m.

The site is classified a cultivated (cultivated commercial sugarcane non-pivot) which is consistent with ground truthing findings, see site photographs. *The Sclerocarya birrea* (Marula tree) *and Boscia albitrunca* (Shepherd tree) tree species were spotted on the proposed site. This plant species are listed in terms of the National Forest Act as per the specialist findings. Furthermore, no presence of indigenous vegetation has been identified as the site is highly transformed.

5.2.2 Fauna

Based on historical and current anthropogenic activities occurring in the area large wild mammals will not be expected to occur on and around the proposed site. However small mammals and reptiles should be anticipated migratory routes and breeding grounds. The lack of field data was incorporated by the limitless available literature and computerised data. The datasets which were referred to include, but not limited to: SouthAfrican Bird Atlas Project 2 (SABAP 2), Coordinated Avifaunal Roadcounts (CAR) and BirdLife South A(BLSA). In terms of the avifaunal assessment, the proposed site is located within the Pentad 2325_3000 withe QDS 2330 AC which does not fall within an

Important Bird Area (IBA). Weather the birds nest or utilize resources found on the proposed site is a study that would ideally require a longer period for field work.

According to the Ecologist, the area has been transformed due to anthropogenic activity mainly crop farming. About 24 mammal records have been reported for the QDS. However, no habitat, tracks and any evidence of the presence of wild life mammals suggested as well as aves within the site.

5.3 Cultural and Historical Sites

No archaeological features were identified in the project area. There are no known significant archaeological or cultural elements that are within close proximity of the project area. A heritage specialist Vhufa Hashu Heritage Consultancy cc was appointed to conduct a phase 1 heritage study to confirm the above findings.

Based on the field study results and field observations, the author concluded that the receiving environment for the proposed development is low potential to yield previously unidentified archaeological sites during subsurface excavations and construction work associated with the proposed project. This observation is supported by the fact that no Iron Age sites are indicated in a historical atlas around the study site; however, this may be an indication of a lack of research. Literature review also revealed that no Stone Age sites are shown on a map contained in a historical atlas of this area (Bergh 1999).

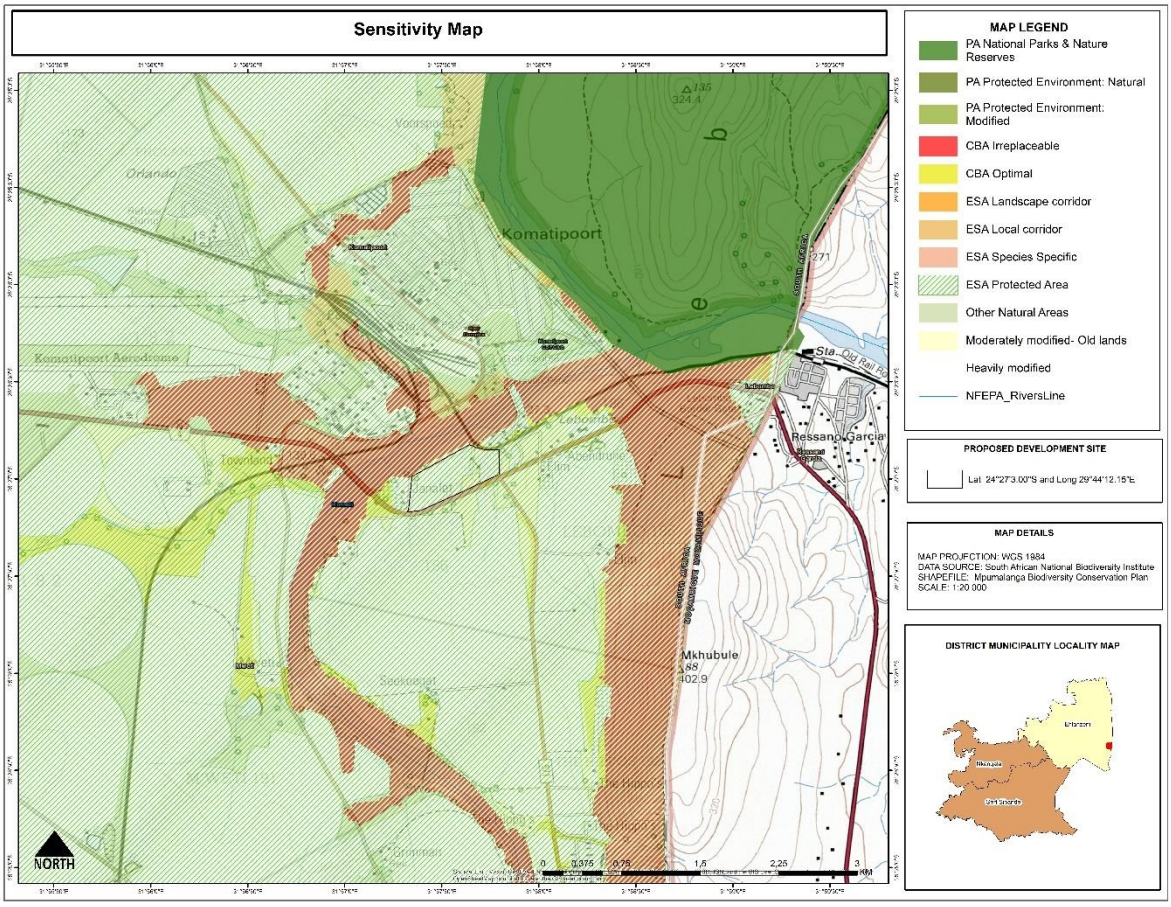
5.4 Current state of the site

Cultivation site	Sugar cane fields
	

Building structure

Building structure

5.5 Site sensitivity status



Sensitivity status based of the receiving environment is as follows:

- Climate – located in a temperate highland tropical climate

- Geology – no geological constrains i.e. dolomites identified
- Hydrology – the site is outside NFEPA buffer based on the above
- Topography – site is gentle flat slope ideal for development
- Flora – few protected species within the property footprint
- Fauna – no habitats of conservation concern
- Cultural and heritage – no heritage features
- Biodiversity Systematic plan – site not in a Critical biodiversity but Ecological support
- Status of the site - Highly modified site due to historic farming activity.

Based on the above submissions it is stated that the proposed development will not impact significantly on any ecologically sensitive features.

6. PUBLIC PARTICIPATION PROCESS

Public participation is one of the most important aspects of the EIA process. This is because people have a right to be informed about the potential decision that may affect them and be afforded an opportunity to influence the decision. Hence, "Public Participation Process", means a process by which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, an application.

The public participation is conducted in terms of Regulations 39 to 44 of the Environmental Impact Assessment (EIA) Regulations, 2014, as amended. The aim of the public participation process is primarily to ensure that:

- information containing all relevant facts in respect of the application for EIA application available to potential interested and affected parties;

- participation by interested and affected parties is facilitated in such a manner that all potential or registered I&APs are provided with a reasonable opportunity to comment; and

- Comments and issues which any party believes may be of significance to the consideration of the application are recorded and incorporated in the process.

PUBLIC PARTICIPATION IN TERMS OF CHAPTER 6 OF THE EIA REGUGULATIONS		
REGULATION	SPECIFIC REGULATIONS	ACTION UNDERTAKEN
Regulation 39(1)	If the proponent is not the owner or person in control of the land on which the activity is to be undertaken, the proponent must, before applying for an environmental authorisation in respect of such activity, obtain **the written consent of the landowner or person in control of the land** to undertake such activity on that land.	• The applicant has consent from the land owner, please see the attached deeds record.
Regulation 41(2)	The person conducting a public participation process must take into account any relevant guidelines applicable to public participation as contemplated in section 24J of the	• EIA Public participation guidelines considered

	Act and must give notice to all potential interested and affected parties of an application or proposed application which is subjected to public participation by—	
Regulation 41(2)(a)	**Fixing a notice board** at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of— (i) the site where the activity to which the application or proposed application relates is or is to be undertaken; and (ii) any alternative site;	Notice board has been done in the following manner: (i) On site notice has been erected at the entrance to the site – o The notice was compiled in a format provided in Regulation 41(3) o The size and the displayed information is in a format as per requirement of Regulation 41(4) (*See also the draft sample*) (ii) No alternative site exist, due to the nature of the application.
Regulation 41(2)(b)	Give **written notice**, in any of the manners provided for in section 47D of the Act, to- (i) the occupiers of the site (ii) owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken (iii) the municipal councillor of the ward in which the site and alternative site is situated and any organisation of ratepayers that represent the community in the area;	A written notice board was done in the following manner: (i) A written notice issued as per the requirements by circulation of the background information document. (ii) Not current occupier of the site; (iii) Councillor; (iv) The proponent is the municipality and has jurisdiction over the area . (v) The DARDLEA, Department of Water and Sanitation, Department of Agriculture, Eskom and other key organs of state who have been consulted. (vi) Any persons/party suggested by DARDLEA the competent authority will be included as part of the individuals to receive a notification.

	(iv) the **municipality** which has jurisdiction in the area; (v) any **organ of state** having jurisdiction in respect of any aspect of the activity; and (vi) any **other party** as required by the competent authority;	(vii) A notice comply to the format provided in Regulation 41(3) (*the Background Information Document)*
Regulation 41(2)(c)	Placing an advertisement in— (i) one **local newspaper**; or (ii) any official **Gazette** that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;	Advertisement will be issued as follows: (a) In classified section of the "Lowvelder" newspaper issued on 30 June 2022. (b) A notice complies to the format provided in Regulation 41(3)
Regulation 41(2)(d)	Placing an **advertisement in at least one provincial newspaper or national newspape**r, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official Gazette referred to in paragraph (c)(ii); and	Advertisement has been issued in the following manner: • The classified section of the "Lowvelder" newspaper will suffice for this requirement. • The application has no issues that extends beyond the boundaries of the metropolitan in which it has been undertaken. • Therefore, no official Gazette is planned to be used

Regulation 41(2)(e)	Using reasonable alternative methods, as agreed to by the competent authority, in those instances where a **person is desirous of but unable to participate** in the process due to— (i) illiteracy; (ii) disability; or (iii) any other disadvantage.	Reasonable measures to reach out those disadvantaged will be in line with the following conditions: • Should any parties be identified who are not covered, a reasonable alternative proposed by DARDLEA, will be implemented.
Regulation 42	A proponent or applicant must ensure the opening and maintenance of a **register of interested and affected parties** and submit such a register to the competent authority which register must contain the names, contact details and addresses of— (a) all persons who, as a consequence of the public participation process conducted in respect of that application, have submitted written comments or attended meetings with the proponent, applicant or EAP; (b) all persons who have requested the proponent or applicant, in writing, for their names to be placed on the register; and (c) all organs of state which have jurisdiction in respect of the activity to which the application relates.	Opening and maintenance of interested and affected parties register will be as follows: • A register of interested and affected parties will be opened throughout public participation phase until the end of the process. • A register has been compiled as per the format of Regulation 42. The register is appended.

7. METHODOLOGY OF ASSESSING IMPACTS

All specialists are given the following generic scope for assessing the significance of impacts that are related to the key issues raised in the scoping process.

7.1. Impact Assessment Rating Criteria

The criteria for determining impact significance has been defined in accordance the criteria drawn from section 31 of the Environmental Impact Assessment Regulation (Government Notice R.982), promulgated in terms of Section 24 of the NEMA.

Below provides a summary of the criteria and the rating scales, which were used in the assessment of potential impacts. The assignment of ratings has been undertaken based on past experience of the EIA Project Team, the professional judgement of the specialists as well as through desktop research.

a) Significance of Impact

This should be described as follows:

High: Where it could have a no-go implication for the project irrespective of any possible mitigation.

Medium: Where the impact could have a moderate influence on the environment, which would require modification of the project design or alternative mitigation.

Low: Where the impact would have little influence on the environment and would not require the project design to be significantly accommodated.

None: Where the impact would have no influence on the environment and would not require the project design to be accommodated at all.

The significance of the impact should be determined through the following criteria:

The potential environmental impacts associated with the project will be evaluated according to it 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.

This should be stated as:

- Positive (a benefit),
- Negative (a cost) or
- Neutral.

- **Extent:** The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact. For example, high at a local scale, but low at a regional scale;

- Project site – the immediate location of the activity;
- Study area – the proposed area and its immediate environs within a 5 km radius of the activity;
- Catchment – area of land from which rainfall drains into a river;
- Local – Local Municipality;
- District;
- Regional – Province;
- National – Country; or
- International

❖ **Duration**: Indicates what the lifetime of the impact will be and can be expressed as:;
▪ Short term (0 – 5 years); ▪ Medium (5 – 15 years); ▪ Long term (15 – 40 years, but where the impact ceases after operation); or ▪ Permanent (over 40 years and resulting in a permanent and lasting change that will always be there).

❖ **Intensity**: Describes whether an impact is destructive or benign and is described as follows:
▪ Very high (an irreversible and permanent change that cannot be mitigated); ▪ High (long term impacts that could be mitigated, however this mitigation would be difficult, expensive or time consuming); ▪ Medium (medium term impacts that could be mitigated); ▪ Low (short term impacts with mitigation being very easy, cheap, less time consuming or not necessary); or ▪ No effect (no impact by the proposed development).

❖ **Probability:** Describes the likelihood of an impact actually occurring and should be described as:
▪ Unlikely (where the impact is unlikely to occur); ▪ Likely (where there is a good probability, < 50 % chance, that the impact will occur); ▪ Highly likely (where it is most likely, 50-90 % chance, that the impact will occur); or ▪ Definite (where the impact will occur, > 90 % chance of occurring, regardless of any prevention measures).

b) Mitigation

Where negative impacts are identified, mitigation measures (ways of reducing impacts) have been identified. An indication of the degree of success of the potential mitigation measures is given per impact.

c) 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.

8. ISSUES OF CONCERN AND MITIGATION MEASURES

This chapter provides an assessment of the impacts associated with each issue and further includes mitigation measures to be implemented to reduce the significance of negative impacts. This chapter provides a description of the specific, direct and indirect, impacts that could potentially result from the proposed development, both during the construction and operational phases of the proposed project. These potential impacts are described with reference to both the characteristics of the receiving baseline environment and characteristics of the proposed development.

The potential impacts are described in terms of their intensity, integrity, duration and probability of impacts. Impact assessment addresses direct, indirect, secondary, cumulative, short, medium and long-term permanent, temporary, positive and negative effects as well as impact interactions. These listed issues have been determined through the scoping and EIA process and the site visits. For this purpose, the project is considered in two phases – construction and operational phases.

8.1 IDENTIFICATION OF KEY ENVIRONMENTAL ISSUES AND IMPACTS

An environmental issue is defined as “a generally expressed concern or impact” raised in an EIA process. EIA is the process whereby issues are assessed with regards to a proposed activity.

Key issues were identified according to the following criteria:

- Whether or not the issue raised falls within the scope and the responsibility of the project

- Whether or not there is sufficient information available to respond to the issues or concerns raised without further specialist investigation
- Whether any aspect of the project is inconsistent with the legal, policy or planning framework

These key issues have been identified in the scoping process through the following means:

- Site visits
- Legal and policy review
- Gleaning over existing information pertaining to similar developments and issues
- Discussions, and meetings
- Opinions and concerns raised by interested and affected parties
- Specialist studies and qualified opinions
- Professional judgement

Key issues are potential environment effects. Impacts, both positive and negative, are associated with these key issues.

8.2 KEY ISSUES

8.2.1 Soil and Geology

A. Introduction

This section of the EIAR comprises of an assessment of the likely impact of the proposed development on soils and the geological environment as well as identifying proposed mitigation measures to minimize any impacts.

B. Characteristics of the Proposed Development

Site development works will include stripping of thick topsoil layer. It is expected that all stripped topsoil will be reused on site (incorporated into landscaping of back gardens and public open spaces). Excavation of subsoil layers will be required in order to allow foundation excavation, drainage and utility installation. Where feasible, excavated material will be reused as part of the site development works (e.g. use as fill material).

C. Potential Impact of the Proposed Development

Construction Phase

Stripping of Topsoil

- Removal of the existing topsoil layer will be required across the site. As noted previously, it is expected that all stripped topsoil will be reused on site (incorporated into landscaping of back gardens and public open spaces).
- Stripping of topsoil will result in exposure of the underlying subsoil layers to the effects of weather and construction traffic and may result in subsoil erosion.

Excavation of Subsoil Layers

- Excavation of existing subsoil layers will be required in order to allow foundation excavation, railway route, drainage and utility installation.
- Where feasible, excavated material will be reused as part of the site development works (e.g. use as fill material beneath houses and roads) however, unsuitable excavated subsoil is expected and will have to be removed to an approved landfill.

Construction Traffic

- Earthworks plant (e.g. dump trucks) and vehicles delivering construction materials to site have potential to cause rutting and deterioration of the topsoil layer and any exposed subsoil layers, resulting in erosion. This issue can be particularly noticeable at site access points (resulting in deposition of mud and soil on the surrounding road network). Dust generation can also occur during extended dry weather periods as a result of construction traffic.

- Accidental Spills and Leaks

During the construction phase there is a risk of accidental pollution from the sources noted below. Accidental spills and leaks may result in contamination of the soils underlying the site.

- Storage of oils and fuels on site
- Oils and fuels leaking from construction machinery
- Spillage during refueling and maintenance of construction machinery
- Use of cement and concrete during construction works

Operation Phase

- During the operational phase spillages (oil, fuel, cement, and paint) will have a negative impact on the soil and will result in soil contamination.
- Preventative measures should be put into place in order to prevent excessive stormwater run-off from the developed areas

Impact Assessment of Soil and Geology

	Nature	Extent	Duration	Intensity	Probability	WOM	WM
Construction Phase							
Stripping of Topsoil	Negative	Project site	Short term	Medium	Definite	Medium	Low
Excavation of Subsoil Layers	Negative	Project Site	Short term	Medium	Definite	Medium	Low
Construction Traffic	Negative	Local	Short term	Low	Likely	Low	Low
Accidental Spills and Leaks	Negative	Local	Medium term	Medium	Likely	Medium	low

Operation Phase	Negative	Local	Medium term	Medium	Definite	Medium	Low
Soil erosion	Negative	Local	Medium term	Medium	Definite	Medium	Low
Accidental Spills and Leaks	Negative	Local	Medium term	Medium	Likely	Medium	low
Loss of arable soil	Negative	Local	Long tern	High	Define	High	High

D. Mitigation Measures

Construction Phase

Stripping of Topsoil

- Stripping of topsoil will be carried out in a controlled and carefully managed way and coordinated with the proposed staging for the development.
- At any given time, the extent of topsoil strip (and consequent exposure of subsoil) will be limited to the immediate vicinity of active work areas.
- Topsoil stockpiles will be protected for the duration of the works and not located in areas where sediment laden runoff may enter existing surface water drains.
- Topsoil stockpiles will also be located so as not to necessitate double handling.

Excavation of Subsoil Layers

- The duration that subsoil layers are exposed to the effects of weather will be minimized. Disturbed subsoil layers will be stabilized as soon as practicable (e.g. backfill of service trenches, construction of road capping layers, construction of building foundations and completion of landscaping).

- Similar to comments regarding stripped topsoil, stockpiles of excavated subsoil material will be protected for the duration of the works. Stockpiles of subsoil material will be located separately from topsoil stockpiles.
- Measures will be implemented to capture and treat sediment laden surface water runoff

Construction Traffic

- Earthworks plant and vehicles delivering construction materials to site will be confined to pre-determined haul routes around the site.
- Road sweeping will be implemented as necessary in order to maintain the road network in the immediate vicinity of the site.
- Dust suppression measures (e.g. dampening down) will be implemented as necessary during dry periods.

Accidental Spills and Leaks

- In order to mitigate against spillages contaminating underlying soils, all oils, fuels, paints and other chemicals will be stored in a secure bunded hardstand area.
- Refueling and servicing of construction machinery will take place in a designated hardstand area which is also remote from any surface water inlets (when not possible to carry out such activities off site).

Operational Phase

- No paint tins or rollers are allowed to be washed out on bare soil – washing may occur in a drum of water, which must be emptied into a disposable drum as part of building rubble (hazardous material) and not tipped onto the soil.
- Any contact of fuels with the bare soils must at all cost be avoided. Should there be any spillages on the ground, immediate rehabilitation must be done.
- Ablution facilities must be properly secured and located far away from the environmental sensitive areas.
- A proper storm water management plan must be provided.

E. Predicted Impact of the Proposed Development

Construction Phase

- Implementation of the measures outlined in above will ensure that the potential impacts of the proposed development on soils and the geological environment do not occur during the construction phase and that any residual impacts will be short term.
- The primary residual impact is the removal of material unsuitable for reuse as fill material. This impact is unavoidable given the nature of the proposed development.

Operational Phase

- There are no predicted impacts arising from the operational phase.

F. Monitoring

Proposed monitoring during the construction phase in relation to the soil and geological environment are as follows:

- Adherence to the Environmental Management Programme (EMPr)
- Construction monitoring of the works (e.g. inspection of existing ground conditions on completion of cut to road sub-formation level in advance of placing capping material, stability of excavations etc.).
- Inspection of fuel / oil storage areas.
- Monitoring cleanliness of adjacent road network and implementation of dust suppression.
- Monitoring of contractor's stockpile management (e.g. protection of excavated material to be reused as fill, protection of soils for removal from site from contamination)

Potential Cumulative Impacts

Should any other developments be under construction or planned in the vicinity of the site, potential cumulative impacts are not anticipated once similar mitigation measures are implemented.

8.2.2 Population & Human Health

A. Introduction

This chapter examines the potential socio-economic impact of the construction and operation of the proposed Dry Port development.

Issues associated with human beings are varied and covers a broad spectrum of topics associated with the existence, activities and wellbeing of people as groups or 'populations'. Whilst most developments will affect people in some form or way, this section of the EIAR focuses on those topics which are manifested in the environment, such as impacts on community facilities, and on the economy. Actual and perceived impact of the proposed development on human beings and human health may also arise from a number of elements of the proposal. These impacts are dealt with throughout the EIAR, and in particular, the following sections:

- Landscape & Visual;
- Air Quality &dust;
- Noise; and
- Material Assets.

B. Potential Impacts of the Proposed Development

Construction Phase

Population

- Due to the construction works, there will be an increase in the number of persons working in the immediate area on a daily basis. There will be no adverse impact on population arising from the construction phase of the development this is likely to be **short term and low negative impact.**

Community

- The construction phase has the potential to impact on communities' convenience.

Economic Activity and Employment

- The provisions of direct employment (full and part-time employment) within the construction and related sectors over the course of the construction phase. This is likely to bring benefits to the local economy in the form of increases in consumption in the locality and through the additional supply of goods and services required over the duration of the construction phase. This may also result in the creation of secondary employment opportunities. This will be a **direct Short Term Medium Positive impact**.

Human Health and Safety

- Like most substantial development projects, the construction phase of the proposed development is likely to have some **short-term impacts** on local residents. These impacts are likely to result from construction traffic movements to and from the site together with other possible health and safety impacts, such as nuisances associated with construction access requirements, pollution spillages, migration of surface contaminants, dust, noise and littering.
- Indirect impacts may result from increased construction traffic hauling building materials to and from the proposed development site which are likely to affect humans in a variety of potential locations distant from the proposed development site, such as residents near aggregate sources and landfill sites.
- Typically, these impacts are short lived and are dealt with in more detail under relevant sections of this EIAR. The construction methods employed, and the hours of construction proposed on site will be undertaken in such a manner to mitigate any adverse resulting effects.

Operation Phase

Population

- The additional population for Komatipoort will contribute positively to the community by reinforcing and strengthening the services and function of the area and by increasing housing stands supply and businesses in the vicinity of the area as the development will attract new residence. The proposed development will have a **Significant Positive Long-Term Impact.**

Community Facilities

- The proposed Dry Port development will contribute to a quicker traffic flow, a more convenient access to a loading area for trucks, and other accessories that the Dry Port will be offering, this will contribute to the consolidation of the Dry port area and will assist in creating a more active process when trucks come in and out of the country South Africa to Mozambique.

- The proposed development will have a **Significant Positive Long-Term** Impact on the communities nearby as it will create employment for a lot of people and improve the Socio-Economic status of the area.

Economic Activity and Employment

- Local retail and businesses are likely to see a positive impact in the long term. The construction of Dry Port will likely lead to increased expenditure by new residents who will be working at the proposed during construction and operation phase. This will have a **Long Term Medium Positive Impact**.

- The proposed development will provide employment. This will have a **Long Term High Positive Impact** on the economic functioning of the wider area.

Human Health and Safety

  - During the operational phase will be release of emissions caused by diesel freight train; and trucks;
  - Other health impacts could be due to the pollution of the watercourse in the area which is the source of water.

Impact Assessment of Population and Human Health

	Nature	Extent	Duration	Intensity	Probability	WOM	WM
Construction Phase							
Population	Negative	Local	Short term	Low	Likely	High	Medium
Community Facilities	Negative	Project site	Short term	Medium	Definite	Low	Low
Economic Activity and Employment	Positive Direct	Local	Short term	High	Definite	Medium	Medium
Human Health and Safety	Negative	Local	Short term	Medium	Likely	High	Medium
Operation Phase							
Population	Positive	Regional	Long term	High	Definite	Medium	Medium
Community Facilities	Positive	Local	Long term	Medium	Highly Likely	Medium	Medium
Economic Activity and Employment	Positive Direct	Regional	Long term	High	Definite	Medium	High
Human Health and Safety	Negative	Local	Long term	Medium	Likely	Medium	Medium

C. Proposed Remedial and Mitigation Measures

The mitigation measures outlined in this section will minimise and/or eliminate the potential adverse impacts on the local community and amenities.

Construction Phase Measures

A range of construction related remedial and mitigation measures are proposed throughout this EIAR document with reference to the various environmental topics discussed under each. These measures seek to ensure that any likely significant adverse environmental impact on humans during the construction phases being either ameliorated to have an acceptable level of impact or be avoided altogether.

In order to minimise impacts during the construction phase, the following mitigation measures are recommended:

- Demarcation of the construction site to prevent public access.
- Erection of signage informing public of onsite activities and their potential danger.
- Ensure that the equipment is in good working order.
- Provide adequate safety warning signage on roads.
- Site managers must ensure that the drivers of these machines do so responsibly i.e. toolbox chats and site safety induction meetings.
- A construction management plan will be prepared to minimise impacts on adjacent residents.
- The mitigation measures in relation to construction, traffic, noise, air quality and landscaping as set out in this EIA will be carried out in full to minimise impacts on adjacent residencies.
- The recruitment process and the use of contractors should be clearly communicated to the local communities, e.g. through community meetings arranged by the local councillors.
- Councillors in the adjacent towns should be consulted regarding the sourcing of labour.

Operation Phase Measures

- No fires allowed on site.
- Land owners must be informed of the health risk associated with dust and must be motivated to plant vegetation so as to avoid dust creation.
- Community facilities must have proper public notices to inform the public on different diseases and how it is spread.
- Proper Municipal services must be provided to ensure that waste is collected on a regular basis.
- Adjacent watercourse must be monitored to ensure that the water quality is acceptable.

- All operational phase remedial and mitigation measures included throughout this EIAR document with reference to all environmental topics will be implemented.

8.2.3 Water: Hydrogeology & Hydrology

A. Introduction

This chapter of the EIAR comprises of an assessment of the likely impact of the proposed development on the surrounding surface water and hydrogeological environments, as well as identifying proposed mitigation measure to minimize any impacts.

Potential Impacts of the Proposed Development

Construction Phase

Water: Hydrogeology & Hydrology

- Careful planning of stormwater is needed to reduce impacts on watercourse.
- Surface water runoff during the construction phase may contain increased silt levels (e.g. runoff across areas stripped of topsoil) or become polluted by construction activities.
- Careful stormwater controls are mandatory to the safe and secure development of this site. It is generally good practice to avoid any accumulation of surface water near buildings by appropriate surface drainage design. Care must be taken to ensure that stormwater is settled and handled on site so that it does not impact on riparian and wetland areas in the surroundings.
- Accidental spills and leaks associated with storage of oils and fuels, leaks from construction machinery and spillage during refueling and maintenance contaminating the surrounding surface water and hydrogeological environments.
- Concrete runoff, particularly discharge of wash water from concrete trucks.

Operation Phase

Water: Hydrogeology & Hydrology

- Accidental hydrocarbon leaks and subsequent discharge into piped surface water drainage network (e.g. along roads and in driveway areas).

Impact Assessment of Water: Hydrogeology & Hydrology

	Nature	Extent	Duration	Intensity	Probability	WOM	WM
Construction Phase							
Water: Hydrogeology & Hydrology	Negative	Local	Short term	Medium	Highly likely	Medium	Low
Operation Phase							
Water: Hydrogeology & Hydrology	Negative	Local	Long term	Medium	Likely	High	Medium

B. Mitigation Measures

Construction Phase

- Manage, across the property, stormwater discharges with consideration for both water quality and flow rates.
- Reduce both the volumes and rate of runoff from the developments proposed on the site itself.
- Place excavation material on stream-up side of all trenches that will be excavated.
- Before stormwater trenches are excavated, the stormwater retention pond areas must first be prepared to accept stormwater during construction. This will then act as a stilling chamber in which any silts and waste will settle before the water can enter the wetland area.
- Surface water runoff from areas stripped of topsoil and surface water collected in excavations will be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate.
- Weather conditions and seasonal weather variations will also be taken account of when planning stripping of topsoil and excavations, with an objective of minimizing soil erosion.

- In order to mitigate against spillages contaminating the surrounding surface water and hydrogeological environments, all oils, fuels, paints and other chemicals shall be stored in a secure bunded hardstand area. Refueling and servicing of construction machinery will take place in a designated hardstand area which is also remote from any surface water inlets (where not possible to carry out such activities off site).

Operational Phase

- Planting of trees, aesthetic gardens and is recommended, as it will serve to minimise the amount of runoff.
- Proper maintenance of the watercourse areas must be done during both the construction and the operational phase of the project.
- The correct erosion measures should be implemented at the storm water outlets to ensure that the soil don't wash into the wetland.
- No accumulation of surface water must be allowed around the perimeter of the proposed structures and the entire development must be properly drained.
- The potable water supply will be delivered in infrastructure in accordance with engineer specification. Therefore, the risk to human health through the water supply network in operation will be very low.

C. Predicted Impact of the Proposed Development

Construction Phase

- Implementation of the measures outlined in above will ensure that the potential impacts of the proposed development on water and the hydrogeological environment do not occur during the construction phase and that any residual impacts will be short term.

Operational Phase

- As surface water drainage design should be carried out and also be implemented as part of a treatment train approach, there are no predicted impacts on the water and hydrogeological environment arising from the operational phase.

D. Monitoring

Proposed monitoring during the construction phase in relation to the water and hydrogeological environment are as follows:

- Adherence to outline EMPr
- Inspection of fuel / oil storage areas.
- Monitoring cleanliness and implementation of dust suppression.
- Monitoring sediment control measures (surface water inlet protection etc.)
- Monitoring water quality within site via borehole offsite directly from the watercourse

E. Potential Cumulative Impacts

- The proposed surface water drainage infrastructure has been designed in accordance with the relevant guidelines from engineer.

8.2.4 Noise

A. Introduction

This section has been prepared to form part of this EIAR for the proposed dry depot. The section assesses the likely noise impact of the development and identifies any requirements or possibilities for mitigation.

This report assesses the outward noise impact of the proposed development on its surrounding environment.

B. Potential Impacts of the Proposed Development

Construction Phase

Noise

- Construction activities will be generating noise. Such noise will mainly emanate from the construction machinery and equipment which include trucks and other vehicles accessing

the site not forgetting noise that would emanate from the workers on site and from other activities.

- Construction of access roads (excavator / grader / bulldozer and dump trucks).
- Vehicular movement or large delivery trucks on access and internal roads. Construction traffic is expected to be generated during the entire construction period and will be dependent on the type of construction activities being conducted.
- Clearing, grubbing and digging of trenches.

Operation Phase

Noise

- The proposed development of a railway has potential to generate noise from freight train movement to and from the site.
- The office blocks of the development is not expected to generate any significant noise sources hence no significant impact are expected from this area of the development site.
- The main potential noise impact associated with the proposed development is considered therefore to relate to the generation of additional traffic from trucks to and from the site as a result of delivery of materials.
- The proposed development is not considered to contribute to any significant likely indirect noise impacts on its surrounding environment due to the nature of the development type which does not include any significant noise sources. In addition, the proposed development is in line with the existing surrounding environment and hence day to day activities including local access movements, children playing, and pedestrian movements are fully in line with the existing baseline noise environment.

Impact Assessment of Noise

	Nature	Extent	Duration	Intensity	Probability	WOM	WM
Construction Phase							
Noise	Negative	Project site	Short term	Medium	Highly likely	Medium	Low
Operation Phase							
Noise	Negative	Local	Long term	Medium	Highly likely	Medium	Low

C. Mitigation Measures

Construction Phase

Various mitigation measures will be considered and applied during the construction of the proposed development to ensure noise limit values are complied with, such as:

- Machineries should be maintained regularly to reduce noise resulting from friction.
- There should not be unnecessary horning of the involved machinery
- Construction works should be carried out only during the specified time
- Establishing channels of communication between the contractor/developer, Local Authority and residents;
- Appointing a site representative responsible for matters relating to noise;
- All site access roads will be kept even so as to mitigate the potential for vibration from trucks.

Operational Phase

- All noise generating are to comply with noise standards.
- During the operational phase of the development, noise mitigation measures with respect to the outward impact of the development are not deemed necessary.

D. Cumulative Impacts

The key potential noise source associated with the proposed development relates to additional traffic on the surrounding road network. The cumulative noise impacts associated with existing and development related traffic has been considered within this assessment and the impacts determined to be not significant.

In summary, the predicted increase in noise levels in the vicinity of the proposed development is **neutral**, **long term** and **not significant**

E. Predicted Impacts of the Proposed Development

Construction Phase

During the construction phase of the project there is the potential noise impact from site activities. The application of binding noise limits and hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impact is kept to a minimum. The overall impact is determined to be short-term and slight affecting a small number of local adjacent properties.

Operational Phase

The predicted noise level associated with additional traffic is predicted to be of insignificant impact along the existing road network. In the context of the existing noise environment, the overall contribution of traffic is not considered to pose any significant impact to nearby residential locations. It can be concluded that, once operational, noise levels associated with the proposed development will not contribute any significant noise impact to its surrounding environment. The resulting impact is determined to be neutral, long-term and not-significant.

Monitoring

During the construction phase, spot check noise monitoring will be undertaken by the contractor to ensure construction noise limits are not exceeded. It is recommended that monitoring is undertaken in the event that any significant intrusive works are taking place during the construction phase which has the potential to give rise to elevated vibration levels. During normal site preparation and house building activities, however, vibration monitoring is not deemed necessary.

8.2.5 Air Quality

A. Introduction

The chapter assesses the likely air quality impact of the development in the context of current relevant standards and guidance and identifies any requirements or possibilities for mitigation.

B. Potential Impacts of the Proposed Development

Construction Phase

Air Quality and Dust

- The greatest potential impact on air quality during the construction phase is from construction dust emissions and the potential for nuisance dust.
- Construction dust has the potential to cause local impacts through dust nuisance at the nearest houses. Construction activities such as excavation, road upgrade, earth moving and backfilling may generate quantities of dust, particularly in dry and windy weather conditions.
- The extent of any dust generation depends on the nature of the dust (soils, peat, sands, gravels, silts etc.) and the nature of the construction activity. In addition, the potential for dust dispersion and deposition depends on local meteorological factors such as rainfall, wind speed and wind direction.
- Vehicles transporting material to and from the site also have the potential to cause dust generation along the selected haul routes from the construction areas.

Operation Phase

Air Quality and Dust

- During the operational phase of the project, dust will be minimal, since the disturbed areas will be rehabilitated.
- The proposed development of a railway has potential to generate air pollution from stationary idle and/or moving trains within and outside the site.

Impact Assessment of Air Quality and Dust

	Nature	Extent	Duration	Intensity	Probability	WOM	WM
Construction Phase							

Air Quality and Dust	Negative	Project site	Short term	Medium	Definite	Medium	Low
Operation Phase							
Air Quality	Negative	Local	Long term	Medium	Definite	High	Low
Dust	Negative	Project site	Long term	Medium	Likely	Medium	Low

C. Mitigation Measures

In order to sufficiently ameliorate the likely air quality impact, a schedule of air control measures has been formulated for both construction and operational phases associated with the proposed development

Construction Phase

In order to minimise dust emissions during construction, a series of mitigation measures have been prepared in the form of a dust minimisation plan. Provided the dust minimisation measures outlined in the EMPr under are adhered to, the air quality impacts during the construction phase will not be significant.

The measures which will be implemented will include:

- Disturb as little as possible of the natural vegetation on site and keep construction activities within demarcated areas only.
- Rehabilitate disturbed areas as soon as construction activities are finished in that area.
- Regular wetting of soil to reduce dust
- Construction workers to follow prescribed precautions when working in dusty conditions.
- Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic.
- Vehicles using site roads will have their speed restricted, and this speed restriction must be enforced rigidly. On any un-surfaced site road, this will be 30 kph.
- Vehicles delivering material with dust potential (soil, aggregates) will be enclosed or covered with tarpaulin at all times to restrict the escape of dust.
- Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary.

- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind.
- During movement of materials both on and off-site, trucks will be stringently covered with tarpaulin at all times. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions.

Operation Phase

- Minimise impacts on air quality from activities within the Port
- Assess and monitor sources of air pollution to identify options for air quality management.
- Achieve an improved quality of life for the local community from an air quality perspective.
- Create appropriate development controls with regards to air quality.
- Capacity building surrounding improving air quality
- Develop a Port specific Air Quality Management Plan in line with legal requirement and best practices.

D. Predicted Impacts of the Proposal

Construction Phase

Air Quality

- A range of dust minimisation measures have been outlined and are required to prevent dust nuisance during construction. If the dust minimisation measures specified are implemented, fugitive emissions of dust from the site will be temporary and not significant, posing no nuisance at nearby sites.
- Minimum standards and enforcement for air emissions from freight trucks must be established.

Human Health

- An adverse impact to air quality during the construction and operation phase has the potential to impact human health.

- The mitigation measures that will be put in place will ensure that the impact of the development complies with all ambient air quality which are based on the protection of human health. Therefore, the impact of the proposed development is likely to be temporary and not significant with respect to air quality and human health.
- Complaint registers regarding the nuisance from port activities and operations.

8.2.6 Biodiversity

A. Introduction

The analysis of impacts to biodiversity is an essential component of the EIA process. Biodiversity is a contraction of the words 'biological diversity' and describes the enormous variability in species, habitats and genes that exist on Earth. It provides food, building materials, fuel and clothing while maintaining clean air, water, and soil fertility etc. This section provides a description of the potential impacts that the proposed development may have on biodiversity in the absence of mitigation.

B. Characteristics of the Operation

The subject proposal is for the construction and operation of a dry depot on this site with all associated services including road access, drainage infrastructure and open space.

The construction phase will see extensive earth works and the movement of heavy machinery. This will see the removal of habitat. The site will be levelled, and any construction and demolition waste will be removed by a licensed contractor. The construction phase will use standard building materials. This will see the presence of potentially toxic or polluting substances such as oils, fuels and concrete on the site.

C. Potential Impact of the Proposed Development in the Absence of Mitigation

Construction Phase

Vegetation and habitant disturbance

- During the construction phase the vegetation cover will be cleared to enable all the proposed infrastructures related to the development, e.g. building of offices, roads, railway, weight Bridge, filling station, truck stop/parking and other associated infrastructure. These activities will have a significant impact on the natural vegetation of the area. This will result in the loss of both flora and fauna species on site.
- The vegetation of the site was deemed partially disturbed and transformed and covered with rubble, waste and cutting of trees. Although disturbed by human activities natural vegetation occurs on the site which will be affected by the development and no aliens or Red List species were found on the site.
- The direct impact of species during land clearance. This can affect nesting birds as well as small mammals but is dependent upon the timing of works.
- Construction activities will cause disturbance (noise) and displacement of fauna on site, but not on a permanent basis, since the fauna would most probably move away from the area to the natural areas in the surroundings.
- The storage of materials or the movement of machinery can result in soil compaction, which can in turn damage the roots zones of trees, leading to poor growth or disease.

Operation Phase

Vegetation and habitant disturbance

- There will be no further loss of vegetation during the operational phase.

Surface water pollution

- Pollution of water from surface water run-off. This development can lead to a deterioration of water quality. This arises where soil and natural vegetation, which is permeable to rainwater and slows its flow, is replaced with impermeable hard surfaces.

Human Disturbance

- Disturbance to species from increased human activity (lighting, pets etc.). The species/habitats present on this site are not considered sensitive to disturbance from noise or

general human activity. However, given the already built up nature of the surrounds, it is likely that species present are tolerant of some degree of disturbance.

- Lighting is to be controlled on the site spatially and temporally. Nevertheless there will be an increase in ambient lighting levels from windows, cars etc.

Landscaping

- Creation of landscaped area to include additional planting. This will include the planting of trees and shrubs that is likely to provide habitat for nesting birds and pollinating insects.

Impact Assessment of Biodiversity

	Nature	Extent	Duration	Intensity	Probability	WOM	WM
Construction Phase							
Vegetation and habitant disturbance	Negative	Project site	short term	Medium	Definite	Medium	Low
Operation Phase							
Vegetation and habitant disturbance	Negative	Project site	Long term	Medium	Definite	Medium	Low
Surface water pollution	Negative	Study area	Permanent	High	Highly likely	Medium	Low
Human Disturbance	Negative	Project site	Long term	High	likely	Low	Low
Landscaping	Positive	Project site	Long term	High	Definite	Medium	Low

D. Remedial and Mitigation Measures

Mitigation is required where significant, negative impacts are likely to occur as a result of this project. For the purposes of this study an impact is considered to be significant if it is Medium negative or Higher. The following mitigation measures are proposed for the development:

Construction Phase

- Only indigenous plant species, preferably species that are indigenous to the natural vegetation of the area, should be used for landscaping.
- The contractor must ensure that no fauna on site and in the surroundings is disturbed, trapped, hunted or killed during the construction phase.
- Trees are being retained where feasible. Landscaping or the reinstatement of new indigenous planting can offset this habitat loss. It will not be possible to offset exactly what is being lost but, over time, these new features can be expected to provide an equivalent area of biodiversity interest.
- Information boards should be erected within the development to inform residents of the presence of the wetland areas and their ecological importance, biology and management requirements.
- It is suggested that where work is to be done close to the wetlands, these areas be fenced off during construction, to prevent heavy machines and trucks from trampling the plants, compacting the soil and dumping in the system.
- Dumping of builders' rubble and other waste in the areas earmarked for exclusion must be prevented, through fencing or other management measures. These areas must be properly managed throughout the lifespan of the project in terms of fire, eradication of exotics etc. to ensure continuous biodiversity. No dumping within the sensitive environments – including waste and construction material.

Operation Phase

- With the implementation of mitigation measures residual significant impacts to biodiversity are not expected to arise. There will be minor negative effects to birds and other small animals during the removal of vegetation. The loss of vegetation will be minor negative in the short term when offset with new planting. In time however, as these new features mature, the ultimate impact will be neutral.
- No fires allowed on site.

- No burning of vegetation on site.
- The runoff must be managed during the operational phases in order to avoid destruction of the vegetation.
- Lighting in green spaces will be minimised while the use of LED bulbs are to be employed throughout. These are proven to have lower deterrent impacts.
- Public awareness is essential in order to protect the environment.

E. Cumulative Impacts

A number of the identified impacts can also act cumulatively with other impacts from similar developments in the area. These include: loss of habitats, spread of alien invasive species, pollution from surface water run-off and pollution from wastewater generation.

E. Monitoring

- Monitoring is required where there may be significant residual impacts despite implementation of mitigation measures. No significant residual impacts are predicted to occur. Mitigation measures are proposed with a high degree of certainty with regard to their success. No further monitoring is proposed.

8.2.7 Solid Waste

A. Introduction

The chapter assesses the likely solid waste impact of the development in the context of current relevant standards and guidance and identifies any requirements or possibilities for mitigation.

B. Potential Impact of the Proposed Development in the Absence of Mitigation

Construction Phase

Solid waste

- The construction phase of the development is likely to generate waste from clearing of vegetation, builder's rubble, general construction refuse and minor hazardous waste including paint tins, cleaning acids, asphalt's and oils.
- If solid waste is not removed promptly away from the generation points it accumulates in to large heaps harboring rats, flies etc. which transmits disease not to mention bad odors on decomposition.
- The development could therefore impact on the environment by generating solid waste pollution.
- There are sections on the site used as dumping for various rubbish including human waste products and rubble from old construction.

Operation Phase

Solid waste

- General solid waste generated from staff complex, truck stop and convenience store.

Impact Assessment of Solid waste pollution

	Nature	Extent	Duration	Intensity	Probability	WOM	WM
Construction Phase							
Solid Waste Pollution	Negative	Project site	Short term	Low	Definite	Medium	Low
Operation Phase							
Solid Waste Pollution	Negative	Project site	Long term	Low	Likely	Medium	Low

C. Mitigation

Construction Waste

- Waste to be removed from site promptly and deposited at permitted landfill site;
- No construction waste should enter the surrounding environment;
- No cleared vegetation to be burnt on-site; and
- The contractor and developer should ensure that all the waste generated by the development is appropriately disposed of at the recommended waste disposal sites close to the area.

Operation Phase

Solid waste

- During the operations phase, Municipal waste management will service the proposed residential area.
- Provide informative signage to educate the public regarding proper waste disposal practices.
- Develop a waste management plan to help manage solid waste within the site

8.2.8 Landscape & Visual Assessment

A. Introduction

This section assesses the impact of the proposed development on the landscape character and visual amenity of the current site and the site environs. It includes the potential impacts of the development.

A development such as this proposal has the potential to impact significantly upon the landscape and visual aspects of the existing environment in a number of ways, at both construction and operational stages. Effects can be short or long term; temporary or permanent. The purpose of this section of the report is to describe the potential effects of such proposed development; upon the visual and landscape aspects of the immediate area, and further afield, where relevant.

B. Potential Impacts of the Proposed Development

Construction Phase

Landscape & Visual Impact Assessment

Potential visual impacts during the construction phase are related to temporary works, site activity, and vehicular movement within and around the subject site. Vehicular movement may increase in the

immediate area, and temporary vertical elements such as site fencing, gates, plant and machinery etc., will be required and put in place.

All construction impacts will be temporary, and may include the following:

- ✓ Site preparation works and operations
- ✓ Site excavations and earthworks
- ✓ Site infrastructure and vehicular access
- ✓ Construction traffic, dust and other emissions
- ✓ Temporary fencing/hoardings
- ✓ Temporary site lighting
- ✓ Temporary site buildings

Due to the development of residential development, there will be a new visual impact. The site is however just surrounded by existing townships and should not change the visual characteristics of the area dramatically. However, this development will stop the dumping in the area which will improve the visual perception of the site.

Operation Phase

Landscape & Visual Impact Assessment

- The proposed development will consist of the insertion of new residential buildings, road infrastructure and associated ancillary elements onto the subject site and will replace much of the existing vegetation currently covering the site. The impact of such development, particularly on the pleasant views from the existing amenity lands around the site, could potentially be negative if the existing vegetation is damaged or degraded. The design approach and specific mitigation measures employed to address such sensitive contextual issues and to respect and enhance the local rural environs are outlined in Mitigation, below under Mitigation (remedial/reductive measures).

Impact Assessment of Landscape & Visual

	Nature	Extent	Duration	Intensity	Probability	WOM	WM

Construction Phase							
Landscape & Visual Impact Assessment	Negative and Positive	Study area	Short term to Permanent	Medium	Definite	Medium	Low
Operation Phase							
Landscape & Visual Impact Assessment	Negative	Study area	Permanent	Medium	Definite	Medium	Low

C. Mitigation (remedial/reductive measures)

Construction Phase

- Disturbed areas outside the proposed development site should be rehabilitated as soon as possible after construction.
- Ensure that no litter, refuse, wastes, rubbish, rubble, debris and builders wastes generated on the premises be placed, dumped or deposited on adjacent /surrounding properties including road verges, roads or public places and open spaces during or after the construction period of the proposed developments but disposed of at an approved dumping site.
- Architectural styles and paint colours should take cognisance of the character, styles and sense of place of the neighbouring community.
- Maintain buildings and perimeter fencing etc. in order to ensure that they do not deteriorate and result in an aesthetically unpleasing development.
- The building site including a site compound with site offices, site security fencing and temporary works will be visible during the construction phase. This is generally viewed as a temporary and unavoidable feature of construction in any setting. Other mitigation measures proposed during this delivery stage of the development, revolve primarily around the implementation of appropriate site management procedures during the construction works – such as the control of lighting, storage of materials, placement of compounds, control of vehicular access, and effective dust and dirt control measures, etc.

Operational Phase

The proposed development is designed to integrate well within its existing context. This will be accomplished through:

- The provision of additional planting as part of the landscaping of the proposed development will reduce the impact of the new infrastructure.
- The proposed finishing of the buildings in earth tones and natural materials will aid in mitigating any visual impacts the new development might have in the landscape.
- Establishing an integrated relationship between the built development and the existing housing areas and surrounding broader landscape, incorporating aspects of prevalent built forms, scale, texturing, colour and materials.
- The insertion, positioning and modelling of the built elements, in order to assist in the visual reduction.

D. Predicted Landscape Character Impact of the Proposed Development

The proposed development will impact on the landscape to varying degrees in terms of its perceived nature and scale. The duration of such impacts is however determined by the design life of the proposed development as tempered by the mitigating effect of the maturing designed landscape proposed as an integral part of the development. Impacts on landscape character are therefore deemed to be of long term duration in this instance.

Construction Phase

- Initially the erection of site fencing will be completed, site access points established. Early in the construction period, topsoil stripping and excavations for building foundations will commence. Removal and/or storage of excavated materials from site and the delivery of construction materials will generate increased traffic within, to and from the site.
- As construction progresses over the construction period, visual impacts will vary, with the on-going business of construction - delivery and storage of materials, the erection of the buildings, etc. Mitigation measures have been proposed above 'Mitigation (remedial/reductive measures)' to minimise the impact of the construction works on the site environs.
- The visual impact will vary from medium and neutral to medium and negative, depending on the stage of construction, and the intensity of site activity. They will be of short term duration.

E. Cumulative Impacts

Cumulative Impacts related to the proposed development

For this proposed development, there are no other likely pending or permitted developments considered to be of relevance in creating such 'additional effects' or to have a bearing on this assessment. There are therefore no cumulative effects likely to occur.

8.2.9 Traffic & Transport

A. Introduction

This section of the report assesses and evaluates the likely impact of the proposed development on the existing transportation system in the vicinity of the site, as well as identifying proposed mitigation measures to minimise any identified impacts. The material assets considered in the traffic section include pedestrian, public transport infrastructure and associated services in addition to the local road network.

B. Potential Impacts of the Proposed Development

Construction phase:

Traffic

- During the construction phase there will be an increase in traffic, especially heavy vehicle traffic. It is anticipated the most of the labourers will be local labour**.**

Operation Phase

Traffic

- During the operation phase of the project there may be an increase traffic flow going to and from the site.

Impact Assessment of Traffic

	Nature	Extent	Duration	Intensity	Probability	WOM	WM
Construction Phase							
traffic	Negative and Positive	Local	Short term to Permanent	Medium	Definite	Medium	Low
Operation Phase							
Traffic	Positive	Local	Permanent	Medium	Definite	Low	High

C. Mitigation Measures:

Construction phase:

- It is important that warning/ informative signs should be erected at the site. The signs should be positioned in a way to be easily viewed by the public and mostly motorists.
- Public / workers must be informed of road safety.
- Traffic control must take place during the construction period.
- Traffic signs must be erected to warn motorist of the construction activities.

Operation Phase

- Road sign should be placed on the site regulate traffic flow
- Speed humps can be created to regulate speed of drivers within the site
- Relevant regulation relating to the traffic management must be adhered all times
- Implementation of recommendations by engineer within the traffic study

8.2.10 Services: Water Supply, Sewage & Electricity

A. Introduction

This chapter of the EIAR comprises of an assessment of the likely impact of the proposed development on existing water supply, sewage and power supply services in the vicinity of the site as well as identifying proposed mitigation measure to minimise any impacts.

B. Potential Impacts of the Proposed Development

Construction Phase

Water Supply

- Cross contamination of potable water supply to construction compound
- Damage to existing underground and overground infrastructure and possible contamination of the existing systems with construction related materials.
- Water is a major concern especially in construction sites. The proposed development may cause some strain to the existing water source since construction activities are known to be heavy water consumers.

Sewage

- Improper discharge of ablution facility from contractor's compound can impact the environment.

Operation Phase

Water Supply

- Increased impermeable surface area will reduce local ground water recharge and potentially increase surface water runoff.
- Accidental hydrocarbon leaks and subsequent discharge into piped surface water drainage network (e.g. along roads and in driveway areas).
- Occupants of the development will bring about an increase in water consumption.

Sewage

- Increased discharge to septic tanks.

- Effluent/ sewage resulting from sanitary facilities and wastewater from the proposed developments is of significant concern with respect to the environment. It should always drain effectively into the proposed sanitation systems via well designed and laid pipe networks.

Power supply

- There will be high power consumption. The developments will connect to the existing power line and this might strain the resource. However, the occupants will be encouraged to conserve as much energy as possible and energy conserving appliances should be used. Energy conservation involves proper use of electrical appliances, lighting systems and other electrical gadgets used for different purposes.

Impact Assessment of Water Supply, Sewage & Power Supply

	Nature	Extent	Duration	Intensity	Probability	WOM	WM
Construction Phase							
Material Assets: Water Supply	Negative	Study area	Short term to Permanent	Medium	Definite	Medium	Low
Material Assets: Sewage	Negative	Project site	Short term	Medium	Likely	Low	Low
Material Assets: Power supply	Negative	Study area	Short term	Low	Unlikely	Low	Low
Operation Phase							
Material Assets: Water Supply	Negative	Study area	Permanent	Medium	Definite	Medium	Low
Material Assets: Sewage	Negative	Project site	Long term	Medium	Likely	Medium	Low
Material Assets: Power supply	Negative and Positive	Project site	Long term	Medium	Likely	Low	Medium

C. Mitigation Measures

Construction Phase

Water supply

- Encourage water reuse/recycling during construction phases.
- Avoid wasting the water supplied to the site.
- The contractors should use water bowsers to bring in water for construction activities especially during periods of high water demand subject to authorization.
- Provision of notices and information signs within the project to notify on means and needs to conserve water resource
- The construction compound's potable water supply shall be located where it is protected from contamination by any construction activities or materials

Sewage

- The construction compound will include adequate staff welfare facilities including ablution facility and potable water supply. The ablution discharge from the construction compound will be transferred off site to a licensed facility until a connection to the public foul drainage network has been established.

Operational Phase

Water supply

- Install water meters for the development to ensure accountability and responsibility.
- Roof catchments should be provided with rainwater harvesting systems to enhance collection and storage of rain water. Such water can be used to water flower gardens and all kind of cleaning required on site.
- Encourage water reuse/recycling during operational phases.

Sewage

- Ensure no undue interference with the laid drainage system.
- All drain pipes passing under the building, driveway or parking should be of heavy duty PVC pipe tube encase in 150mm concrete surround. All manholes on drive ways and parking areas should have heavy-duty covers set and sealed airtight as approved by specialists.
- All waste pipes should have cleaning roding eyes accessible from outside and free to every part of the system for inspection, cleaning and repair.
- Sanitary facilities should be kept clean always through regular cleaning.
- Ensuring the effluent is not overloaded to increase efficiency and minimize or eliminate incidences of untreated sewer spills to the environment
- Servicing the treatment plant to maintain its efficiency.

Power supply

- All electrical appliances should be switched off when not in use such as lights.
- Use a design that is environmentally sound to avoid use of electricity for air conditioning.
- Use energy conserving electric lamps for general lighting.
- Utilize natural light inside buildings to avoid using electricity for lighting during the day.

D. Interactions and Potential Cumulative Impacts

i) Interactions

- Soils and Geology: Trench excavations to facilitate site service installation will result in exposure of subsoils and bedrock to potential erosion and subsequent sediment generation.

ii) Potential Cumulative Impacts

- No potential cumulative impacts are anticipated in relation to water supply.

- Should any other developments be under construction or planned in the vicinity of the site they are likely to have similar impacts during the construction phase in relation to services. Should the construction phase of any developments coincide with the development of this proposed site,

potential cumulative impacts are not anticipated once similar mitigation measures are implemented.

Human Health

A risk to the human health of the installer from built services can occur as a result of any excavation work in areas where built services exist, through coming into contact with live electricity lines or water mains.

From the perspective of the end user of the networks the risks to human health include:

- Contamination of potable water supply.
- The installation of services is tightly monitored and controlled by Municipality to ensure the protection of human health. Therefore, the risk of effect on human health is not considered significant.
- Loss of supply. This is a managed process that is the responsibility of the individual utility supplier and emergency plans will be in place. The effect is therefore considered brief and not significant.

With the implementation of the aforementioned mitigation measures, the impact of the proposed built services on human health is likely to be negligible.

8.2.11 Archaeology & Cultural Heritage

A. Introduction

This section considers the archaeological potential of proposed site. The study seeks to identify and record the location, nature, and dimensions of any archaeological features or artefacts that may be impacted by the proposed works through an examination of existing sources. The archaeological assessment measures the level of development impact and includes mitigation measures of any sites or features of archaeological interest present within the development area as appropriate.

B. Potential Impacts of the Development

This assessment has employed a wide variety of sources in conjunction with non-intrusive survey to make a coherent assessment of the cultural heritage risk associated with the project. The following

conclusions are presented in order to ascertain any likely significant potential direct and indirect impacts which the proposed development may have:

- The overall site is large in scale and there are no structures/features of historic architectural significance located within the site proposed for development. Therefore, no direct impact on the architectural heritage will arise as a result of the proposed development.
- There are no recorded archaeological sites within the boundaries of the subject site.
- No potential archaeological features were noted during the field survey.

Impact Assessment of Archaeology and Cultural Heritage

	Nature	Extent	Duration	Intensity	Probability	WOM	WM
Construction Phase							
Archaeology and Cultural Heritage	Negative	Project site	Short term	Medium	Likely	Low	Low
Operation Phase							
Archaeology and Cultural Heritage	Negative	Project site	Permanent	Medium	Unlikely	Low	Low

C. Avoidance, Remedial or Reductive Measures

Construction Phase

- There will no significant adverse impacts on the Archaeology and Cultural Heritage during the construction phase. Therefore, no remedial or reductive measures are required to mitigate impacts.
- If during construction any cultural heritage resources or graves are unearthed, all work has to be stopped at that site until the site has been inspected and mitigated by a cultural heritage practitioner.

Operational Phase

- It is not anticipated that any archaeological works will be necessary at this stage.

D. Predicted Impacts of the Development

Construction Phase

The greatest threat to unrecorded, buried archaeological sites/ features occur during construction stage and include all ground disturbance works undertaken at this stage (excavations and other groundworks including the provision of access roads and service trenches), movement of machines and storage of material in sensitive areas.

Operation Phase

No potential impacts are identified at this moment during the operational phase as it is anticipated that issues of archaeological, architectural and cultural heritage interest will have been resolved prior to or during the construction phase.

Residual Impacts

It is not anticipated that there will be any residual impacts on archaeological features or sites encountered, as it is understood that any archaeology encountered will be resolved in advance of the construction stage of the proposed redevelopment.

9. ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

In this report it is assumed that the developer will act responsibly taking the environment into consideration at all times. The following assumptions and knowledge gaps have an influence on the assessment of the impacts in the EIA:

- It is assumed that the applicant will ensure that the mitigation measures in this report are complied with and that all monitoring and maintenance requirements will be followed closely.
- It is assumed that the development will stay within the ambit of the design of the development.

- Heritage site investigations provided no evidence of sensitive heritage resources. However, it is assumed that the site may contain resources of heritage value which may only be discovered once excavations commence. Should this be the case the correct procedure would be to contact the responsible provincial and national heritage authorities.
- Ecological survey was restricted to a single season (winter), but it is not considered necessary to perform an additional summer survey.
- The geotechnical report was informed by ground conditions encountered at the inspection positions on site. It is therefore possible that conditions at variance with those discussed above may be encountered elsewhere on the property.
- It is also assumed that this EIA Report will be sufficient to make an informed decision with regard to granting environmental authorization.
- All issues identified during the EIA process are addressed in this EIA Report.

10. CONCLUSION

This report details the findings of the Environmental Impact Assessment undertaken as part of the EIA process for the proposed development of a Dry Port facility. The EIAR study includes a technical investigation and a public participation component to identify key issues associated with the project.

There is a tremendous need for Dry Port, better services and jobs within the Komatipoort area as well as the surrounding communities. The project team has worked with the different stakeholders, and the local community to ensure that the proposed project address both the social concerns as well as the environmental concerns.

In summary, it is concluded that the proposed development will not result in any significant synergistic adverse impacts on the environment. Accordingly, and as the comprehensive assessments undertaken as part of this EIAR has revealed, that the proposal will not result in any significant singular adverse effects on the environment, it is considered that the environmental impact of the proposed development is acceptable. Should this project receive a positive environmental authorisation, the EMPr will guide the project proponent and appointed contractor(s) through the final design, construction and operational phases of the proposed project.