



**DRAFT ENVIRONMENTAL IMPACT ASSESSMENT  
REPORT**

**THE PROPOSED TOWNSHIP ESTABLISHMENT ON  
PORTIONS 24 AND 28 OF MOHLABA'S LOCATION 567  
LT, IN TZANEEN, LIMPOPO PROVINCE**

**OCTOBER 2022**

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## EAP DECLARATION OF INDEPENDENCE

I, **Mankaleme M. Magoro**, in my capacity as an Environmental Assessment Practitioner, hereby declare that I-

- Act as an independent environmental assessment practitioner
- Do not have any financial interest in the undertaking of the activity, other than remuneration for the work performed in terms of the National Environmental Management Act (No. 107 of 1998)
- As a registered member of the South African Council for Natural Scientific Professions and the Environmental Assessment Practitioners Association of South Africa will undertake our profession in accordance with the Code of Conduct of the Councils.
- Based on information provided to us by the project proponent, and in addition to information obtained during this study, have presented the results and conclusion within the associated document to the best of our professional judgement.

Signature of EAP: .....



Date Signed: 21/10/2022 .....

## **EXECUTIVE SUMMARY**

Leago Environmental Solutions was appointed by Vaxumi Consulting Town Planners on behalf of the Greater Tzaneen Local Municipality as independent environmental assessment practitioners to undertake an environmental impact assessment process for the purpose of establishing a township. The proposed township establishment is to be situated on Portions 24 and 28 Mohlaba's Location 567 LT, in Tzaneen, Limpopo Province. The project area measures 147.47 hectares in extent and it is expected to yield 2008 land uses / stands.

The application for environmental authorisation was submitted on the 13<sup>th</sup> of July 2022 to the Competent Authority, Limpopo Department of Economic Development, Environment and Tourism under Regulation 982 to 985 as amended by Regulation 324 to 327 of the National Environmental Management Act (No. 107 of 1998) and was assigned the reference number: 12/1/9/2-M67 and NEAS No: LIM/EIA/0001591/2022.

The Limpopo Department of Economic Development, Environment and Tourism accepted the scoping report on the 27<sup>th</sup> September 2022 in terms of Regulation 22(a) of the NEMA Regulations and advised the Environmental Assessment Practitioner to proceed with undertaking the environmental impact assessment in accordance with the tasks that are outlined in the plan of study for environmental impact assessment.

Specialist recommendations were also taken into consideration when compiling this report, this draft environmental impact assessment report will also be made available to stakeholders, interested and affected parties for observation and comments for a period of 30 days.

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## ACRONYMS AND ABBREVIATIONS

LEDET	Limpopo Department of Economic Development, Environment and Tourism
GTLM	Greater Tzaneen Local Municipality
CA	Competent Authority
EMPr	Environmental Management Plan Report
EMP	Environmental Management Plan
NEMA	National Environmental Management Act
S&EIR	Scoping and Environmental Impact Reporting
EIAr	Environmental Impact Assessment
I&APs	Interested and Affected Parties
EIA	Environmental Impact Assessment
EA	Environmental Authorisation
SAHRA	South African Heritage Resource Agency
SAHRIS	South African Heritage Resource Information Systems
CBAs	Critical Biodiversity Areas
PPP	Public Participation Process
RoD	Record of Decision
HIA	Heritage Impact Assessment
Ha	Hectares
No.	Number
ToR	Terms of Reference
TIA	Traffic Impact Assessment
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer

## **GLOSSARY OF TERMS**

**Township establishment:** a process of converting an agricultural zoned land into residential, commercial or industrial properties.

**Environmental assessment practitioner:** is a consultant responsible for conducting environmental impact assessment.

**Environmental impact assessment:** a systematic process of identifying, assessing and reporting environmental impacts associated with an activity.

**Plan of study of environmental impact assessment:** a study contemplated in regulation 22 which forms part of a scoping report and sets out how an environmental impact assessment will be conducted.

**Proponent / applicant:** a person intending to submit an application for environmental authorisation

**Significant impact:** means an impact that may have a notable effect on one or more aspects of the environment or may result in noncompliance with accepted environmental quality standards, thresholds or targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence.

**Development:** means the building, erection, construction or establishment of a facility, structure or infrastructure, including associated earthworks or borrow pits, that are necessary for the undertaking of a listed or specified activity, [including any associated post development monitoring,] but excludes any modification, alteration or expansion of such a facility, structure or infrastructure, including associated earthworks or borrow pits, and excluding the redevelopment of the same facility in the same location, with the same capacity and footprint.

**Development footprint:** means any evidence of physical alteration as a result of the undertaking of any activity.

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

**Earth works:** this involves construction machinery, dampening and general preparation of the site for construction purposes.

**Mitigation measures:** all actions taken to eliminate, offset or reduce potentially adverse environmental impacts to acceptable levels (World Bank, 1999:1).

**Interested & affected party:** a person, group of people, an organisation (public or private), a business, or other party that has an interest or is affected in terms of their health, property rights, or economy by a proposed activity.

**Listed activities:** activities that have been recognised as having a detrimental impact on the environment.

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## DETAILS OF THE APPLICANT AND THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

Details of the Applicant	
Project Applicant	Greater Tzaneen Local Municipality
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Table 1: Details of the Applicant

Details of the Environmental Assessment Practitioner	
Company Name	Leago Environmental Solutions
Physical Address	Unit 79, Block 5, Lombardy Business Park, 66 Graham Road, Pretoria, 0084
Contact Person	Mankaleme M. Magoro
Telephone	012 807 7445
Cell Phone	081 428 6116
Email	<a href="mailto:info@leagoenviro.co.za">info@leagoenviro.co.za</a>
Qualifications	Bachelor of Earth Sciences in Mining and Environmental Geology
Professional Affiliation	Pri. Sci. Nat. Reg No.: 120970 (SACNASP) EAP Reg No.: 200/2254 (EAPASA)

Table 2: Details of the EAP

## **I. INTRODUCTION**

Leago Environmental Solutions was appointed by Vaxumi Consulting Town Planners on behalf Greater Tzaneen Local Municipality as independent environmental assessment practitioners to undertake an environmental impact assessment process in terms of the National Environmental Management Act (No. 107 of 1998) read together with the Environmental Impact Assessment Regulations (GNR 326 of 7 April 2017) for the purpose of establishing a township. The proposed township establishment will be situated on Portions 24 and 28 Mohlaba's Location 567 LT, in Tzaneen, Limpopo Province. The project area measures 147.47 hectares in extent and it is expected to yield 2008 land uses / stands.

### **I.1. Purpose of the Report**

This is a draft environmental impact assessment report and it has been prepared in accordance with EIA Regulations published in Government Notice No. R 326 of 07 April 2017. These regulations fall under Section 24(5) read with Section 44 of the National Environmental Management Act (No. 107 of 1998) as amended. NEMA Section 24(5) stipulates that listed activities require environmental authorisation from the Competent Authority.

Government Notices GNR 327, Listing Notice 1, GNR 325, Listing Notice 2 and GNR 324, Listing Notice 3 of the Environmental Impact Assessment Regulations (2017) identifies the following listed activities associated with the development of a township that require environmental authorisation by means of full EIA (Scoping and Environmental Impact Reporting).

#### **I.1.1. Listing Notice 2, Activity 15**

*The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for - (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.*

*Applicability to the project: the clearance of an area of 147.47 hectares of indigenous vegetation.*

#### **I.1.2. Listing Notice 1: Activity 24 (ii)**

*The development of a road - (ii) a road with a reserve wider than 13.5 meters, or where no reserve exists where the road is wider than 8 metres.*

*Applicability to the project: the development of a road with a reserve of 14 and 20 meters.*

#### **I.1.3. Listing Notice 3, Activity 12 (h)**

*The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan (e) Limpopo (ii) within critical biodiversity areas identified in bioregional plans.*

*Applicability to the project: the proposed project area is located within a critical biodiversity area CBA 1 and 2.*

#### **1.1.4. Listing Notice 1, Activity 12**

The development of—(ii) infrastructure or structures with a physical footprint of 100 square metres or more (a) within a watercourse.

*Applicability to the project: road crossings will be constructed across a watercourse*

#### **1.1.5. Listing Notice 1, Activity 19**

The infilling or depositing of any material of more than [5] 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than [5] 10 cubic metres from [—(i)] a watercourse; [(ii) the seashore; or (iii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or estuary, whichever distance is the greater—] but excluding where such infilling, depositing, dredging, excavation, removal or moving—(a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; [or] (c) falls within the ambit of activity 21 in this notice, in which case that activity applies (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in listing notice 2 of 2014 applies.

*Applicability to the project: there will be encroachments into the watercourse during the construction phase that might require infilling.*

## **2. DETAILS OF THE PROPOSED DEVELOPMENT**

### **2.1. Location of the Proposed Development**

The proposed township establishment will be situated on Portions 24 and 28 Mohlaba's Location 567 LT, in Tzaneen, Limpopo Province and it is located approximately 115 km away from Polokwane CBD. Figure 1 and 2 below indicate the location of the proposed development. The site is located roughly at the following GPS coordinates: Longitude 30° 15' 34.24" E; Latitude 23° 52' 45.62" S. Figure 1 below depicts the locality of the area.

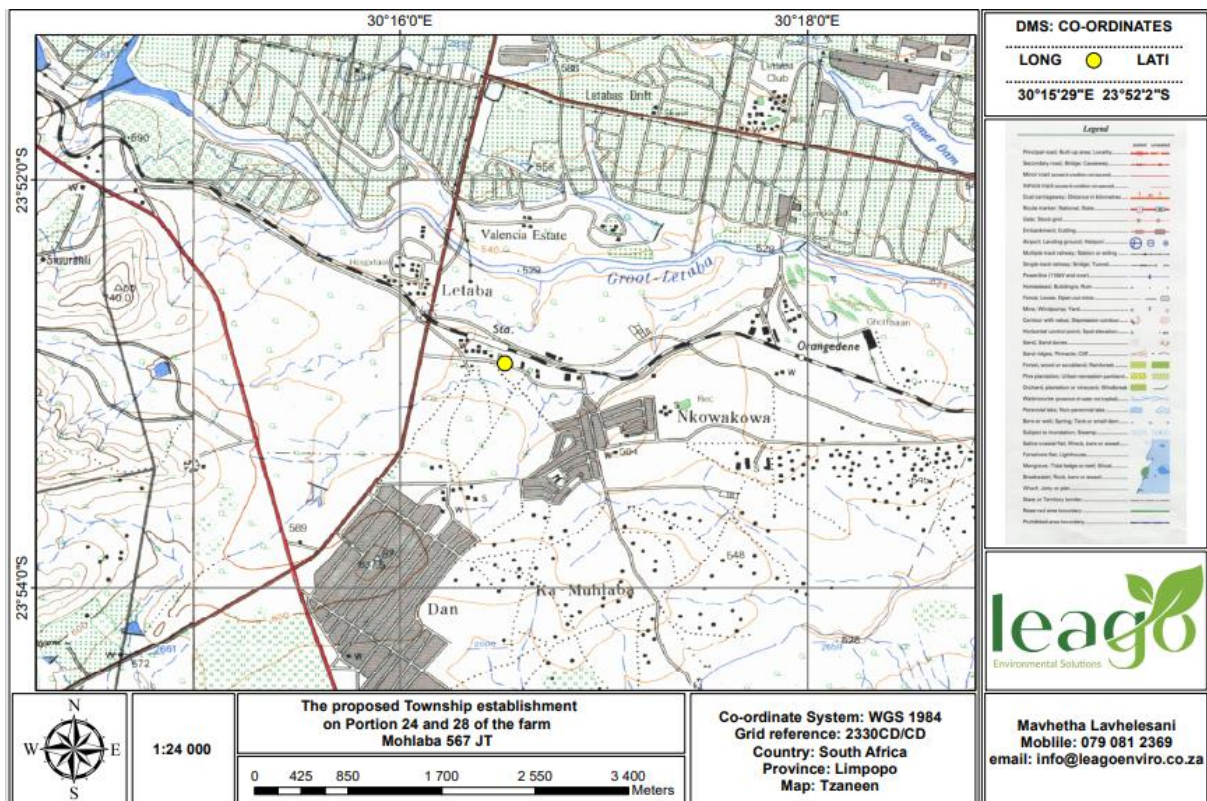


Figure 1: Topographic locality map of the proposed development site

## 2.2. Description of the Proposed Development

The proposed activity is a township establishment which will entail 2008 land uses / stands. The proposed land uses are:

- 1345 Residential 1
- 416 Residential 2
- 99 Residential 3
- 45 Business 1
- 62 Business 2
- 4 Municipal
- 1 Industrial
- 30 Institutional
- 6 Public Open Spaces

Figure 3 below depicts the proposed township layout plan.



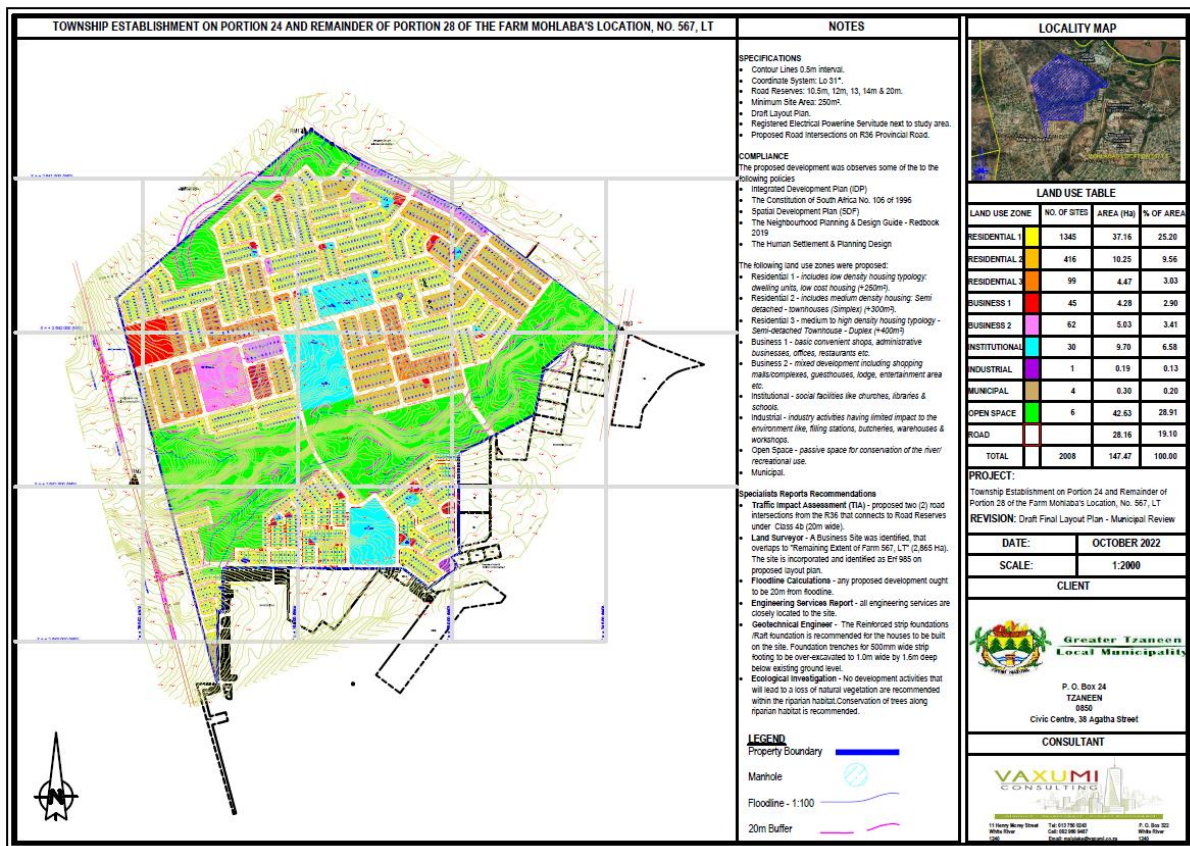


Figure 2: Layout plan of the proposed township

### 2.3. Current Land-Use

The project area is currently vacant and some parts of the land are used for illegal dumping.

## 3. CIVIL SERVICES ENVISAGED FOR THE PROPOSED DEVELOPMENT

### 3.1. Roads

There is an existing functioning road network that can be used to access the proposed development site. The site can be accessed via road R36, internal streets, and road D673 to Letaba Hospital.

### 3.2. Water

The proposed development site does not have water reticulation, however there are existing bulk water lines currently servicing areas next to the proposed development site.

### 3.3. Sewer Reticulation

The proposed development site does not have an existing sewer reticulation onsite, however there is an existing sewer reticulation near the vicinity of the proposed development site. An Engineering Services Report addressing all the services required to service the proposed development is included as part of the appendices of this EIA report.

### **3.4. Electricity**

There is an existing medium voltage feeder lines that are supplying the area and can be utilised to supply the proposed development, subject to approval from the power authority (Eskom). An Electrical Services Report which addresses the specifications of electrical infrastructure network and connection points required to service the proposed township has been conducted and it is included as part of the appendices of this EIA report.

### **3.5. Waste**

All waste must be disposed of at the appropriate landfill site and waste water treatment plant. Waste generated during the construction and operational phases of the project must therefore be disposed of at sites which have received the necessary permits or exemptions, it is the responsibility of the applicant to connect and dispose all waste produced on site.

## **4. ALTERNATIVES**

The EIA Regulations stipulate that a requirement of the Environmental Impact Assessments 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 –

- The property on which or location where it is proposed to undertake the activity
- The type of activity to be undertaken
- The design or layout of the activity
- The technology to be used in the activity
- The operational aspects of the activity

The concept of alternatives is aimed at ensuring that the best among all possible options in all aspects (environmental, socio 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.

## **4.1. Feasible and Reasonable Alternatives Considered for the Proposed Development**

### **4.1.1. Site Alternatives**

Due to land availability, the proposed development site is the only site that has been identified for by the applicant for establishing a township. The site was also selected so that the disturbed land can be developed. Therefore, site alternatives are not applicable for this project.

### **4.1.2. Activity Alternatives**

The current preferred activity is deemed to be the only feasible activity alternative as this activity will result in improved housing which can accommodate more people. No other activities were considered in this application due to the assessed need and feasibility of the proposed activity.

### **4.1.3. Design Alternatives**

The unique character and appeal of Mohlaba's Location were taken into consideration with the design philosophy. Various layout alternatives were considered by the applicant and town planners, also taking terrain and environmental constraints into account, hence the current design/ layout plan being the result, however there is a possibility of a layout alternative that will still meet the objective of the project scope

### **4.1.4. Technology Alternatives**

As the preferred use is for a predominantly residential development there are limited technology alternatives that can be considered for these uses, although individual components of the development could utilise diverse technological alternatives.

### **4.1.5. Operational Aspects**

The operational aspects of the activity relate to the improved housing for the local community. No other alternatives were deemed feasible other than the proposed activity.

### **4.1.6. The Option of not Implementing the Activity**

The direct impacts associated with the proposed development not being approved includes the loss of opportunity to provide a new living environment with housing and associated facilities to people that the needs housing and loss of other potential socio-economic activities, in terms of job creation during both the construction and operational phases.

### **4.1.7. No-Go Alternatives**

This option would come into effect if this assessment reveals fatal flaws in the process. To date no fatal flaws have been revealed. The no-go alternative of not developing the proposed site would leave the environment in the current state.

## **5. LEGISLATION, POLICIES AND GUIDELINES CONSIDERED**

The following is a broad overview of the relevant legislation, policy and guidelines applicable to the proposed development.

### **5.1. The Constitution of the Republic of South Africa (No. 108 of 1996)**

The Constitution is the most important part of a legislation that provides a framework for the environmental management in South Africa. Section 24 of the Constitution encourages the prevention of pollution and ecological degradation and also promotes sustainable ecological developments.

**According to Chapter 2 of the Bill of Rights, everyone has the right to:**

- An environment that is not harmful to their health or wellbeing
- To have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that:
  - Prevent pollution and ecological degradation
  - Promote conservation and
  - Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

***Relevance to the project: the development of a township that is not harmful to human health or well-being.***

### **5.2. National Environmental Management Act (No. 107 of 1998)**

The National Environmental Management Act is South Africa's overarching framework for environmental legislation. NEMA sets out the principles of Integrated Environmental Management (IEM). It also aims to promote sustainable development, with wide-ranging implications for national, provincial, and local government. The key principles are that all developments must be environmentally, economically and socially sustainable and that environmental management must place people and their needs at the forefront, and equitably serve their physical, developmental, psychological, cultural and social interest. Section 2 of NEMA, sets out a range of environmental principles that are to be applied by all organs of state when taking decisions that may significantly affect the environment. Section 24 states that the activities that may significantly affect the environment and require authorisation or permission by law must be investigated and assessed prior to approval. These activities are listed in Government Notice R324, R325 and R327 of 07 April 2017. In addition, it provides for the Minister of Environmental Affairs or the relevant MEC to identify:

- New activities that require approval
- Areas within which activities require approval and

- Existing activities that should be assessed and reported on It also provides for the Minister to make regulations with respect to the manner in which investigations should occur.

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

- Assessing the impact on the environment
- Informing and educating employees about the environmental risks of their work and ways of minimising these risks
- Ceasing, modifying or controlling actions which cause pollution/ degradation
- Containing pollutants or preventing movement of pollutants
- Eliminating the source of pollution
- Remedying the effects of the pollution

The authorities may direct the developer / applicant to rectify or remedy a potential or actual pollution problem. If such a directive is not complied with, the authorities may undertake the work and recover the costs from the responsible developer.

***Relevance to the project: the applicant is obliged under Section 28 to take actions to prevent pollution or degradation of the environment.***

### **5.3. Environmental Impact Assessment Regulations (2017)**

The Environmental Impact Assessment Regulations, promulgated in terms of Section 24(5) of the National Environmental Management Act (No.107 of 1998) are divided into 3 Listing Notices, GNR 324, GNR 325 and GNR 327. GNR 327 defines activities which will trigger the need for a Basic Assessment and GNR 325 defines activities which trigger an Environmental Impact Assessment process. If activities from both Listing Notices are triggered, then an EIA process will be required. Regulation 324 defines certain additional listed activities per province.

***Relevance to the project: the clearance of an area of 147.47 hectares is listed under the current 2017 Environmental Impact Assessment Regulations of the National Environmental Management Act (No. 107 of 1998). The development of a township involves a number of listed activities, which are outlined in the report. The applicant will ensure that all requirements of NEMA are conformed with.***

#### **5.4. Limpopo Environmental Management Act (No.7 of 2003)**

The Limpopo Environmental Management Act intends to:

- To manage and protect the environment in the Province
- To secure ecologically sustainable development and responsible use of natural resources in the Province.
- Generally, to contribute to the progressive realisation of the fundamental rights contained in Section 24 of the Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996)
- To give effect to international agreements effecting environmental management which are binding on the Province.

This Act must be interpreted and applied in accordance with the national environmental management principles set out in Section 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998)

***Relevance to the project: the proposed development will done be in accordance with the LEMA principles***

#### **5.5. National Heritage Resources Act (No. 25 of 1999)**

In terms of Section 38 of the Heritage Resources Act, a Heritage Impact Assessment has to be undertaken for the following developments:

- Or other activity which will change the character of a site
- Exceeding 5000 m<sup>2</sup> in extent or
- Involving three or more existing erven or subdivisions
- Involving three or more erven or divisions thereof which have been consolidated within the past five years
- The costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority
- The re-zoning of a site exceeding 10 000m<sup>2</sup> in extent
- Any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development

Section 38 of the NHRA makes provision for developers to apply for a permit before any heritage resource may be damaged or destroyed.

***Relevance to the project: the proposed activity is a township establishment, therefore will change the character of the site and it also exceeds 5000 m<sup>2</sup>.***

## **5.6. National Water Act (No. 36 of 1998)**

Water use is controlled by the National Water Act and the enforcing authority, Department of Water Affairs. The National Water Act recognises that water is a scarce resource in South Africa and its provisions are aimed at achieving sustainable use of water to the benefit of all users. The provisions of the Act are thus aimed at discouraging pollution and waste of water resources. In terms of the Act, a land user, owners or occupier on whose land an activity occurs which causes or has the potential to cause pollution from occurring. Non-compliance with this provision constitutes a criminal offence. Water use is defined in the Act and can be broadly summarised as the abstraction, consumption and discharge of water. The use of water includes:

- Abstraction of water from either the ground water or from surface water
- The discharge of water containing waste into a water resource
- Impeding or diverting the flow of water in a water course Unless authorised by a General Authorisation, a license is required to use water in this manner

In terms of discharging water containing waste to a water resource, a General Authorisation is applicable when:

- It conforms to a required standard
- The volume is less than 2000m<sup>3</sup>/ day
- The discharge is registered with the Department of Water Affairs and Forestry (DWAF)

***Relevance to the project: the storm water management plan indicates that the storm water will be discharged into the stream, road crossings will also be constructed across the watercourse and therefore the proposed development will require to undergo a WULA process to obtain a Water Use Licence.***

## **5.7. National Environmental Management: Waste Management Act (No.95 of 2008)**

The aim of the act is to:

- To reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development;
- To provide for institutional arrangements and planning matters;
- To provide for national norms and standards for regulating the management of waste by all spheres of government
- To provide for specific waste management measures
- To provide for the licensing and control of waste management activities
- To provide for the remediation of contaminated land
- To provide for the national waste information system

- To provide for compliance and enforcement
- To provide for matters connected therewith.

***Relevance to the project: no activities included with the scope of this application are regulated by this Act.***

#### **5.8. Conservation of Agricultural Resources Act (No. 43 of 1983)**

The Act intends to:

- To provide for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants and for matters connected therewith.

***Relevance to the project: the applicant has to comply with this act regarding the conservation of soil and the management of weeds and invader plants. No authorizations or permits subject to this Act is relevant to this project***

### **6. NEED AND DESIRABILITY OF PROPOSED DEVELOPMENT**

- The proposed development will contribute towards improving the housing stock of the area and general livelihood of the residents.
- The existing road leading to the existing township will provide access to the proposed township establishment.
- There will be sites for business opportunities for the residents
- Furthermore, the development will eventually be integrated with the environment, have proper service provision and it will be well planned.
- The proposed township will create job opportunities and ensure social upliftment of the area, create investment opportunities and create a sustainable development environment.
- The proposed development will increase the availability of housing in the community thus decreasing homelessness
- The development will promote the economic growth within the Greater Tzaneen Local Municipality.

**The development is desirable due to its location in terms of:**

- The proposed development site is strategically located next to the current boundaries of the existing township of Dan Extensions 1 and 2 of Mohlaba's Location 567 LT.
- The site can be accessed through the existing roads within the adjacent township as well as the provincial and district collector roads such as the R36 and D673
- The proposed development will not have a significant detrimental impact on the surrounding areas and is not in conflict with the adjacent land uses.



## **7. DESCRIPTION OF THE RECEIVING ENVIRONMENT**

### **7.1. Physical Environment**

#### **7.1.1. Topography and Drainage**

The topography of the proposed development is generally flat. It is however slightly steep towards the west to the east and even gentle slopes on the north and eastern side.

#### **7.1.2. Climate**

The climate in Tzaneen is warm and temperate, most rainfall occurs mainly during mid-summer around January and the lowest in July. The average annual temperature is 19.7 °C.

#### **7.1.3. Geology of the Area**

The proposed development site is located within the lithologies dominated by metamorphic charnockite rocks, which is anyorthopyroxene bearing quartz-feldspar rock formed at high temperature and pressure

#### **7.1.4. Hydrology**

No ground water seepage was encountered in any of the test pits during the geotechnical investigations and there were no indications of temporary perched water tables in the soil profile.

### **7.2. Biological Environment**

#### **7.2.1. Vegetation of Area**

The vegetation of the area is classified as Granite Lowveld (SVI 3) and it is characterised by tall shrubland with few trees to moderately dense low woodlands on deep sandy uplands.

#### **7.2.2. Fauna**

There are no naturally occurring fauna were observed with the exception of common birds. There were no raptors or large bird's nests observed in or on any of the large trees that will be lost and there were no signs of important fauna on site. No sensitive or threatened fauna are expected to be present.

#### **7.2.3. Archaeological and Cultural Heritage**

According to the heritage impact assessment report, the study area is considered to be of low archaeological potential since no focal points like rocky outcrops or pans occur in the area that would have attracted human occupation in antiquity as well as the extent of disturbance in the area.

## **8. SUMMARY OF FINDINGS AND RECOMMENDATIONS OF SPECIALIST STUDIES**

The necessary specialist studies have been performed in areas where possible and the negative impacts were identified and mitigation measures were also provided. The specialist studies conducted in relation to the proposed development are:

## 8.1. Ecological Assessment Report

### Details of the Specialist:

Afrika Enviro & Biology

P.O. BOX 2980

White River, 1240

Contact Number: 072 623 1845

Email: [danie.aeb@gmail.com](mailto:danie.aeb@gmail.com)

Contact Person: Danie van der Walt

Area of Expertise: Environmental Scientist and Biodiversity Consultant

## FINDINGS

### Ecology & Biodiversity

Nationally, the site is situated within the Arid Lowveld (AII) veld type according to Acocks (1988), or Mixed Lowveld Bushveld according to Low & Rebelo (1998) and Schmidt et al (2002). However, these classifications are very broad and may include several sub veld types of importance. According to the more detailed vegetation classification system of Mucina & Rutherford (2006) the veld unit / ecosystem is classified as Granite Lowveld (SVI 3). This vegetation type is characterised by tall shrubland with few trees to moderately dense low woodland on deep sandy uplands (Mucina and Rutherford, 2006). This ecosystem is conserved in the Kruger National Park (17%) to the east and adjoining game reserves (another 17%). More than 20% is already transformed, mainly as result of cultivation and expanding formal and informal settlements.

### Degraded granite bushveld

The original (natural) habitat on site has been significantly modified and degraded over time. Harvesting of wood has resulted in most trees being lost and sand mining has destroyed the soil surface and vegetation over a large extent of the site. Unsustainable harvesting of wood is continuing on site. The disturbed areas are presently being used as dump sites for domestic and construction waste. Many trees have been partially pruned of large branches and mostly, only very large trees have survived. These include solitary specimens of *Combretum mespiliformis*, *Parinari curatellifolia*, *Ficus sur* and *Sclerocarya birrea*. Other trees or remains of trees present are *Albizia versicolor*, *Senegalia galpinii*, *Strychnos madagascariensis* and *Peltophorum africanum*. Shrubs are mostly consistent of a new generation of *Terminalia sericea*, *Piliostigma thonningii* and *Parinari curatellifolia* that dominates in some areas together with the grasses *Hyperthelia dissoluta* and *Brachiaria nigropedata*. Due to the degraded nature of the habitat and the disturbances the present sensitivity of the ecology is low and biodiversity is also low.

## **Watercourses and Riparian Habitat**

An ephemeral, first order drainage line is situated on the northern boundary. It has been modified to a serious extent due to sand mining and loss of vegetation. This has resulted in the channel becoming deeply eroded with very steep almost vertical banks. The banks have become infested with the invasive *Lantana camara* and only small examples of *Ficus sur*, *Vachellia natalitia* and *Parinari curatellifolia* lines the upper banks. The ecological sensitivity of this drainage line is low.

## **Terrestrial Fauna**

The following observations and conclusions were made:

- No natural occurring fauna with exception of common birds were observed.
- No raptor's or large bird's nests were observed in any of the larger trees that will be lost and no signs of important fauna were observed.
- No sensitive or threatened fauna are expected to be present.

It can be concluded that the fauna assemblage on the site is severely impoverished as result of the historic and present impacts and the site sensitivity for animals is low

## **RECOMMENDATIONS**

- The layout must be planned to accommodate the following:
- The areas classified as modified and degraded bushveld may be considered for development.
- Conserve trees with DABH>30cm
- Use only indigenous flora for landscaping / wind breaks.
- Implement an alien invader vegetation control program.
- Spoil material may not be pushed into the riparian habitat or buffer zones.

## **Sensitive habitats and buffer zones**

- Conserve the riparian habitat with a 20m buffer zone.
- No development activities that will lead to a loss of natural vegetation are recommended within the riparian habitat.
- The buffer zone may include a fence and a service road/firebreak.
- Spoil material may not be pushed into the surrounding natural environment, buffer zone or riparian habitat.
- It is recommended that an Environmental Control Officer (ECO) is appointed who will be responsible to actually delineate the buffer zone on site (considering actual on site conditions and to ensure that large trees are not destroyed for this purpose).

## **8.2. Heritage Impact Assessment**

### **Details of the Specialist:**

Beyond Heritage  
Private Bag X 1049  
Suite 34  
Modimolle  
0510

Contact Number: 082 373 8491

Email: [jaco@heritageconsultants.co.za](mailto:jaco@heritageconsultants.co.za)

Contact Person: Jaco van der Walt

Area of Expertise: Heritage Specialist and Archaeologist

### **FINDINGS**

#### **Heritage Resources**

It is important to note that only the development footprint of the project was surveyed, and finds were limited to isolated ceramics that were noted along the western edge of Portion 24. The low-density scatter of ceramics is undiagnostic and out of context and of no significance apart from mentioning it in this report. The study area is characterised by transformed areas marked by excavation activities and is disturbed.

#### **Cultural Resources**

The study area is rural in character with limited development in the general area. Development is limited to residential dwellings and roads while the wider area is marked by sites dating to the historical period, none of these are located in the impact area.

#### **Paleontological Heritage**

Based on the SAHRA Paleontological map the study area is of insignificant sensitivity, no further studies are required.

### **RECOMMENDATIONS FOR CONDITION OF AUTHORISATION**

Recommendations:

- Implementation of the Chance Find Procedure for the project;
- The study area must be monitored by the ECO during construction

## **8.3. Engineering Services Report**

### **Details of the Specialist:**

Dalimede Projects (Pty) Ltd  
No. 11 Pierre Street, IT Park RentCo Building, Office 6, Bendor

Polokwane, 0699

Contact Number: 015 291 0775

Email: [admin@dalimede.com](mailto:admin@dalimede.com)

Contact Person: Litmos Mthunzi

Area of Expertise: Civil Engineer

## **FINDINGS**

### **Water Source and Bulkline**

Nkowankowa WTW abstracts raw water from Groot Letaba River. The water treatment works then purifies the water and supplies water to Dan Reservoirs. The WTW design capacity is 24Ml/day. Purified water is pumped from Nkowankowa WTW to the Dan village reservoirs. In the vicinity of the proposed development, there is an existing 200mm diameter bulkline conveying water to the industrial area.

### **Water Reticulation**

The site does not have water reticulation. There are existing bulk water lines currently servicing areas next to the proposed site. The areas within the vicinity are fully serviced for water.

### **Sewer Reticulation**

There is no existing sewer reticulation onsite. The vicinity near the proposed site has existing sewer reticulation.

### **Solid Waste:**

A regional landfill situated nearest the site is to be used to dispose solid waste. The local municipality is responsible for connecting and disposing the solid waste. If the municipality is not able to provide this service, then a private company will need to be appointed by the development owners for the service.

## **RECOMMENDATIONS**

### **Water**

Application for an increased water license use from the Department of Water and Sanitation and upgrading of the Nkowankowa WTW.

### **Wastewater Infrastructure**

- That the proposed township has sewer reticulation.
- That a sewer pump station be built at the lowest elevation of the proposed development. The proposed pump station will convey sewer through a pumping line to the gravity manhole on the 300mm diameter sewer outfall.

- That the proposed township be connected to the existing sewer outfall.
- That the Nkowankowa WWTW be upgraded

#### **8.4. Electrical Report**

##### **Details of the Specialist:**

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Polokwane,0699

Contact Number: 015 291 0775

Email: [admin@dalimede.com](mailto:admin@dalimede.com)

Contact Person: Litmos Mthunzi

Area of Expertise: Civil Engineer

#### **FINDINGS**

##### **Existing Networks**

There is existing medium voltage aluminium conductor steel reinforced passing through the development and is utilized to supply the development. The power supply authority is Eskom. There are existing electrical infrastructures that are supplying the area.

#### **RECOMMENDATIONS**

The proposed portion 24 and 28 of 567 Mohlaba will be connecting electricity from the existing Nkowankowa Yingsani feeder medium voltage line on 11KV. The feeder line will be fed from Nkowankowa Substation and the capacity is 2x10MVA on 11KV. There existing medium voltage aluminium conductor steel reinforced passing through the development will be utilized to supply the development. According to Eskom the development can be connected.

#### **8.5. Geotechnical Investigation Report**

##### **Details of the Specialist:**

##### **Mutali Geoscience Solutions**

Unit 01A Stanford Business Park

817 16<sup>th</sup> Road, Randjespark

Midrand

1685

Cell: 079 081 2369/ 067 706 9904

Email: [info@mutali.co.za](mailto:info@mutali.co.za)

Contact Person: Mavhetha Lavhelesani

Area of Expertise: Geologist

## **FINDINGS**

### **Field Mapping**

A walk-over survey was carried out on the proposed site to obtain as much information as possible of the subsurface conditions from existing soil. A Charnockite (granulite) outcrop was identified during the investigation.

### **Inspection of the Test Pits**

The field investigation was conducted on the 10/11 January 2022. Based on the “Site Investigation Code of Practice” (SAICE Geotechnical Division, 2010), which provides standards for “acceptable engineering practice”, a total of 37 (Thirty-Seven) test pits were planned for the proposed development. This chapter of the report describes the field work and activities that were conducted in order to assess the geotechnical conditions at the proposed site. Test pits were positioned using a hand held GPS and the position of the test pits is shown on figure 3 of the report. The method of investigation was based on a near surface investigation, to a maximum depth of 3 m below existing ground level using fly wheel TLB (Tractor-Loader-Backhoe) and a hand auger drill machine in order to obtain information on the subsurface soil; each pit was marked, photographed and profiled by a field engineering geologist in accordance with the current standard procedures proposed by Brink and Bruin (2002).

These included the following components:

- Excavation of 37 (Thirty-Seven) test pits with an aid of a fly wheel TLB (Tractor Loader-Backhoe)
- Representative samples were retrieved from the test pits for laboratory testing at SANAS accredited laboratory

### **Laboratory Results**

The field work indicated a general homogeneity of the subsurface soils comprising of “Moist, light brown, dense, matrix supported, coarse grained, gravelled sand”. Representative disturbed subsoil samples retrieved from the inspection pits during the investigation were taken to a commercial laboratory for testing. These tests aid in assessing the behaviour of soils due to moisture changes particularly below foundations. The following tests were conducted on soil samples taken during the field work phase by a suitable SANAS accredited soils laboratory (Civilab, Johannesburg (Booyens): Gauteng Province). Standard foundation indicator tests were conducted on disturbed soil samples in order to determine its composition, to evaluate the heave and compressibility potential of these soils and calculate the maximum heave and/or differential settlement that can be expected. The following tests were conducted:

- 20 Atterberg Limits (plastic limit, liquid limit and plasticity index)
- 20 Grading analysis and;
- 4 MOD and 4 CBR
- 3 pH and 2 Conductivity

### **Ground Subsidence**

Subsidence occurs in areas with large underground cavities typically resulting from large scale shallow to very shallow underground mining and from dolomite/limestone dissolution. It may also appear where thick deposits of unconsolidated material exist. No signs of previous subsidence were evident during the site investigation. The site can be classified as a mining active area, however, there are no underground mining directly below the site. Should the new information relating to mining activity or seismic activity later uncovered, the Department of Mineral Resources (DMR) will be consulted.

### **Sinkhole Formation**

Similar to subsidence, sinkhole formation occurs in areas with very large to extremely large underground cavities resulting from poorly designed shallow underground activities. Dissolution of dolomites or limestone, over millions of years, may lead to cavity formations which later manifest as sinkholes. The available geological maps and geological mapping from site investigations indicate that the site is not underlain by dolomite or soluble rocks/minerals.

### **Recommendations**

The foundation recommendations are based on information gathered on site through field observations; test pitting and laboratory testing.

**The foundation recommendations include the following:**

#### **Reinforced Strip Foundation**

- Reinforced strip foundation founded on a G8/G7 engineered soil mattress.

**The following construction procedures apply.**

- All topsoil to be stripped to spoil
- Foundation trenches for 500mm wide strip footing to be over-excavated to 1.0m wide by 1.6m deep below existing ground level
- Excavation to be backfill with G6 quality material to a depth of 0.6m existing ground level; G6 material to be compacted in 150mm thick layers to 93% Mod AASHTO density at -1% to +2% OMC
- Strip footings 500mm wide and adequately reinforced should be constructed at a depth of 0.6m
- The allowable bearing capacity should be limited to 150kPa on the engineered soil mattress



- Articulation joints at some internal doors and all external doors;
- Light reinforcement in masonry;
- Good site drainage requirements

### **Concrete Raft Foundation**

If such a foundation is implemented, the following items must receive careful attention.

- The raft must be of high rigidity and capable of supporting the superstructure without undue deflection in a situation where 0.01 m of settlement may occur at the centre of the structure and none at the perimeter.
- The floor slab should be integral with the foundation itself so as to avoid differential movement between floors and walls.
- Flexibility of buried cables, water and sewer connections should be ensured

### **Stiffed Raft**

Should a stiffened raft foundation solution be envisaged this should comprise a grid of reinforced concrete beams cast integrally with the floor slab, Because of its stiffness, the raft may reduce differential movements of the supporting soil to a level that can be tolerated by the superstructure. The raft can be constructed on a graded terrace to facilitate drainage. The excavations for the beams can then be made into the terrace. An approved damp-proof plastic sheet should be provided below the entire raft, and the slab and beams should be cast as a single unit. Flexible couplings should be used where possible for wet services. Should a stiffened concrete raft foundation be adopted at the site it is recommended that the raft design be undertaken by a Structural Engineer to formulate a practical approach.

## **8.6. Floodline Study**

### **Details of the Specialist:**

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No. 11 Pierre street, IT Park RentCo Building Office 6, Bendor,

Polokwane, 0699

Contact Number: 015 291 0775

Email: [admin@dalimede.com](mailto:admin@dalimede.com)

Contact Person: Litmos Mthunzi

Area of Expertise: Civil Engineer

## **FINDINGS**

### **Floodline Modelling**

The HEC-RAS model was used to determine the flood line during the event of a flood for any return period, and in this case the 1:100-year floods were modelled.

### **Cross Section Profile**

Cross sectional data was generated using GIS and CAD software, as well as the 0.5m contour lines that were obtained from the Client appointed surveyor, DME Geomatics.

## **RECOMMENDATIONS**

It is recommended that a buffer zone of 20m should be provided between the 1:100 flood line and any proposed development.

### **8.7. Storm Water Management Plan**

#### **Details of the Specialist**

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Polokwane, 0699

Contact Number: 015 291 0775

Email: [admin@dalimede.com](mailto:admin@dalimede.com)

Contact Person: Litmos Mthunzi

Area of Expertise: Civil Engineer

## **FINDINGS**

### **Erosion**

The topsoil is generally highly erodible and pose a constant and significant threat to the stability of the natural landforms. On the steeper slopes, erosion can take place extremely quickly once initiated, resulting in dongas and undermining structures. The damage to the watercourse will seriously impact not only on the site of the erosion but could damage neighbouring properties and any dams and wetlands located in the downstream valleys where the eroded sediment will be deposited. The cost of correcting the damages will be substantially more than the precautions required to avoid them.

### **Flooding**

The proposed development will tend to reduce the natural rainfall infiltration and increase storm runoff. Downstream flood damage risks will therefore increase unless adequate attenuation of flood runoff is provided collectively in the watercourses and on individual sites if necessary. The design of the major storm water system must address this issue as far as possible and must be designed such

that the downstream post-development flood risks are no greater than the pre-development flood risks.

## RECOMMENDATIONS

The following recommendations are made for the proposed housing development:

- That the storm water design parameters used in the design of the storm water management system are accepted and approved.
- The detail design of the storm water system includes recommendations of this plan.
- Rainwater harvesting should be encouraged at all residential dwellings.
- Rainwater harvesting tanks should be included in building plans submitted to the municipality for building plan approval.
- The stormwater attenuation ponds should be constructed off-channel before draining into the stream.
- The storm water system must be kept separate from the sewerage system.
- All chemicals, cement, fuel and other hazardous material used during construction should be stored in controlled areas and not lower than the internal road.
- Concentration of storm water should be prevented where possible, but energy dissipaters should be provided in areas of concentration.
- On completion of every construction phase within the development, comprising the construction of buildings, roads and parking areas, all remaining exposed embankments and open areas must be vegetated as soon as possible, including the use of “Soil saver”, where necessary.
- During the construction phase, the following aspects shall be closely monitored by the ECO to ensure the contractor complies:
  - Temporary berms and cut-off drains must be provided on site to collect run-off, especially until the stormwater attenuation pond is complete and functional.
  - Silt screens must be provided at the catchpits during road/stormwater construction.
  - Topsoil must be conserved on site and prevented from entering the stormwater system.
  - Exposed embankments, cut/fill slopes and open areas must be vegetated as soon as possible to reduce runoff.
  - Dust control during construction must be always applied.
  - Excess spoil material from topsoil or bulk earthworks must be placed in areas or even removed entirely off site to minimise silt deposition, scouring and soil erosion.

- Post construction, all exposed areas must be covered in vegetation, grass or landscaped

**To fully mitigate the negative impacts of development:**

- The potential increase in catchment runoff must be balanced against the combined effects of evapo-transpiration from catchment vegetation, evaporation from water bodies plus the retention and re-use of both storm runoff and treated wastewater.
- The potential increase in flood peaks must be mitigated to at least predevelopment levels by the provision of sufficient stormwater detention facilities at micro and macro levels.
- The potential increase in flood volumes must be mitigated where possible by subsoil infiltration, retention of runoff in on-site facilities for irrigation use and unsaturated wetland areas where evaporation and infiltration can help to reduce flood runoff rates.
- Installations must be provided to contain pollution as close to source as possible and in a practical location for servicing by Department of Solid Wastes.

**The Stormwater Management Philosophy for the housing development encourages developers, their professional teams, contractors, and property owners to do the following:**

- Always maintain adequate ground cover at all places and to negate the erosive forces of wind, water and all forms of traffic.
- Prevent concentration of stormwater flow at any point where the ground is susceptible to erosion.
- Reduce stormwater flows as much as possible by the effective use of attenuating devices.
- Ensure that development does not increase the rate of stormwater flow above that which the natural ground can safely accommodate at any point in the sub catchments.
- Ensure that all stormwater control works are constructed in a safe and aesthetic manner in keeping with the overall development.
- Prevent pollution of water ways and water features by suspended solids and dissolved solids in storm water discharges.
- Contain soil erosion, whether induced by wind or water forces, by constructing protective works to trap sediment at appropriate locations. This applies particularly during construction
- Avoid situations where natural or artificial slopes may become saturated and unstable, both during and after the construction process.

## **8.8. Traffic Impact Assessment**

### **Details of the Specialist**

#### **NATCO Investments**

110B Nahoon Crescent

Moreleta Park

0044

Contact Number: 083 382 6752

Email: [darlington@natcoinvestments.co.za](mailto:darlington@natcoinvestments.co.za)

**Contact Person:** Darlington Gwangwadza

**Area of Expertise:** Traffic Engineer

### **FINDINGS**

The following conclusions were derived from the assessment:

- Trip generation from the proposed development will affect the performance of R36 road but within the acceptable limits of Level of Service D.
- The Level of Service of the R36 and D673 intersection is currently F. Proposed upgrades to the intersection by means of signalised control and slip lanes will only improve the delay but cannot improve the Level of Service.

### **RECOMMENDATIONS**

The following recommendations should be considered:

- Two accesses from the proposed development should be provided at distance of 671m apart along R36.
- The accesses should be of minimum class 4b and the proposed configuration is shown in Chapter 9 (of the TIA report).
- The bulk services contribution by the developer should be used towards the upgrade of the R36 as suggested in this report while the developer will meet the cost of the access roads.
- A global route upgrade should be considered by SANRAL to improve the function of intersection R36 and D673.
- A site traffic assessment should be done after the approval of the site development plan to manage on-site traffic.

## 9. ENVIRONMENTAL IMPACT DETERMINATION AND EVALUATION

### 9.1. Methodology to Assess the Impacts

To assess the impacts on the environment, the process has been divided into two main phases namely the Construction phase and the Operational phase. The activities, products and services present in these two phases have been studied to identify and predict all possible impacts.

In any process of identifying and recognising impacts, one must recognise that the determination of impact significance is inherently an anthropocentric concept. Duinker and Beanlands, (1986) in DEAT 2002, Thompson (1988), in DEAT 2002 stated that the significance of an impact is an expression of the cost or value of an impact to society.

However, the tendency is always towards a system of quantifying the significance of the impacts so that it is a true representation of the existing situation on site. This has been done by using wherever possible, legal and scientific standards which are applicable.

The significance of the aspects/impacts of the process have been rated by using a matrix derived from Plomp (2004) and adapted to some extent to fit this process. These matrixes use the consequence and the likelihood of the different aspects and associated impacts to determine the significance of the impacts.

The consequence matrix use parameters like severity, duration and extent of impact as well as compliance to standards. Values of 1-5 are assigned to the parameters that are added and averaged to determine the overall consequence. The same process is followed with the likelihood that consists of two parameters namely frequency and probability. The overall consequence and the overall likelihood are then multiplied to give values ranging from 1 to 25. These values as shown in the following table and are used to rank the significance.

Significance	Low	Low-Medium	Medium	Medium-High	High
Overall Consequence X Overall Likelihood	1-4.9	5-9.9	10-14.9	15-19.9	20-25

Table 3: Significance Ratings

SEVERITY	
<b>Low</b>	Low cost/high potential to mitigate. Impacts easily reversible, non-harmful insignificant change/deterioration or disturbance to natural environments.
<b>Low-medium</b>	Low cost to mitigate small/ potentially harmful moderate change/deterioration or disturbance to natural environment.

<b>Medium</b>	Substantial cost to mitigate. Potential to mitigate and potential to reverse impact. Harmful Significant change/ deterioration or disturbance to natural environment.
<b>Medium-high</b>	High cost to mitigate. Possible to mitigate great/very harmful, very significant change/deterioration or disturbance to natural environment.
<b>High</b>	Prohibitive cost to mitigate. Little or no mechanism to mitigate. Irreversible. Extremely harmful Disastrous change/deterioration or disturbance to natural environment.

<b>DURATION</b>	
Low	Up to one month
Low-medium	One month to three months
Medium	Three months to one year
Medium-high	One to ten years
High	Beyond ten years

<b>EXTENT</b>	
Low	Project area
Low-medium	Surrounding area
Medium	Within Greater Tzaneen Local Municipality
Medium-high	Within Mopani District Municipality
High	Regional, National and International

<b>FREQUENCY</b>	
Low	Once a year or once during operation
Low-medium	Once in 6 months
Medium	Once a month
Medium-high	Once a week
High	Daily

<b>PROBABILITY</b>	
Low	Almost never/almost impossible
Low-medium	Very seldom/highly unlikely
Medium	Infrequent/unlikely/seldom

Medium-high	Often/Regularly/Likely/Possible
High	Daily/Highly likely/definitely

<b>COMPLIANCE</b>	
The following criteria are used during the rating of possible impacts	
Low	Best practise
Low-medium	Compliance
Medium	Non-compliance/conformance to Policies etc. – Internal
Medium-high	Non-compliance/conformance to Legislation etc. – External
High	Directive, prosecution of closure or potential for non-renewal of licences or rights

*Table 4: Description of the parameters used in the matrixes*

A summary of the anticipated environmental impacts that are likely to occur as a result of the planning, construction, and the operational phase, as well as the proposed mitigation measures that may eliminate or reduce the potential impacts listed are outlined below.



## 10. KEY ENVIRONMENTAL IMPACTS

Environmental Impacts	Possible Cause	Potential Impacts	Proposed Mitigation Measures
<b>Air Pollution and Noise</b>			
Smoke	<ul style="list-style-type: none"> <li>• Vehicle emissions</li> <li>• Fires</li> </ul>	Health problems Air pollution	<ul style="list-style-type: none"> <li>• Ensure that construction vehicles travelling on unpaved roads do not exceed a speed limit of 40 km/hour</li> <li>• Rehabilitate disturbed areas as soon as construction activities are finished in that area</li> <li>• Burning of waste should not be permitted, under any conditions</li> <li>• Provide personal protective equipment (PPE), such as dust mask and goggles.</li> <li>• Areas that generate dust particles should be sprinkled with water, this reduces dust blow out from wind, construction vehicles and machinery</li> <li>• Construction vehicles shall comply with speed limits and haul distances shall be minimised.</li> <li>• Regularly maintain and service construction machinery and equipment, this will minimise production of hazardous gases</li> <li>• It must be ensured that noise levels are kept to a minimum during the construction phase. All machinery and equipment to be utilized on the site should be fitted with mufflers and must be maintained in good working order to minimise noise levels.</li> </ul>
Dust	<ul style="list-style-type: none"> <li>• During construction</li> <li>• Vehicle operation on roads</li> <li>• Vegetation clearing</li> </ul>	Public nuisance Noise pollution	
Fumes	<ul style="list-style-type: none"> <li>• Fumes from vehicles</li> <li>• Fumes from machinery</li> </ul>		
Noise	<ul style="list-style-type: none"> <li>• Construction machinery and vehicles</li> <li>• Presence of construction camp</li> <li>• Operation noise (music and people)</li> </ul>		

			<ul style="list-style-type: none"> <li>• It is recommended further that the contractor should encourage construction workers to minimise shouting and hooting on the site</li> <li>• Material loads must be suitably covered and secured during transportation.</li> <li>• The contractor must warn all local community that could be affected by the noise generation from construction activities.</li> <li>• Limit construction activities to day time hours.</li> <li>• Construction workers should be educated on the importance of conservation issues</li> <li>• All vehicles and equipment/ machinery must regularly be checked to ensure that they are in good working order to minimise pollution</li> <li>• Emergency numbers must be displayed with the correct details of the nearest firefighting station at all time</li> </ul>
<b>Water Quality</b>			
Pollution of water Sources	<ul style="list-style-type: none"> <li>• Spillage of fuel &amp; oil from vehicles</li> <li>• Spillage of building material e.g. cement etc.</li> <li>• Migration of contaminants off the site</li> </ul>	<ul style="list-style-type: none"> <li>• Pollution of surface and groundwater</li> <li>• Health risk</li> <li>• Lower water quality</li> </ul>	<ul style="list-style-type: none"> <li>• Dirty water originating from the construction site and camp should be contained and disposed of correctly, preventing contamination of soil and any watercourses in the area</li> <li>• Maintenance of construction vehicles should be carried out in a well-designed and protected area and where oils / grease will be completely restrained from reaching the ground. Such areas</li> </ul>

	<ul style="list-style-type: none"> <li>• Solid waste in storm water</li> <li>• Littering</li> </ul>	<ul style="list-style-type: none"> <li>• Soil degradation</li> <li>• Soil Erosion</li> <li>• Siltation</li> </ul>	<p>should be covered to avoid storm from carrying away oils into the soil or water systems. Regularly check vehicles, machineries and equipment operating on site to ensure that none have leaks or cause spills of oil, diesel, grease or hydraulic fluid.</p> <ul style="list-style-type: none"> <li>• Emergency incident reporting and remedial measures must be in place.</li> <li>• Drip trays should be used during the servicing of vehicles. The content thereof must be disposed in accordance with relevant hazardous material disposal requirement.</li> <li>• Measures to contain spills must be readily available on site (Spill Kits).</li> <li>• A waste contractor must be appointed to oversee the entire waste management process during construction phase.</li> <li>• Storage areas must be bunded to protect groundwater quality</li> <li>• A waste contractor must be appointed to oversee the entire waste management process during construction phase.</li> <li>• Storage areas must be bunded to protect groundwater quality</li> <li>• All solid waste generated during the construction process (including packets, plastic, rubble, cut plant material, waste metals etc.) must be placed in the waste collection area in the construction camp and must not be allowed to blow around the site</li> </ul>
Silt deposition in surface water	<ul style="list-style-type: none"> <li>• Erosion risk due to increased run-off from built up area</li> <li>• Erosion from cleared areas during construction</li> </ul>		
Pollution from sanitation system	<ul style="list-style-type: none"> <li>• Leakages of system and incorrect management of sanitation system Inadequate measures to prevent sewage spillages</li> <li>• Overflow of sewage to groundwater</li> </ul>		

			<ul style="list-style-type: none"> <li>• All solid waste generated during the construction process (including packets, plastic, rubble, cut plant material, waste metals etc.) must be placed in the waste collection area in the construction camp and must not be allowed to blow around the site</li> <li>• Planting of trees, aesthetic gardens and lawns by residents is recommended, as it will serve to minimise the amount of runoff</li> <li>• Erosion protection measures must be implemented on the site to reduce erosion and sedimentation of the receiving environment. Measures could include: sediment traps, sandbags, bunding around soil stockpiles</li> <li>• Material storage areas must not be within 50 m of any watercourse or within the 1:100-year flood line</li> </ul>
<b>Water Quantity</b>			
Impact on amount of water resources available	<ul style="list-style-type: none"> <li>• Over-utilisation of available water</li> </ul>	<ul style="list-style-type: none"> <li>• Water scarcity</li> <li>• Increased pressure on water supply sources</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage water reuse/recycling during construction phases.</li> <li>• Avoid wasting the water supplied to the site.</li> </ul>
<b>Land/ Soil Degradation</b>			
Soil contamination and degradation	<ul style="list-style-type: none"> <li>• Spillages of oil, chemicals from machinery &amp; vehicles</li> </ul>	<ul style="list-style-type: none"> <li>• Soil degradation</li> <li>• Loss of topsoil</li> <li>• Dust formation</li> </ul>	<ul style="list-style-type: none"> <li>• Regular maintenance of the construction vehicles need to be done to ensure that no spillage occurs when the toilets are cleaned or emptied and that the contents are removed from</li> </ul>

	<ul style="list-style-type: none"> <li>• Removal of vegetation during clearing for construction</li> <li>• Sewage spillages</li> <li>• Erosion due to increased runoff from built-up areas</li> <li>• Increased erosion of drainage channels</li> <li>• Site clearing during construction</li> </ul>	<ul style="list-style-type: none"> <li>• Erosion</li> </ul>	<p>the site to an appropriate location / facility, preventing overflow of sewage to ground water</p> <ul style="list-style-type: none"> <li>• Removal of vegetation should be restricted to areas identified on the project description / footprint</li> </ul>
<b>Biodiversity</b>			
Decline in fauna and flora diversity	<ul style="list-style-type: none"> <li>• Cleaning of site for construction</li> <li>• Pollution of soil</li> <li>• Pollution of water resources</li> <li>• Physical establishment of development.</li> <li>• Loss of habitat due to establishment of development</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of biodiversity</li> <li>• Loss of habitat.</li> <li>• Negative impact on biodiversity</li> <li>• Negative impact on rare /endangered/ endemic species and habitats</li> </ul>	<ul style="list-style-type: none"> <li>• Clearing of vegetation must be restricted to areas identified on the project footprint</li> <li>• No development activities that will lead to a loss of natural vegetation are recommended within the riparian habitat</li> <li>• All vegetation on the site that is not developed must be conserved</li> <li>• Conserve trees with DABH&gt;30cm</li> <li>• Indigenous trees must not be cut disturbed or removed without a permit from forestry as required by the National Forest Act</li> <li>• Implement an alien invader vegetation control program</li> </ul>

			<ul style="list-style-type: none"> <li>• Use only indigenous flora for landscaping / wind breaks</li> <li>• Spoil material may not be pushed into the riparian habitat or buffer zones</li> <li>• Conserve the riparian habitat with a 20m buffer zone</li> </ul>
<b>Cultural / Heritage</b>			
Possible loss of heritage sites	<ul style="list-style-type: none"> <li>• Damage / loss during construction</li> <li>• Damage / loss during operation</li> </ul>	Possible loss of cultural heritage	SAHRA must immediately be alerted in case evident or artefacts, paleontological fossils, additional graves or heritage resources are discovered during the course of development. Chance Find Protocol is recommended
<b>Visual Impact</b>			
Visual Impact	<ul style="list-style-type: none"> <li>• The physical existence of the development</li> <li>• Construction site and buildings Lights at night</li> <li>• Presence of new development.</li> <li>• Overhead power lines</li> </ul>	<ul style="list-style-type: none"> <li>• Obstruction</li> <li>• Visual intrusion</li> <li>• Public nuisance</li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• The implementation of a large residential development cannot be entirely mitigated, however, the use of harmonious architectural themes, colour co-ordination, finishes for roofs and walls with existing development in the neighbourhood etc., contributes to creating an aesthetically pleasing environment and the establishment of a new sense of place</li> </ul>
<b>Health and Safety</b>			
Security	<ul style="list-style-type: none"> <li>• Influx of people to area including construction</li> </ul>		<ul style="list-style-type: none"> <li>• Demarcation of the construction site to prevent public access (during the construction phase).</li> </ul>

	workers and others after completion	<ul style="list-style-type: none"> <li>• Loss of safe and secure environment</li> <li>• Threat to health</li> <li>• Danger to human life</li> </ul>	<ul style="list-style-type: none"> <li>• A limited number of workers along with security guards will be allowed to sleep on site, however within a cordoned-off secure area.</li> <li>• All staff must carry identification, access control must also be enforced.</li> </ul>
Fires	<ul style="list-style-type: none"> <li>• Accidental fires</li> <li>• Burning of waste</li> <li>• Cooking with fires</li> </ul>		
<b>Socio-Economic Impacts</b>			
Impact from change of land use from agriculture to township	<ul style="list-style-type: none"> <li>• Change of land use to residential, business, institutional, educational, industrial and public open spaces</li> </ul>	<ul style="list-style-type: none"> <li>• Impact negatively on agricultural production</li> <li>• Land will no longer be used for agriculture</li> </ul>	<ul style="list-style-type: none"> <li>• The change in land use will provide housing for the surrounding communities and also provide employment opportunities</li> </ul>
Employment creation and skills development opportunities during the construction and operation phase, which is expected to give rise to new jobs. <b>This impact is rated as positive.</b>	<ul style="list-style-type: none"> <li>• The establishment of a township</li> </ul>	<ul style="list-style-type: none"> <li>• Employment opportunities</li> <li>• Permanent jobs during operation</li> <li>• New housing</li> </ul>	<ul style="list-style-type: none"> <li>• Enhance the use of local labour and local skills as far as reasonably possible.</li> <li>• Where the required skills do not occur locally, and where appropriate and applicable, ensure that relevant local individuals are trained.</li> <li>• Ensure that goods and services are sourced from the local and regional economy as far as reasonably possible</li> </ul>

<p>Impact of the residential and other development on adjacent landowners</p>	<ul style="list-style-type: none"> <li>• Noise from construction activities</li> <li>• Dust generated by construction vehicles and from site preparation</li> <li>• The visual impact of lights.</li> <li>• The visual impact of residential and other units (business, institutional etc.)</li> </ul>	<p>Nuisance and disruption Noise pollution Air pollution Negative visual impact</p>	<ul style="list-style-type: none"> <li>• Construction activities must be between normal working hours 8:00 to 17:00 week days with no construction activities taking place during weekends.</li> <li>• Dust suppressants must be used to reduce the amount of dust produced which also contributes to the reduction of air pollution</li> <li>• The location of stockpiles shall take into consideration the prevailing wind directions and locations of sensitive receptors.</li> </ul>
<p>Impacts related to the establishment of a construction camp with accommodation</p>	<ul style="list-style-type: none"> <li>• Location of construction camp</li> <li>• Environmental impacts of construction activities e.g. spillage of hazardous liquids such as oil and fuel onto the soil surface</li> <li>• Accommodation of construction teams on site</li> <li>• Littering, accidental fires, collecting of firewood and poaching</li> </ul>	<ul style="list-style-type: none"> <li>• Adverse impact on the environment</li> <li>• Resentment from neighbouring residents</li> </ul>	<ul style="list-style-type: none"> <li>• No domestic waste water (grey water) should be allowed to be discharged from the construction camp</li> <li>• Demarcation of the construction site to prevent public access</li> <li>• Only construction workers along with security guards will be allowed to sleep on site</li> </ul>



	<ul style="list-style-type: none"> <li>• Undesirable visitors to the area</li> </ul>		
Ground and water pollution from littering and waste disposal during construction and operational phases	<ul style="list-style-type: none"> <li>• The presence of a large work force and equipment and machinery during construction causing littering and dumping refuse and builder's rubble on site</li> <li>• Construction activities from heavy vehicles and machinery</li> </ul>	<ul style="list-style-type: none"> <li>• Soil and water pollution</li> </ul>	<ul style="list-style-type: none"> <li>• A waste contractor must be appointed to oversee the entire waste management process during construction phase.</li> <li>• Storage areas must be bunded to protect groundwater quality.</li> <li>• All solid waste generated during the construction process (including packets, plastic, rubble, cut plant material, waste metals etc.) must be placed in the waste collection area in the construction camp and must not be allowed to blow around the site</li> </ul>
	<ul style="list-style-type: none"> <li>• The construction of structures such as open trenches and earth heaps might also hold safety risks for people.</li> </ul>	<ul style="list-style-type: none"> <li>• Safety risks for motorists, passengers, pedestrians and residents of the area.</li> </ul>	
	<ul style="list-style-type: none"> <li>• A lack of proper ablution facilities for temporary workers during construction</li> </ul>	<ul style="list-style-type: none"> <li>• Soil and water pollution</li> <li>• Unhygienic conditions</li> </ul>	<ul style="list-style-type: none"> <li>• Oil spills must be cleaned immediately with an oil spill kit.</li> <li>• No vehicles, machinery or equipment with leaks or causing spills may be allowed to operate on the construction site.</li> </ul>

		<ul style="list-style-type: none"> <li>• Health risk</li> </ul>	<ul style="list-style-type: none"> <li>• Dirty water originating from the construction site and camp should be contained and disposed of correctly, preventing contamination of soil and any watercourses in the area.</li> <li>• Maintenance of construction vehicles should be carried out in a well-designed and protected area and where oils / grease will be completely restrained from reaching the ground and the wetland.</li> </ul>
Impact from the provision of structures and infrastructure services	<ul style="list-style-type: none"> <li>• The development, construction and provision of infrastructure services</li> </ul>	<ul style="list-style-type: none"> <li>• Pollution from sanitation systems</li> <li>• Pollution of water resources</li> <li>• Negative visual impact of overhead power lines and electricity supply and waste removal.</li> <li>• Soil erosion as a result of the construction of internal roads and water reticulation networks</li> </ul>	<ul style="list-style-type: none"> <li>• Any amendments, upgrading or changes to the infrastructure must be approved by the relevant Councils</li> <li>• The installation of services should be tightly monitored and controlled by the relevant authorities.</li> <li>• Ensure that the provision of all services (water and sewer) are in accordance with relevant Council requirements</li> <li>• Any amendments, upgrading or changes to the infrastructure must be approved by the relevant Councils</li> <li>• The installation of services should be tightly monitored and controlled by the relevant authorities</li> <li>• Infrastructure must be designed according to the minimum requirements of the relevant councils and must therefore be submitted to the Local authority for approval</li> <li>• The monitoring of the proposed development must be done on a bi-annual basis to ensure that structural faults do not result in the unnecessary contamination of the wetlands.</li> </ul>

			<ul style="list-style-type: none"> <li>• All stormwater management infrastructure must divert flow away from areas susceptible to erosion, specifically steep slopes and wetlands</li> <li>• Ensure compliance with the industry standards</li> </ul>
Impact on archaeological /cultural / social features	<ul style="list-style-type: none"> <li>• The development of structures and infrastructure services for residential and other sites Clearing of construction sites.</li> <li>• Construction of access roads.</li> <li>• Excavation of trenches for the installation of underground pipelines and cables</li> </ul>	<ul style="list-style-type: none"> <li>• Negative impact on cultural or heritage resources</li> </ul>	<p>SAHRA must immediately be alerted in case evident or artefacts, paleontological fossils, additional graves or heritage resources are discovered during the course of development.</p> <p>Chance Find Protocol is recommended</p>
Job creation and ownership of stands This impact is rated as positive	<ul style="list-style-type: none"> <li>• Temporary jobs during construction phase</li> <li>• Permanent jobs during operation</li> <li>• New housing</li> <li>• New businesses</li> </ul>	<ul style="list-style-type: none"> <li>• Positive impact – job creation</li> </ul>	

	<ul style="list-style-type: none"> <li>• New school (school/ crèche)</li> </ul>		
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Table 5: Possible environmental impacts

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## **11. PUBLIC PARTICIPATION PROCESS UNDERTAKEN**

### **11.1. Introduction and Objectives**

The public participation process is an important component of the Environmental Impact Assessment process (Scoping and Environmental Impact Assessment) and is therefore, critical to the success of the project / application. The purpose of the PPP is to ensure that all the views and concerns of all the interested and affected parties are identified, recorded and addressed during the process.

**The key objectives of the public participation process are to:**

- Identify a broad range of I & APs, and inform them about the proposed project;
- Understand and clearly document all issues, underlying concerns and suggestions raised by the I & APs; and
- Identify areas that require further specialist investigation.

### **11.2. Methodology**

The public participation process was undertaken in accordance with the plan of study as part of the Scoping Report that was accepted in terms of Regulation 22 (a) of the NEMA Regulations. The following activities have already been undertaken as part of this process:

- Advertisement on the local newspaper
- Placement of the on-site notices/ notice boards
- Delivery of project background information notices to the landowners adjacent to the proposed development site.
- Email consultations with stakeholders

#### **11.2.1. Newspaper Advertisement**

The proposed project was advertised in the local newspaper namely, Giyani Review on the 13<sup>th</sup> of July 2022 to inform people about the project and to request them to register their names and comment on the proposed development. Kindly refer to Appendix 6.5 for proof of newspaper publication.

#### **11.2.2. Site Notices**

Site notices were placed at various points around the proposed development site (Kindly refer Appendix 6.6).

#### **11.2.3. Background Information Notices/ Letters**

Notices/ letters regarding the background information of the proposed development activity were also hand delivered to the landowners/ occupiers located next to the proposed development site (Appendix 6.3).

#### **11.2.4. Consultation with Stakeholders**

The scoping report was circulated and draft EIA report will also be circulated to the stakeholders and I & APs for a period of 30 days for observation and comments (Kindly refer to Appendix 6.4 for proof of circulation of the scoping reports).

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## **12. CONCLUSIONS**

The purpose of this report is to provide the Competent Authority Limpopo Department of Economic Development, Environment and Tourism with sufficient information regarding the potential impacts of the development to make an informed decision regarding the approval of the proposed township establishment.

The proposed development has no fatal flows in terms of the biophysical and socio economic environment. In fact, it is believed that the proposed development compliments the required and desired balance to be achieved between the socio-economic and environmental factors.

The environmental management plan and all the mitigation measures provided in the specialist reports should be strictly adhered to, therefore mitigating impacts as far as possible. Should this site not be developed, it will remain as isolated and an unconnected area that will be vulnerable to crime, illegal waste dumping and potential illegal informal occupation.

## **13. RECOMMENDATIONS**

The EAP recommends that the “township establishment” option which has been identified as the preferred alternative is used. It is further recommended that this application be approved with the following conditions:

- The conditions of the Environmental Authorisation from the Competent Authority (LEDET) must be adhered to at all times.
- The responsibilities to obtain any further authorisations and/or licenses will rest on the proponent or applicant of the project, PRIOR to the commencement of any activities on site
- An ECO must be appointed to monitor compliance with the environmental authorisation and develop compliance reports to be submitted to the Competent Authority during the construction phase of the township
- The EMP attached and the mitigation measures related to it must be adhered to at all times and the appointed ECO must ensure that the developer complies with the environmental management plan.
- Communication or awareness must be undertaken to the project team to ensure maximum participation and compliance to the conditions of the environmental authorisation.
- All the recommendations in the specialist reports that are included as a part of this application should be implemented & strictly adhered to in order to counteract adverse and cumulative impacts