



**Proposed extension of the township boundary of  
Piet Retief Ext 6, Piet Retief, Mkhondo Local  
Municipality, Mpumalanga Province**

Draft Basic Assessment Report

19 April 2021

**CORE Environmental Services**

Anne-Mari White (*Cert. Sci. Nat.*)

Professional Registration -  
SACNASP: 300067/15

EAOASA: 2020/602

## EXECUTIVE SUMMARY

**Mkhondo Local Municipality** is proposing to extend the township boundary of Piet Retief Extension 6, on the remainder of portion 1 of the farm Piet Retief Town and Townlands 149-HT. The total area to be developed is approximately 11 hectares.

In accordance with the National Environmental Management Act 107 of 1998, Environmental Authorisation (EA) is required before any construction activities can take place.

Mahelane Development Planners subsequently appointed Core Environmental Services as an independent Environmental Consultant, to apply for the Environmental Authorisation by means of conducting a Basic Environmental Authorisation Application process in accordance with GNR 982, 2014 (as amended in 2017).

The establishment and operation of the agricultural area are likely to result in environmental and socio-economic impacts. The identified impacts are listed below and discussed thereafter:

- *Impact on Biodiversity (destruction/conservation of habitat)*
- *Impact on geology and soils*
- *Impacts associated with groundwater and surface water*
- *Dust generation*
- *Sanitation and Waste management*
- *Bulk water supply and sewage treatment*
- *Impact on heritage resources*
- *Traffic impact*
- *Health and Safety*
- *Socio-economic impact*

The table below summarises the impacts identified and assessed for the establishment and operational phases of the project:

IMPACT	SIGNIFICANCE BEFORE MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION MEASURES
<b>Establishment Phase Impacts</b>		
Biodiversity Impact	Low	Very Low
Generation of dust	Medium	Low
Erosion	Low	Very Low
Soil Pollution	Low	Very Low
Impact on water resources	Medium	Low
Impact on Sanitation	Medium	Low
Impact on Waste Management	Medium	Low
Heritage Impacts	Low	Very Low
Impact on Traffic	High	Medium
Impact on Health and Safety	Low	Very Low
Job opportunities	Low (+)	Medium (+)
<b>Operational Phase Impacts</b>		
Erosion	Low	Very Low

Soil contamination	Medium	Low
Impact on water resource	Medium	Low
Impact on Sanitation	Medium	Low
Impact on Waste Management	Medium	Low
Impact on bulk water supply	Medium	Low
Impact on bulk sewage treatment	Medium	Low
Impact on traffic	Medium	Low
Socio-economic Impact	Low (+)	High (+)

The assessment of the possible impacts associated with the establishment and operational activities, concluded that the impact on the surrounding environment is of **medium to low significance**. Recommendations have however been made to address the impacts which could affect the biophysical and socio-economic environment. It is recommended that pro-active measures are taken to minimise the spread of alien invasive vegetation. Recommendations for the mitigation of impact are included within Section 6 and also the Draft Environmental Management Plan attached.

It is the opinion of the EAP that the EA for this project should be granted, and the proposed mitigation included as the conditions of the authorisation.

# Table of Contents

- EXECUTIVE SUMMARY ..... 2**
- 1. OVERVIEW OF THE PROJECT ..... 7**
  - 1.1 Introduction ..... 7
  - 1.2 Location ..... 7
  - 1.3 Details of the EAP ..... 9
  - 1.4 Policy, Legal and Administrative Framework ..... 9
  - 1.5 National Environmental Management Act 107 of 1998 ..... 10
  - 1.6 Description of the project ..... 10
- 2. PUBLIC PARTICIPATION PROCESS ..... 11**
- 3. CONSIDERATION OF ALTERNATIVES ..... 12**
  - 3.1 Alternative Selection ..... 12
    - 3.1.1 Location alternatives ..... 12
    - 3.1.2 Layout alternatives ..... 12
    - 3.1.3 No-Go alternative ..... 12
- 4. DESCRIPTION OF THE AFFECTED ENVIRONMENT ..... 13**
  - 4.1 Topography ..... 13
  - 4.2 Climate ..... 13
  - 4.3 Ecology ..... 14
  - 4.4 Surface and Groundwater ..... 16
  - 4.5 Land use ..... 18
  - 4.6 Geology and Soils ..... 18
  - 4.7 Heritage ..... 18
  - 4.8 Socio-Economic Environment ..... 19
- 5. SPECIALIST ASSESSMENT REQUIREMENTS AS IDENTIFIED IN THE SCREENING REPORT 20**
- 6. METHODOLOGY OF ASSESSING THE SIGNIFICANCE OF IMPACTS ..... 21**
- 7. ENVIRONMENTAL IMPACT ASSESSMENT ..... 24**
  - 7.1 Impacts during establishment of the development area ..... 24
    - 7.1.1. Impact on biodiversity ..... 24
    - 7.1.2. Generation of dust ..... 25
    - 7.1.3 Impact on soil ..... 26
    - 7.1.4 Impact on water resources ..... 27
    - 7.1.5 Impact on Sanitation and Waste Management ..... 28
    - 7.1.6 Impact on heritage resources ..... 29
    - 7.1.7 Impact on traffic ..... 30
    - 7.1.8 Impact on Health and Safety ..... 31
    - 7.1.9 Socio-economic Impact ..... 32
  - 7.2 Operational Phase Impacts ..... 33
    - 7.2.1 Impact on soil ..... 33
    - 7.2.2 Impact on water resources ..... 34
    - 7.2.3 Impact on Sanitation and Waste Management ..... 35
    - 7.2.4 Impact on bulk water supply and Sewage treatment ..... 36
    - 7.2.5 Impact on traffic ..... 37
    - 7.2.6 Employment opportunities ..... 38
  - 7.3 Environmental Impact Statement ..... 40
- 8. CONCLUSION AND WAY FORWARD ..... 41**
  - 8.1 Assumptions and Limitations ..... 41

8.2 Conclusion .....	41
8.3 Way forward.....	41

<b>9. REFERENCES .....</b>	<b>43</b>
----------------------------	-----------

## LIST OF FIGURES

Figure 1: Locality map – Proposed extension of township boundary, Piet Retief Ext 6, Mkhondo Local Mpumalanga Province .....	8
Figure 2: Contour lines (20m) according to the Mpumalanga Biodiversity Sector Plan, 2014.....	13
Figure 3: Terrestrial ecology according to the Mpumalanga Biodiversity Sector Plan, 2014.....	15
Figure 4: Freshwater ecology according to the Mpumalanga Biodiversity Sector Plan, 2014 .....	16
Figure 5: Seepage wetland identified in accordance with the Mpumalanga Biodiversity Sector Plan, 2014 .....	17
Figure 6: 1:100 Year Flood line within the proposed development area .....	18

## LIST OF TABLES

Table 1: Legislation applicable to the project.....	9
Table 2: Assessment criteria for the evaluation of impacts .....	21
Table 3: Definition of significance ratings .....	22
Table 4: Definition of probability ratings.....	22
Table 5: Definition of confidence ratings.....	23
Table 6: Definition of reversibility ratings .....	23
Table 7: Significance of Biodiversity Impact .....	25
Table 8: Dust Generation .....	26
Table 9: Impact on Soil.....	27
Table 10: Impact on water resources.....	28
Table 11: Impact on Sanitation and Waste .....	29
Table 12: Heritage Resources.....	30
Table 13: Impact on traffic.....	30
Table 14: Impact on Health and Safety.....	31
Table 15: Socio-Economic Impact .....	32
Table 16: Impact on Soil.....	34
Table 17: Impact on water resources.....	35
Table 18: Impact on Sanitation and Waste .....	36
Table 19: Impact on bulk water supply and sewage treatment .....	37
Table 20: Impact on traffic.....	38
Table 21: Significant impact of the 'employment opportunities' impact .....	39
Table 22: Environmental Impact Statement.....	40

## APPENDICES

- Appendix A: Locality Map
- Appendix B: Site Photos
- Appendix C: Public Participation Process
- Appendix D: Specialist Studies
- Appendix E: EMP

## ABBREVIATIONS

BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
EA	Environmental Authorisation
GNR	General Notice Regulation
I&AP	Interested and Affected Party
MDARDLEA	Mpumalanga Department of Agriculture, Rural Development, Land and Administration
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
PPP	Public Participation Process

# 1. OVERVIEW OF THE PROJECT

---

## 1.1 Introduction

**Mkhondo Local Municipality** is proposing to extend the township boundary of Piet Retief Extension 6, on the remainder of portion 1 of the farm Piet Retief Town and Townlands 149-HT. The total area to be developed is approximately 11 hectares and subsequently Environmental Authorisation (EA) is required in accordance with the National Environmental Management Act 107 of 1998 prior to the commencement of construction. Mahelane Development Planners subsequently appointed Core Environmental Services as an independent Environmental Consultant, to apply for the Environmental Authorisation by means of conducting a Basic Environmental Authorisation Application process in accordance with GNR 982, 2014 (as amended in 2017).

## 1.2 Location

The proposed site is located on the remainder of portion 1 of the farm Piet Retief Town and Townlands 149-HT, Piet Retief Ext 6, Mkhondo Local Municipality, Mpumalanga Province.

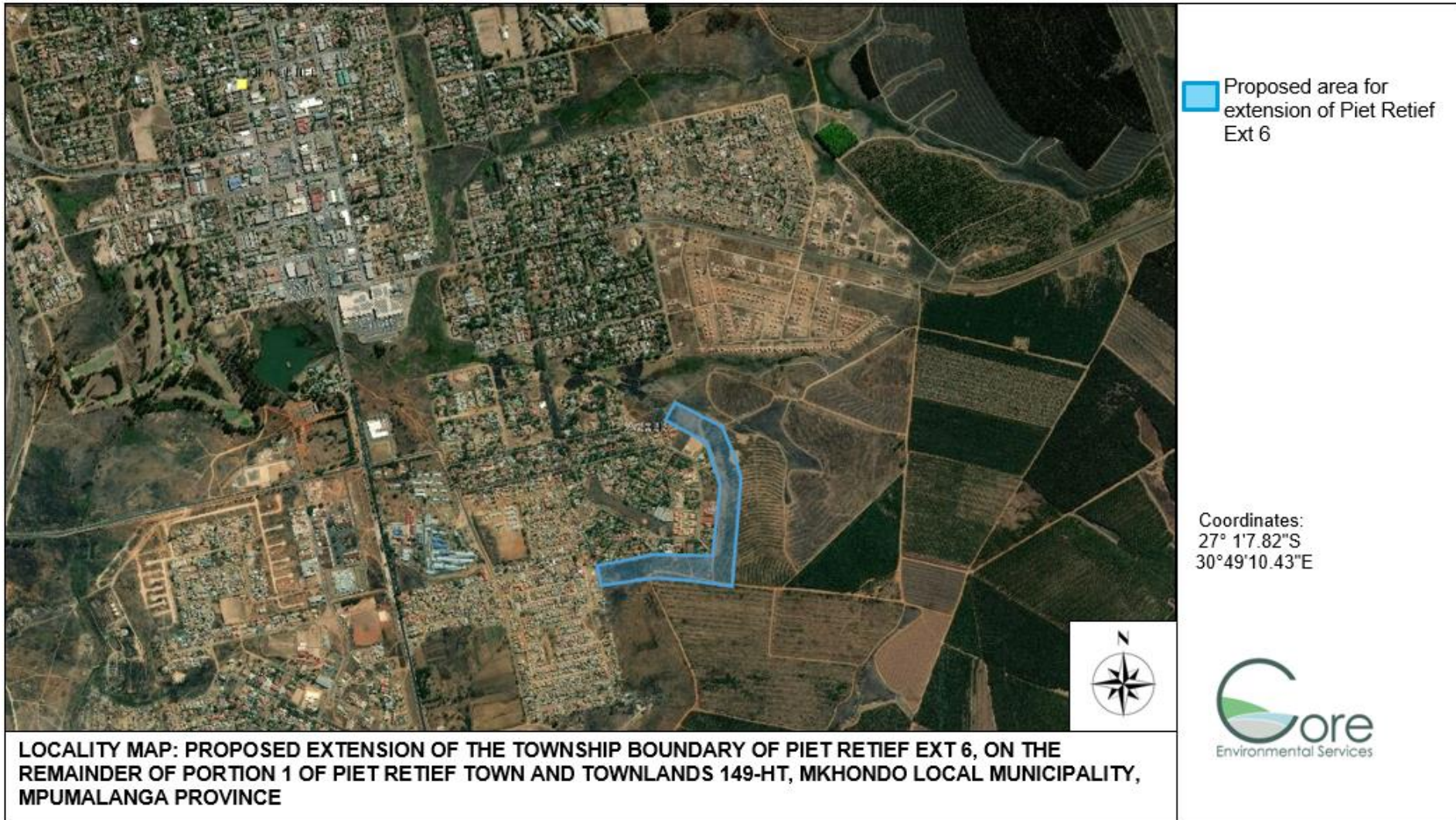
Coordinates of the site:

27°1' 7.82"S

30°49'10.43"E

Surveyor General Code: T0HT00000000014900001

Please refer to the locality map below, Figure 1 below.



**FIGURE 1: LOCALITY MAP – PROPOSED EXTENSION OF TOWNSHIP BOUNDARY, PIET RETIEF EXT 6, MKHONDO LOCAL MPUMALANGA PROVINCE**

## 1.3 Details of the EAP

Ms. Anne-Mari White, is an Environmental Specialist, who started her studies at the North-West University (NWU) and completed her Bachelor of Science: Environmental Management at the University of South Africa (UNISA) in 2007. Ms. White is registered with the South African Council for Natural Scientific Professionals as a Certificated Natural Scientist (Reg. No 300067/15). In addition to her qualification, she completed short courses in soil classification and wetland delineations (Terrasoil Science), Geographic Information Systems (University of KwaZulu-Natal), and Environmental Impact Assessments (NWU).

## 1.4 Policy, Legal and Administrative Framework

**TABLE 1: LEGISLATION APPLICABLE TO THE PROJECT**

Applicable legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments considered	Project application and type (permit / licence / authorisation / comment)
The Constitution of South Africa, Act No. 108 of 1996	Mkhondo Local Municipality will be required to adhere to the Environmental Management Programme (EMPr) requirements to ensure that social and environmental management considerations are considered and implemented.  As per Section 25 the Constitution, a public participation process (PPP) was and will continue to be undertaken, as this is considered to be an essential mechanism for informing stakeholders of their rights and obligations in terms of the project.
National Environmental Management Act, 1998 (Act No. 107 of 1998)	Environmental Authorisation will subsequently be applied for by means of conducting a Basic Environmental Authorisation process as regulated within GNR982 of 2014 (as amended in 2017).
National Water Act, 1998 (Act No 36 of 1998)	Legislation which gives a mandate to DWS to maintain good water quality. A seepage wetland is located at the northern section of the proposed development site
Mpumalanga Conservation Act, 1998 (Act 10 of 1998)	Provides for the management and conservation of Mpumalanga's biodiversity.
National Heritage and Resources Act, 1999 (Act no 25 of 1999)	The protection of heritage resources and artefacts.
Occupational Health and Safety Act, 1998 (Act No. 85 of 1998)	The Act provides for the health and safety of people at work and for the health and safety of people using plant and machinery.

	During establishment and operation, work must be conducted with strict adherence to the Occupational Health and Safety Act 85 of 1998.
National Environmental Management: Waste Act, No. 59 of 2008	Waste storage and disposal must be conducted in accordance with the NEM:WA 59, 2008

## 1.5 National Environmental Management Act 107 of 1998

In accordance with the National Environmental Management Act 107, of 1998, the following listed activity will be triggered by the proposed activity and will require approval prior to commencement:

General Notice R983, 2014 (as amended in 2017), Activity 27:

*The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except 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.*

General Notice R983, 2014 (as amended in 2017), Activity 28:

*Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agricultural, game farming, equestrian purposes or afforestation on or after 1 April 1998 and where such development:*

- (i) *Will occur inside an urban area, where the total land to be developed is bigger than 5 hectares;*
- (ii) *Will occur outside an urban area, where the total land to be developed is bigger than 1 hectare.*

## 1.6 Description of the project

The Mkhondo Local Municipality is proposing to expand Piet Retief Extension 6 by approximately 11 hectares as indicated in Figure 1 above. At present, the expansion includes the approval and development of an additional 50 stands on portion 1 of the farm Piet Retief Townlands 149-HT.

The bulk infrastructure pertaining to the development includes:

- Bulk water supply to the development (water source as well as pipelines);
- Bulk sewer infrastructure (sewer pipelines, manholes, etc.); and
- Bulk roads infrastructure.

## 2. PUBLIC PARTICIPATION PROCESS

The purpose of this chapter is to provide an outline of the public participation process (PPP) to date and the way forward with respect to the Basic Assessment process.

Consultation with the public forms an integral component of the EA process. This process enables Interested and Affected Parties (I&APs) (e.g. directly affected landowners, national-, provincial- and local authorities, and local communities etc.) to raise their issues and concerns regarding the proposed activities, which they feel should be addressed in the BA process. The PPP has thus been structured such as to provide I&APs with an opportunity to gain more knowledge about the proposed project, to provide input through the review of documents/reports, and to voice any issues or concerns at various stages throughout the BA process.

I&APs were identified during the public participation phase of the project. All the parties identified as an I&AP (surrounding landowners, relevant departments, stakeholders, local and district authorities) have automatically been registered in the I&APs database for the project. The registered I&AP list is attached as **Annexure C.1**.

In effort to engage potential stakeholders, different communication methods were used to inform them about the project and how to get involved in the BA process. These methods include:

- Distributing English Background Information Documents (BIDs) to all Stakeholders and registered I&AP's. (**Annexure C.2**);
- Placement of media advert in a local newspaper (The Excelsior) on 26 June 2020 (Proof of advert will be attached as soon as received).
- Placing of a notice at the proposed site took place on 22 June 2020.

The draft Basic Assessment Report will be made available for public review from February 2021-March 2021.

The following comments have been received by I&AP's and is also attached as Appendix C

Interested and Affected Party / Organ of State	Comment	Response
<u>Mogale Mary Dorcus</u> <b>DALRRD</b>	<u>06/08/2020</u> Detailed soil studies must be included in the EMPR. Land capability class and soil capability class must be included in the EMPR. Weeds and invader plants management must be included in the EMPR. Sensitive areas (wetlands etc.) must be avoided.	<u>Response from the EAP:</u>  Thank you for the comments received regarding the proposed extension of Piet Retief extension 6.  The DEA Screening Report indicated no need for a detailed soil assessment.  Mitigation measures for invader plant species as well as the protection of the wetland has been included within the EMPr.

## 3. CONSIDERATION OF ALTERNATIVES

---

The EIA process requires the developer to identify and investigate/assess feasible and reasonable alternatives. The project alternatives range from the location where the activity is proposed, type of activity to be undertaken, design of activity, technology to be used in the activity to the option of not implementing the activity (No-Go Alternative).

The assessment of the alternatives is a complicated and multi-faceted issue, which is essential to the success of this application and ultimately to the proper, responsible and sustainable operation of the proposed project.

### 3.1 Alternative Selection

#### 3.1.1 Location alternatives

This site has been selected as is currently open and owned by the applicant, the, Mkhondo Local Municipality. The site is easily accessible and is adjacent to existing middle-income housing to the west. The portion applied for is the only available land, which is viable for the development and for this reason, no other locality alternatives could be investigated.

#### 3.1.2 Layout alternatives

An Ecological and Heritage Impact Assessment was conducted to identify any ecological and heritage sensitivities within the proposed project areas. The specialist reports therefore informed the layout for the development.

#### 3.1.3 No-Go alternative

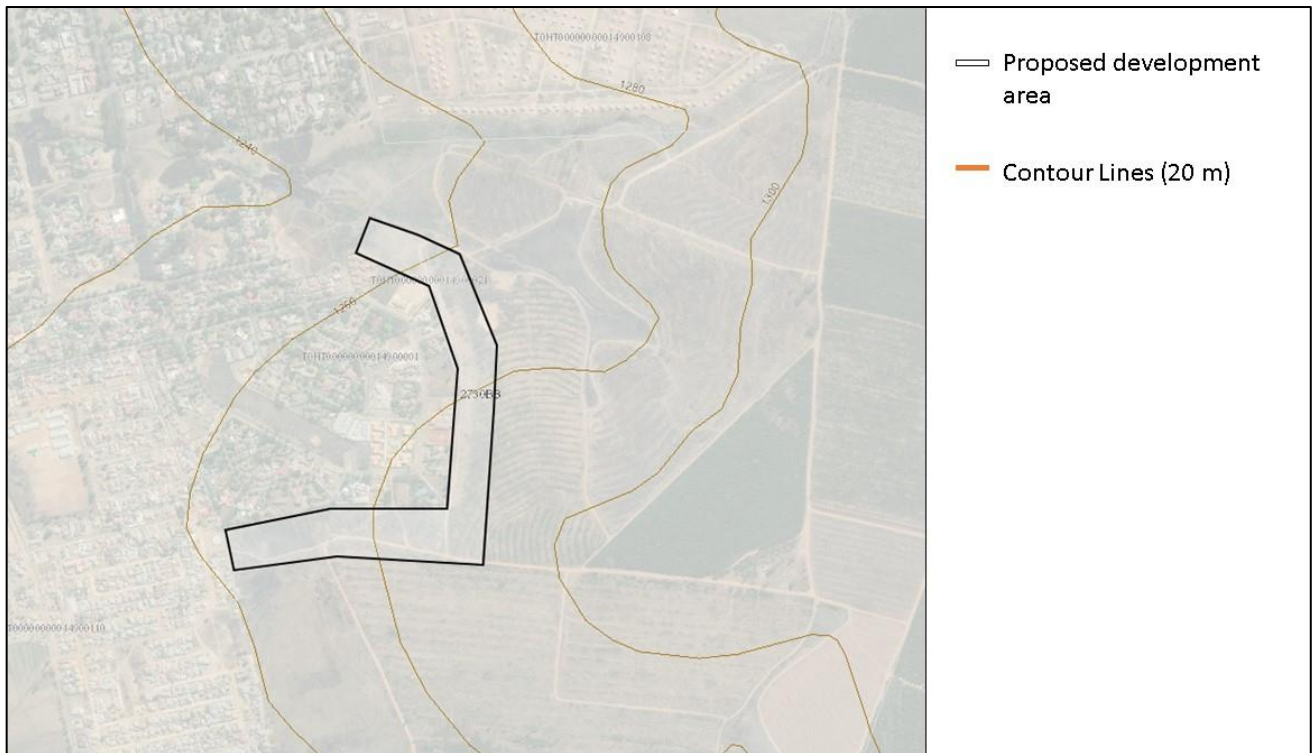
The no-go alternative would be to not authorise the application for the clearance of vegetation for agricultural purposes. Should this alternative be favourable, the project area will not be cleared and used for agriculture, however, no impact was identified to be so severe in order for the no-go alternative to be further investigated.

## 4. DESCRIPTION OF THE AFFECTED ENVIRONMENT

The description of the affected environment below draws on existing knowledge from published data, previous studies, specialist investigations, site visits to the area and is used to understand the possible effects of the proposed project on the environment.

### 4.1 Topography

The topography of the proposed project area, is between 1260m and 1310m above mean sea level and is sloping towards the north and the west.



**FIGURE 2: CONTOUR LINES (20M) ACCORDING TO THE MPUMALANGA BIODIVERSITY SECTOR PLAN, 2014**

### 4.2 Climate

The Piet Retief area does not normally experience extreme climatic conditions. It is characterized by moderate climatic conditions with a mean maximum temperature of 23.6°C during January and 16.9°C during June. Winter months can be cold and temperatures can drop to -2.1°C.

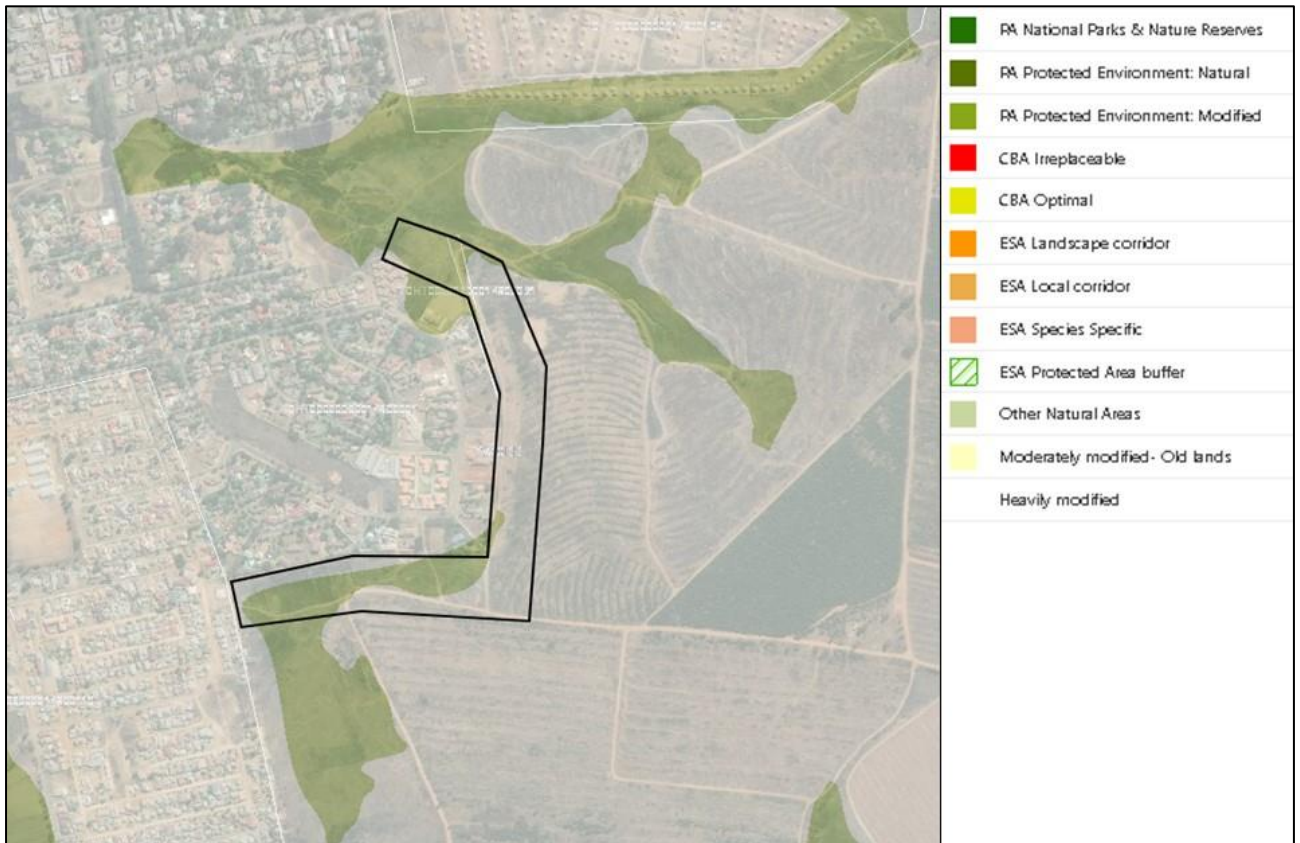
The site is situated in a medium-high summer rainfall area, with an annual rainfall average of 920mm. Winter rainfall is almost non-existent. The area also has a mean daily evaporation of between 4.6mm in winter and 7mm during mid-summer.

## 4.3 Ecology

On a National level, the study area is situated within the Grassland Biome, and is classified by Acocks (1953) as Piet Retief Sourveld (A63) and as North Eastern Mountain Grassland (LR43) by Low & Rebelo (1998). Classified on a regional scale and according to a more detailed system the site is classified as KaNgwane Montane Grassland (Gm16), according to Mucina & Rutherford (2006). Already >36% has been transformed, mostly by plantations and cultivation. Only small fragments are officially conserved (0.4%). For this reason, this grassland type is rated as Vulnerable (Mucina & Rutherford, 2006).

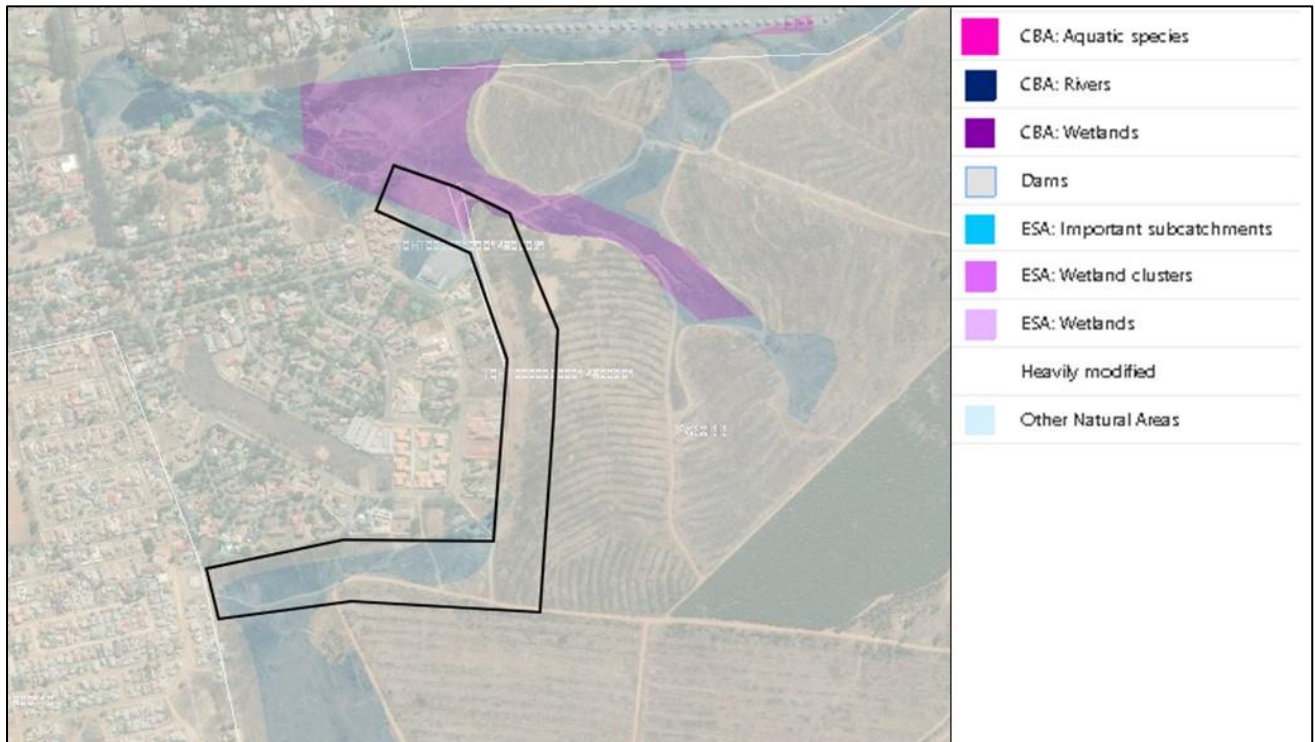
*Terrestrial Ecology:* According to the Mpumalanga Biodiversity Sector Plan, 2014, the site falls within an area classified as **Other natural Areas (ONAs)**. This area does not require to meet biodiversity targets, and so are not identified as a priority in the MBSP. They do, however, retain much of their natural character. The biodiversity in these non-priority landscapes may still be of value and contribute to maintenance of viable species populations and natural ecosystem functioning and Other Natural Areas may provide essential ecological infrastructure and ecosystem services. ONAs offer the greatest flexibility in terms of management objectives and permissible land-uses, and are generally recommended (along with Modified Areas) as the sites for higher-impact land uses. *Primary objectives:* An overall management objective should be to minimize habitat and species loss and ensure ecosystem functionality through strategic landscape planning. This classification is relevant to aquatic ecological importance of the northern section of the property.

**Heavily or Moderately Modified Areas:** MTPA's objectives for these areas are quoted as follows: Such areas offer the most flexibility regarding potential land-uses, but these should be managed in a biodiversity-sensitive manner, aiming to maximize ecological functionality and authorization is still required for high impact land uses.



**FIGURE 3: TERRESTRIAL ECOLOGY ACCORDING TO THE MPUMALANGA BIODIVERSITY SECTOR PLAN, 2014**

*Freshwater ecology:* The area is classified as an Ecological Support Area (Wetlands). This sub-category includes all non-FEPA wetlands. Wetlands in Mpumalanga have been extensively degraded and, in many cases, irreversibly modified and lost through a combination of inappropriate land-use practices. Wetlands represent high value infrastructure for delivering, managing and storing good quality water for human use, and they are vulnerable to harmful impacts. Objective: Maintain in a natural, functional state. Limited loss of ecosystems or functionality is acceptable, as long as the present ecological state is not lowered. Any further loss of area or ecological condition must be avoided, including if needed, a 100 m generic buffer around the wetland.



**FIGURE 4: FRESHWATER ECOLOGY ACCORDING TO THE MPUMALANGA BIODIVERSITY SECTOR PLAN, 2014**

#### 4.4 Surface and Groundwater

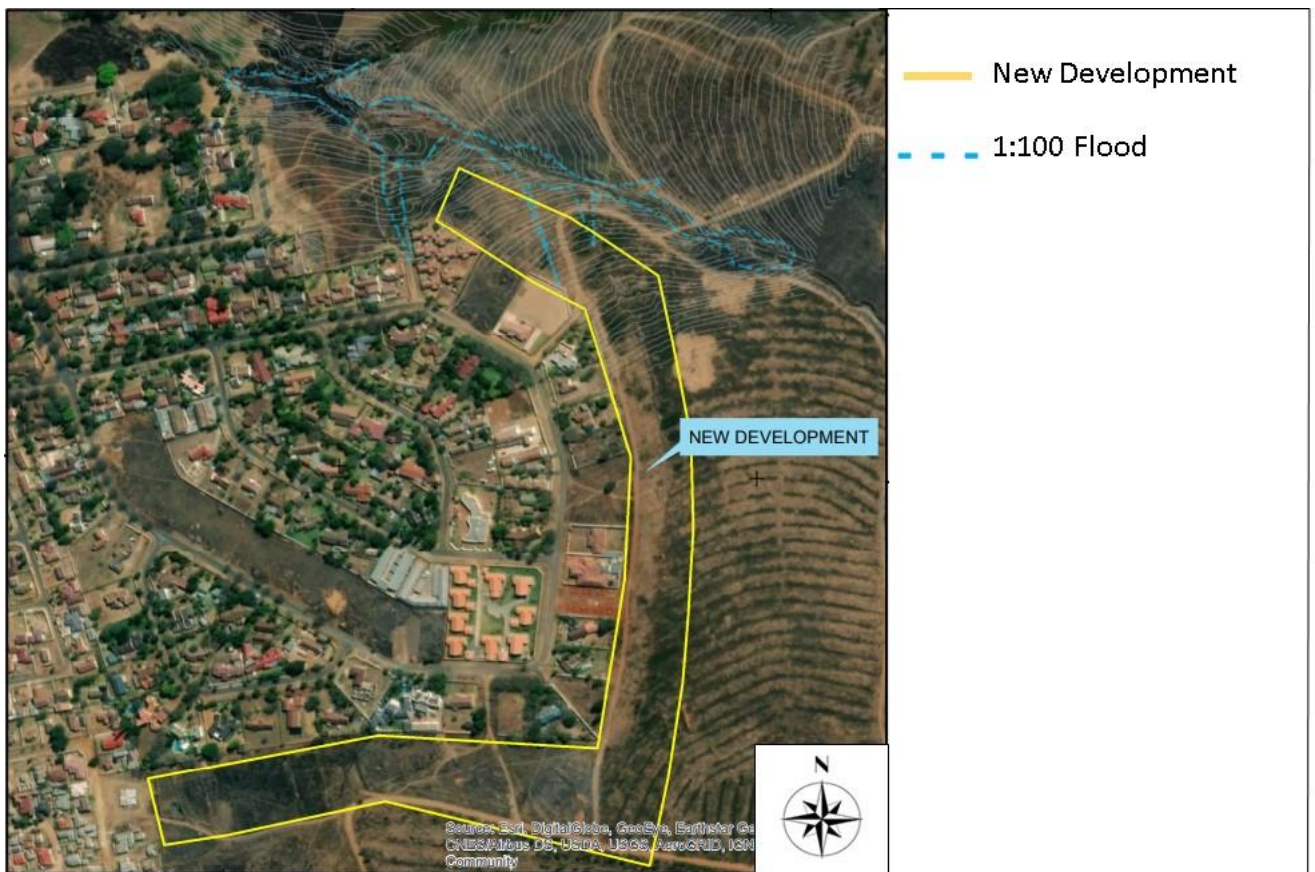
A channelled valley bottom wetland originates on the southern hillslope as a seepage area (spring) with a channel that drains towards the north along the valley bottom. This wetland is located parallel to the development land and it is well defined by vegetation indicators.

The channel is clearly defined in the central section and the water quality appears to be high.

Flow is regulated by spring water and surface water runoff will only occur with the event of high rainfall and given the small catchment it is not anticipated that flow is augmented significantly by surface water runoff. A small seepage wetland is located off-site to the west of the southernmost corner of the site and it is only marginally on site. A buffer zone of 15m is recommended as being sufficient to protect the integrity of the wetland (on condition that adequate mitigation with regards to storm water management and waste management are in place). In addition, the fragment of climax grassland will be included with the buffer and will protect the wetland from storm water discharge as it lies at the lowest point. In addition, the grassland biodiversity will also benefit from the protection of the buffer.



**FIGURE 5: SEEPAGE WETLAND IDENTIFIED IN ACCORDANCE WITH THE MPUMALANGA BIODIVERSITY SECTOR PLAN, 2014**



**FIGURE 6: 1:100 YEAR FLOOD LINE WITHIN THE PROPOSED DEVELOPMENT AREA**

#### 4.5 Land use

From the site investigation conducted and from figure 3 presented above, it is evident that the area was previously used for forestry purposes. At present, the land is not occupied or being used for any other purpose. The adjacent land use west of the proposed site is residential and forms part of Piet Retief Extension 6.

#### 4.6 Geology and Soils

The general geology of the area consists of granites with melanic soils. Soils are red, yellow and / or greyish, with low to medium base status, freely drained and structureless soil. The area may have restricted soil depth, excessive drainage, high erodibility and low natural fertility.

#### 4.7 Heritage

The heritage specialist investigated the sites to identify any artefacts or sensitivities which could be of historical or cultural significance

The area was surveyed on foot and per vehicle. Paths and roads were used to access the areas. Disturbed areas or open areas with sparse vegetation, were investigated for possible signs of an archaeological or historical nature.

The southern section of the site has been disturbed by existing gravel road networks, as well as small scale cultivated areas used by the people in the existing township throughout the years. The eastern section of the site, was entirely disturbed by forestry (currently wattle infestation), and the northern section, is partly disturbed by a gravel road network. The rest of the northern section is natural grassland and sloping towards the Klipmesselspruit. There are no rocky outcrops on the site. Adjacent properties to the west and north are the existing Piet Retief (Mkhondo) residential areas, south and east are commercial forestry areas.

No archaeological material, graves or historical features or structures of any significance were identified which could be impacted upon by the proposed development. It is recommended that the owner be made aware that distinct archaeological material or human remains may only be revealed during construction activities of the proposed development, in which case a qualified archaeologist must do an assessment

According to the specialist's findings, there are no compelling reasons which may prevent the proposed development within the study area, to continue.

## 4.8 Socio-Economic Environment

Mkhondo Local Municipality comprises mostly of forestry plantations and much of its economy originates from this source. The municipality is known for wood processing, furniture, manufacturing as well as coal briquettes manufacturing

Since 2011 to 2016, the population within Mkhondo Local Municipality have increased with 71054 people. Unemployment declined from 33.3% to 29.3%. The number of people with no schooling also declined while the number of people with a matric certificate increased.

## 5. SPECIALIST ASSESSMENT REQUIREMENTS AS IDENTIFIED IN THE SCREENING REPORT

---

The following specialist assessments were identified within the Department of Environmental Affairs Screening Report to be conducted as part of the Basic Environmental Impact Assessment:

- Visual Impact Assessment

The proposed area is currently zoned for afforestation purposes and all surrounding properties are currently used for housing purposes. The development of an area of approximately 10 hectares will therefore fit with all the surrounding properties and will therefore not have a significant visual impact. For this reason, no visual impact assessment was conducted.

- Heritage Impact Assessment

A Heritage Impact Assessment was conducted on the approximately 11-hectare property to identify any possible artefacts or structures which could be of heritage or cultural significance. The findings of the investigation are discussed in Section 4.8 above and the Heritage Impact Assessment is attached as Appendix D.

- Paleontological Assessment

The Screening Report issued by the Department of Environmental Affairs showed no paleontological sensitivities. The proposed activities will also have no impact on the geological formations of the site as all activities are surface based. For this reason, no paleontological assessment was conducted.

- Terrestrial Biodiversity Assessment / Plant and Animal Species Assessment

The Screening Report indicated that the Terrestrial Biodiversity Theme is of high significance and for this reason a Biodiversity Assessment was conducted on the proposed project area. It was concluded that the habitat is not pristine and has been modified by forestry. For this reason, the sites were found to be of medium and medium to low significance. Please refer to Appendix D for more detail on the findings made by the Biodiversity Specialist.

- Avian Impact Assessment

In view of the relatively small sizes of the proposed development site and taking the present degraded state of available habitat into consideration, it is not anticipated that the eminent loss of vegetation will have a large impact on birds in the local area. The Biodiversity Specialist also addressed this in Section 5.3 of the Ecological Assessment.

- Socio-economic Assessment

The proposed project will not have any negative impact on the socio-economic environment. Contrary to this, additional job opportunities will be created during the development phase of the project, which will impact the surrounding community positively.

As no negative socio-economic impact is expected with the proposed project, it is the opinion of the EAP that no Socio-Economic Impact Assessment is required

## 6. METHODOLOGY OF ASSESSING THE SIGNIFICANCE OF IMPACTS

This section outlines the method that will be used for assessing the significance of the potential environmental impacts during the construction/establishment, operational and decommissioning phases. The impact assessment will be included within the Basic Assessment Report.

For each impact, the **EXTENT** (spatial scale), **MAGNITUDE** and **DURATION** (time scale) would be described, as shown in **Table 2**. These criteria are then used to determine the **SIGNIFICANCE** of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The mitigation described in the Report represents the full range of plausible and pragmatic measures but does not necessarily imply that they would be implemented.

The following tables show the scale used to assess these variables and defines each of the rating categories.

**TABLE 2: ASSESSMENT CRITERIA FOR THE EVALUATION OF IMPACTS**

Criteria	Category	Description
Extent or spatial influence of impact	<b>Regional</b>	Beyond a 30km radius of the candidate site.
	<b>Local</b>	Within a 30km radius of the candidate site.
	<b>Site-specific</b>	On site or within 100 m of the candidate site.
Magnitude of impact (at the indicated spatial scale)	<b>High</b>	Natural and/ or social functions and/ or processes are <i>severely</i> altered
	<b>Medium</b>	Natural and/ or social functions and/ or processes are <i>notably</i> altered
	<b>Low</b>	Natural and/ or social functions and/ or processes are <i>slightly</i> altered
	<b>Very low</b>	Natural and/ or social functions and/ or processes are <i>negligibly</i> altered
	<b>Zero</b>	Natural and/ or social functions and/ or processes remain <i>unaltered</i>
Duration of impact	<b>Long-term</b>	More than 10 years after construction
	<b>Medium-term</b>	Up to 5 years after construction
	<b>Construction-term</b>	Up to 3 years

The **SIGNIFICANCE** of an impact is derived by taking into account magnitude, duration and extent of each impact. The criteria employed in arriving at the different significance ratings is shown in Table 3.

**TABLE 3: DEFINITION OF SIGNIFICANCE RATINGS**

Significance ratings	Level of criteria required
High	<ul style="list-style-type: none"> <li>• High magnitude with a regional extent and long-term duration</li> <li>• High magnitude with either a regional extent and medium-term duration or a local extent and long-term duration</li> <li>• Medium magnitude with a regional extent and long-term duration</li> </ul>
Medium	<ul style="list-style-type: none"> <li>• High magnitude with a local extent and medium-term duration</li> <li>• High magnitude with a regional extent and construction period or a site-specific extent and long-term duration</li> <li>• High magnitude with either a local extent and construction period duration or a site-specific extent and medium-term duration</li> <li>• Medium magnitude with any combination of extent and duration except site specific and construction period or regional and long term</li> <li>• Low magnitude with a regional extent and long-term duration</li> </ul>
Low	<ul style="list-style-type: none"> <li>• High magnitude with a site-specific extent and construction period duration</li> <li>• Medium magnitude with a site-specific extent and construction period duration</li> <li>• Low magnitude with any combination of extent and duration except site specific and construction period or regional and long term</li> <li>• Very low magnitude with a regional extent and long-term duration</li> </ul>
Very low	<ul style="list-style-type: none"> <li>• Low magnitude with a site-specific extent and construction period duration</li> <li>• Very low magnitude with any combination of extent and duration except regional and long term</li> </ul>
Neutral	<ul style="list-style-type: none"> <li>• Zero magnitude with any combination of extent and duration</li> </ul>

Once the significance of an impact has been determined, the **PROBABILITY** and **CONFIDENCE** of this impact are determined using the rating systems outlined in **Table 4** and **Table 5**. The significance of an impact should always be considered in concert with the probability of that impact occurring. Lastly, the **REVERSIBILITY** of the impact is estimated using the rating system outlined in **Table 6**.

**TABLE 4: DEFINITION OF PROBABILITY RATINGS**

Probability ratings	Criteria
Definite	Estimated greater than 95 % chance of the impact occurring.
Probable	Estimated 5 to 95 % chance of the impact occurring.
Unlikely	Estimated less than 5 % chance of the impact occurring.

**TABLE 5: DEFINITION OF CONFIDENCE RATINGS**

<b>Confidence ratings</b>	<b>Criteria</b>
Certain	Wealth of information on and sound understanding of the environmental factors potentially influencing the impact.
Sure	Reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.
Unsure	Limited useful information on and understanding of the environmental factors potentially influencing this impact.

**TABLE 6: DEFINITION OF REVERSIBILITY RATINGS**

<b>Reversibility ratings</b>	<b>Criteria</b>
<b>Irreversible</b>	The activity will lead to an impact that is in all practical terms permanent.
<b>Reversible</b>	The impact is reversible within 2 years after the cause of the impact is removed.

## 7. ENVIRONMENTAL IMPACT ASSESSMENT

---

The biophysical and social environment will be impacted during the establishment and operational phases of the agricultural activities. For this reason, the impacts below are assessed for both phases.

### 7.1 Impacts during establishment of the development area

The establishment of the agricultural area is likely to result in environmental and socio-economic impacts. The identified impacts are listed below and discussed thereafter:

- *Impact on biodiversity;*
- *Generation of dust;*
- *Impact on soil;*
- *Impact on water resources;*
- *Impact on Sanitation and Waste management*
- *Impact on heritage resources*
- *Impact on traffic*
- *Impact on Health and Safety*
- *Socio-economic impact.*

#### 7.1.1. Impact on biodiversity

##### **Description of the potential impact**

During the establishment of the extension of the township, vegetation within the footprint of the site must be cleared and the single most important impact on biodiversity as consequence of transforming the land to a township, is the loss of vegetation and loss and fragmentation of natural habitats and consequently the loss of fauna.

##### **Significance of the impact**

According to the Mpumalanga Biodiversity Sector Plan, 2014, the project site falls within an area classified as **Other natural Areas**. This area does not require to meet biodiversity targets, and so are not identified as a priority in the MBSP. They do, however, retain much of their natural character. The biodiversity in these non-priority landscapes may still be of value and contribute to maintenance

**Heavily or Moderately Modified Areas:** MTPA's objectives for these areas are quoted as follows: Such areas offer the most flexibility regarding potential land-uses, but these should be managed in a biodiversity-sensitive manner, aiming to maximize ecological functionality and authorization is still required for high impact land uses.

The Ecological Impact Assessment concluded that the proposed development will not lead to the loss of a critical biodiversity or ecological support areas if the climax grassland and wetlands are

protected. The impact prior to the implementation of mitigation measures is therefore of low significance.

**TABLE 7: SIGNIFICANCE OF BIODIVERSITY IMPACT**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on biodiversity <b>[NEGATIVE]</b>	Low	Definite	Sure	Reversible	Low	Very Low

**Mitigation measures**

- Where possible, large trees on site must be retained;
- Implement an alien invader vegetation control program;
- Spoil material may not be pushed into natural habitats. No development activities that will lead to a loss of natural vegetation are recommended within the wetland and riparian area;
- 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).
- Stipulations of the Environmental Management Program (EMPr) should be adhered to during the establishment and operational phases of the project.

7.1.2. Generation of dust

**Description of the potential impact**

Vegetation will be removed, and soil will be disturbed during the establishment of the extended township area. Heavy moving vehicles used for the clearance of vegetation on site, could generate dust affecting adjacent owners and road users.

**Significance of the impact**

The proposed site is located less than 40 meters from residents of the area. All residents living within a close proximity from the construction site could be affected by the generation of dust. The impacts associated with the generation of dust is of short duration and therefore the significance of the impact is medium. Mitigation measures must however be implemented to minimise the possibility of the impact occurring.

**TABLE 8: DUST GENERATION**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Dust generation <b>[NEGATIVE]</b>	Medium	Probable	Sure	Reversible	Medium	Low

**Mitigation measures**

- Areas may not be disturbed and left unattended for long periods of time.
- Heavy moving vehicles and other vehicles must adhere to a speed limit of 40km/h.

**7.1.3 Impact on soil**

**Description of the potential impact**

Removal of vegetation will disturb the soil surface and increase the possibility of soil erosion.

Other activities which could have an impact on soil, include the uncontrolled use of hazardous substances and/or heavy machinery. Hazardous substances such as oil, diesel etc., could be spilled while refuelling or using machinery, leading to the pollution of soil which can alter microbial processes and be toxic to soil organisms.

**Significance of the impact**

During establishment, soil could be impacted by the following:

- Erosion; and
- Contamination with the use and possible spillage of hazardous substances.

The slope of the proposed project area is relatively flat and for this reason the possibility of erosion occurring is unlikely. The impact is subsequently classified to be of low significance prior to the implementation of mitigation measures.

Another factor impacting soil would be the possible spillage of hazardous substances. This impact is of medium magnitude, site specific and short duration and for this reason the impact is also of low significance prior to the implementation of mitigation measures.

**TABLE 9: IMPACT ON SOIL**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Erosion [NEGATIVE]	Low	Unlikely	Sure	Reversible	Low	Very Low
Soil pollution [NEGATIVE]	Medium	Unlikely	Sure	Reversible	Low	Very Low

**Mitigation measures**

- To minimise the possibility of erosion, it is recommended that no disturbed areas be left unattended. Disturbance and clearance of vegetative cover must be restricted to the proposed footprint.
- Measures to reduce the velocity of water, must be taken on areas prone to erosion.
- Should there be any spillage of hazardous substances during the establishment phase, soil must be removed up to a depth of 300mm and be disposed of at a registered hazardous waste disposal facility. Proof of such disposal must be kept on file.

**7.1.4 Impact on water resources**

**Description of the potential impact**

In terms of the area’s freshwater ecological classification, the proposed project area falls within an Ecological Support Area (ESA). This sub-category includes all non-FEPA wetlands. Wetlands in Mpumalanga have been extensively degraded. Ecological Support Areas are not essential for meeting biodiversity targets but play an important role in supporting the ecological functioning of Critical Biodiversity Areas (CBA). This requires that management activities are focused on maintaining water quantity and quality and the integrity of natural habitat in the sub-catchment.

Water resources could be impacted by the following during the establishment phase:

- Removal of riparian vegetation;
- Activities within the identified seepage wetland area; and
- Pollution of water resources.

**Significance of the impact**

If any activities were to take place within the delineated wetland area, water resources would be impacted negatively. However, as a buffer of 15m will be implemented to protect the wetland area within the project area, the possibility of impacting the water resource during the proposed clearance activities are very low and therefore the significance of the impact is also very low.

**TABLE 10: IMPACT ON WATER RESOURCES**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on water resources <b>[NEGATIVE]</b>	<b>Medium</b>	<b>Unlikely</b>	<b>Sure</b>	<b>Reversible</b>	<b>Medium</b>	<b>Low</b>

**Mitigation measures**

- No activities may take place within the 15m buffer of the riparian and/or wetland area.
- Water use must be monitored and used sparingly;
- Management activities be focused on maintaining water quantity and quality and the integrity of natural habitat in the sub-catchment.

### 7.1.5 Impact on Sanitation and Waste Management

**Description of the potential impact**

During the construction phase the lack of appropriate and sufficient sanitation facilities for construction workers could lead to the contamination of soil and ground water.

Waste will have a negative impact on the environment. Rubble left on site may attract vermin and encourage the growth of opportunistic alien vegetation. Litter on site may attract vermin, detract from the visual appeal of the area, and pollute the surrounding areas. Hazardous waste, such as used oils and offcuts could pollute surface and groundwater resources if it is not contained properly.

**Significance of the impact**

Waste generated during the construction phase will have a negative impact on the environment, if not adequately removed and managed.

The lack of appropriate sanitation facilities for construction workers will be problematic as it could contaminate soil and ground water. The impact is therefore of medium significance prior to the implementation of mitigation measures.

**TABLE 11: IMPACT ON SANITATION AND WASTE**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on Sanitation <b>[NEGATIVE]</b>	Medium	Unlikely	Sure	Reversible	Medium	Low
Impact on Waste <b>[NEGATIVE]</b>	Medium	Unlikely	Sure	Reversible	Medium	Low

**Mitigation measures**

- Adequate sanitary and ablutions facilities must be provided for construction workers – The facilities must be regularly serviced to reduce the risk of surface or groundwater pollution.
- General waste should be placed in water tight containers and disposed of on a regular basis
- Records of all waste taken off site and disposed of must be kept as evidence.
- Building rubble must be re-used, where possible.
- Excess rubble must be disposed of at an appropriate site.
- Burning of waste material will not be permitted.
- Spillages of hazardous substances must be cleaned up using absorbent material provided in spill kits on site, and must be disposed of together with other hazardous material at a hazardous waste landfill
- Absorbent materials used to clean up spillages should be disposed of in a separate hazardous waste bin.
- The storage area for hazardous material must be concreted, bunded, covered, labelled and well ventilated.
- Employees to be provided with appropriate PPE for handling hazardous materials

**7.1.6 Impact on heritage resources**

**Description of the potential impact**

A Heritage Impact Assessment was conducted on the 10.3-hectare property to identify any possible artefact or structures which could be of heritage or cultural significance. The specialist assessment concluded that there were no archaeological or historical features within the perimeter of the proposed site.

### Significance of the impact

As no archaeological or historical features were identified within the perimeter of the proposed site, the significance of the impact on heritage resources is of low significance.

**TABLE 12: HERITAGE RESOURCES**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on heritage resources <b>[NEGATIVE]</b>	Low	Unlikely	Sure	Reversible	Low	Very Low

### Mitigation Measures

Distinct archaeological material or human remains may only be revealed during the development of the proposed agricultural operations. In such instance, a qualified archaeologist must be contacted to monitor the activities and make recommendations.

#### 7.1.7 Impact on traffic

##### Description of the potential impact

The construction activities are likely to generate additional traffic in terms of construction vehicles and heavy vehicles delivering materials to the site. It is therefore expected that there will be an impact on traffic seeing that Von Brandis Street forms part of the primary access to the study area.

### Significance of the impact

The significance of this potential impact is considered to be medium if the proposed mitigation measures are implemented.

**TABLE 13: IMPACT ON TRAFFIC**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on Traffic <b>[NEGATIVE]</b>	High	Unlikely	Sure	Reversible	High	Medium

## Mitigation Measures

- Clear signs should be displayed along Von Brandis Street and entrance to the site indicating that it is a construction site.
- All necessary signage and traffic measures, such as speed limits, must be implemented for safe movement of vehicles to and from the site
- Caution to be taken to ensure construction vehicles are not parked in such a way as block through/passing traffic.
- Proper and adequate lanes to allow for ingress/egress to be provided.
- Access to the development should utilise multiple entry/exit sites where possible to decrease traffic at the development site.

### 7.1.8 Impact on Health and Safety

#### Description of the potential impact

Handling and transportation of rubble and equipment during construction could lead to injuries to staff and potentially the public. The movement of heavy vehicles to and from the site could also pose a safety risk and increase the traffic flow. In addition to the safety risk, health issues associated with the handling of hazardous material and dust generation are likely to be expected.

#### Significance of the impact

The significance of this potential impact is considered to be very low if the proposed mitigation measures are implemented.

**TABLE 14: IMPACT ON HEALTH AND SAFETY**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on Health and Safety <b>[NEGATIVE]</b>	Medium	Probable	Sure	Reversible	Low	Very Low

## Mitigation Measures

- All necessary signage and traffic measures, such as speed limits, must be implemented for safe movement of vehicles to and from the site
- The site and crew are to be managed in strict accordance with the Occupational Health and Safety Act, 1993 (Act No.85 of 1993) and the National Building Regulations
- Unauthorised access to high-risk areas must be restricted
- Dust suppression will need to be when and where required

- Ensure that the hazardous handling of equipment and materials is supervised and adequately instructed; and
- Adequate facilities must be available on site for the emergency treatment of staff and members of the public

### 7.1.9 Socio-economic Impact

#### Description of the potential impact

During establishment, various temporary job opportunities will be created for the clearance and preparation of the extended township.

In terms of safety and security, there is always risk associated when working with machinery and therefore it is essential that all workers comply with the Health and Safety Act 85 of 1993.

#### Significance of the impacts

Based on the methodology detailed in **Section 5**, the following ratings have been assigned to the ‘employment opportunities’ and impact associated with health and safety of employees respectively.

The job opportunities during the establishment are short-lived and therefore the impact is only of medium (+) significance. In terms of the health and safety aspects of workforce, the significance of the impact has been rated to be of low significance due to the short construction timeframe. Mitigation measures must however be adhered to.

**TABLE 15: SOCIO-ECONOMIC IMPACT**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Job opportunities [POSITIVE]	Medium	Definite	Sure	Reversible	Low	Medium (+)

#### Mitigation measures

- The applicant must ensure that local residents receive preference for job opportunities where local labour might be required.
- It is imperative that all personnel adhere to the Occupational Health and Safety Act 85 of 1998 and that no personnel enter any other surrounding properties.

## 7.2 Operational Phase Impacts

During operation, the development activities are likely to result in the following environmental and socio-economic impacts:

- *Impact on soil;*
- *Impact on water resources;*
- *Impact on Sanitation and Waste management*
- *Impact on bulk water supply and sewage treatment*
- *Impact on traffic*
- *Socio-economic impact.*

### 7.2.1 Impact on soil

#### **Description of the potential impact**

During operation, activities could lead to the loss of topsoil and erosion through inefficient landscaping and landscaping maintenance, as well as poor stormwater management and design of infrastructure.

Soil could also become polluted if sewage discharges into the wetland and/or other surface water resources due to accidental spillage through poor maintenance of sewage pipelines and connections.

#### **Significance of the impact**

During operation, soil could be impacted by means of the following:

- Erosion; and
- Contamination.

The slope of the area on which the development is proposed is relatively flat and therefore, the probability of erosion occurring is low. For this reason, the impact is classified to be of very low significance.

Other factors impacting soil would be the contamination of soil if sewage discharges into the soil or wetland area. This impact is however of medium magnitude, local extent and long duration and for this reason the impact is of medium significance prior to the implementation of mitigation measures.

**TABLE 16: IMPACT ON SOIL**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Erosion [NEGATIVE]	Medium	Unlikely	Sure	Reversible	Low	Very Low
Soil contamination [NEGATIVE]	Medium	Unlikely	Sure	Reversible	Medium	Low

**Mitigation measures**

- It is recommended that alternatives for the management of pests are investigated. Only approved pesticides and herbicides may be used for the management of pests.
- Topsoil conservation practices as per the Environmental Management Programme to be strictly implemented.
- Topsoil to be stored separately and protected for rehabilitation purposes and for use in the landscaping.
- Sewage infrastructure must be inspected and maintained on a regular basis.

**7.2.2 Impact on water resources**

**Description of the potential impact**

In terms of water use, the development will draw water from the municipal infrastructure bulk line.

Although no activities are planned within any watercourse or wetland area, water resources could be impacted by the following:

- Excessive water use;
- Removal of riparian vegetation;
- Activities within the delineated wetland area; and
- Pollution of water resources if pollutants enters the watercourse.

**Significance of the impact**

Water is a scarce resource in South Africa and therefore unsustainable wateruse will result in lower flows and reduced water table levels. The impact is however of medium significance and appropriate measures must be adhered to ensure proper management of water use.

The wetland could also be affected negatively if activities were to take place within these areas (i.e removal of wetland or riparian vegetation). The impact is therefore of medium significance if the recommended buffer zones are not adhered to.

**TABLE 17: IMPACT ON WATER RESOURCES**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Water resource use <b>[NEGATIVE]</b>	High	Probable	Sure	Reversible	Medium	Low

**Mitigation Measures**

- Water abstraction must be regulated and monitored.
- No activities may take place within delineated buffer zones
- Effective monitoring and maintenance of all water reticulation infrastructure should be implemented to ensure no leakages.
- Consumption of water by households should be monitored.
- Water-wise practices should be listed and recommended to residences, such as use of rainwater for non-potable water requirements.

**7.2.3 Impact on Sanitation and Waste Management**

**Description of the potential impact**

During the operational phase failure of sanitation systems (pump station and sewage pipelines) and the lack of infrastructural maintenance coupled with poor operation may lead to contamination of the ground, groundwater and surrounding water systems.

During the operational phase inappropriate waste storage and disposal practices may lead to litter, pollution, attraction of pests (flies, vermin and monkeys) and general nuisances and health risks.

**Significance of the impact**

The significance of this potential impact is considered to be medium if the proposed mitigation measures are implemented.

**TABLE 18: IMPACT ON SANITATION AND WASTE**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on Sanitation <b>[NEGATIVE]</b>	Medium	Unlikely	Sure	Reversible	Medium	Low
Impact on Waste <b>[NEGATIVE]</b>	Medium	Unlikely	Sure	Reversible	Medium	Low

**Mitigation measures**

- The sewage pipelines and pump station must be properly managed, maintained and operated throughout the life of the project.
- During the operational phase there should be periodic inspections of the sewage systems to identify any system failure which could lead to contamination of the surrounding water bodies. Any leaks and failures of the sewer system must be fixed immediately and areas rehabilitated as needed.
- A waste management plan must be in place to ensure appropriate collection, processing and disposal of solid waste
- Reuse, recycling and separation-at-source of waste should be promoted as part of the home-owners agreement

**7.2.4 Impact on bulk water supply and sewage treatment**

**Description of the potential impact**

The development is located within the Mkhondo Local Municipality jurisdiction and doesn't fall within the spatial development framework (SDF) of the municipality. It must be noted that no bulk water master planning is done for developments within this SDF. The annual average daily demand (AADD) is 298 m<sup>3</sup>/day. It will be required by the municipality that a services agreement be entered into with Mkhondo Local Municipality for the provision and installation of link and internal services. All costs of the installation of the internal and link services to the existing infrastructure have to be funded by the development owner.

As in the case of bulk water, no bulk sewer master planning is done for this development as it falls outside the SDF. The development will be able to connect onto the existing gravity sewer network. The closest sewer reticulation is located +- 0.3 kilometre to the northern west and 0.45km south west side of the development and is currently servicing the neighbouring developments. The sewerage generated by the proposed development is estimated at an average dry weather flow of 161.401 kl/d.

### Significance of the impact

If the bulk water supply and sewage treatment system cannot supply the additional demand, the impact will be significant as the additional households will not be supplied with bulk services.

Although the proposed development will draw water from the municipal infrastructure and the development will connect onto the existing gravity sewer network, it must be noted that no bulk water or sewer master planning is done for developments within this SDF.

The significance of this potential impact is considered to be medium if the proposed mitigation measures are implemented.

**TABLE 19: IMPACT ON BULK WATER SUPPLY AND SEWAGE TREATMENT**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on bulk water supply <b>[NEGATIVE]</b>	High	Probable	Sure	Reversible	High	Medium
Impact on bulk sewage treatment <b>[NEGATIVE]</b>	High	Probable	Sure	Reversible	High	Medium

### Mitigation measures

- The sewer network must be planned in such a way that the network is located away from the riparian habitat.
- It may become necessary to also increase the capacity of the water treatment works in order to cater for the additional capacity which excludes emergency water.

## 7.2.5 Impact on traffic

### Description of the potential impact

During the operational phase the increase in road usage is likely to impact traffic flow.

Given the size of the development and the subsequent trips generated, it is proposed that access be provided in the form of a T-Junction for vehicles wishing to turn into the development. The access would however need to be tested when conducting the Traffic Impact Assessment and is subject to approvals from the relevant authorities.

### Significance of the impact

The re-zoning application for the proposed development entails a change in existing land uses therefore a Site Traffic Assessment (STA) according to the COTO guidelines and requirements will be a requirement set by Mkhondo Local Municipality (MLM) upon submission of the Site Development Plan and should be conducted for approvals by the relevant authorities. The STA will address vehicle circulation on site to ensure safe and practical vehicle movement within the confines of the property, especially where heavy vehicles are involved with associated big turning circles.

Although the Traffic Assessment has not yet been done as part of this approval process, the impact on traffic will be of low significance if the measures of the Traffic Assessment is implemented.

**TABLE 20: IMPACT ON TRAFFIC**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on Traffic <b>[NEGATIVE]</b>	High	Unlikely	Sure	Reversible	Medium	Low

### Mitigation Measures

- The effectiveness of traffic control measures must be monitored on an on-going basis and appropriate remediation steps implemented if necessary;
- Recommendations to be made within the Traffic Assessment must be adhered to.

## 7.2.6 Employment opportunities

### Description of the potential impact

During the operational phase there may be increased employment opportunities and stimulation of the local economy as the extension of the township will allow for an increase in residents to the area.

### Significance of the impacts

Based on the methodology detailed in **Section 5**, the following ratings have been assigned to the ‘employment opportunities’ impact before and after mitigation. As job opportunities are limited, the impact is of high (+) significance.

**TABLE 21: SIGNIFICANT IMPACT OF THE 'EMPLOYMENT OPPORTUNITIES' IMPACT**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Job opportunities [POSITIVE]	Medium	Definite	Sure	Reversible	Low	High (+)

### Mitigation measures

Creating jobs and business opportunities for the local community will have a positive impact. No mitigation measures would be required to further enhance this impact.

## 7.3 Environmental Impact Statement

The table below summarises the impacts identified and assessed for the establishment and operational phases of the project:

**TABLE 22: ENVIRONMENTAL IMPACT STATEMENT**

IMPACT	SIGNIFICANCE BEFORE MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION MEASURES
<b>Establishment Phase Impacts</b>		
Biodiversity Impact	Low	Very Low
Generation of dust	Medium	Low
Erosion	Low	Very Low
Soil Pollution	Low	Very Low
Impact on water resources	Medium	Low
Impact on Sanitation	Medium	Low
Impact on Waste Management	Medium	Low
Heritage Impacts	Low	Very Low
Impact on Traffic	High	Medium
Impact on Health and Safety	Low	Very Low
Job opportunities	Low (+)	Medium (+)
<b>Operational Phase Impacts</b>		
Erosion	Low	Very Low
Soil contamination	Medium	Low
Impact on water resource	Medium	Low
Impact on Sanitation	Medium	Low
Impact on Waste Management	Medium	Low
Impact on bulk water supply	High	Medium
Impact on bulk sewage treatment	High	Medium
Impact on traffic	Medium	Low
Socio-economic Impact	Low (+)	High (+)

## 8. CONCLUSION AND WAY FORWARD

---

### 8.1 Assumptions and Limitations

In undertaking this investigation and compiling the Draft Basic Assessment Report, the following has been assumed:

- The information provided by the proponent is accurate and unbiased, and no information that could change the outcome of the Environmental Authorisation process has been withheld.
- The scope of this investigation is limited to assessing the environmental impacts associated with the establishment and operation of the agricultural area.
- The conclusion and recommendations proposed are based solely on the information, scope of works as agreed with the proponent.

### 8.2 Conclusion

The essence of all environmental assessment processes is aimed at ensuring informed decision-making and environmental accountability. Furthermore, it assists in achieving environmentally sound and sustainable development. The impact assessment for this project has been undertaken in line with the requirements prescribed in the NEMA regulations.

The assessment of the possible impacts associated with the establishment and operational activities, concluded that the impact on the surrounding environment is of **medium to low significance**. Recommendations have however been made to address the impacts which could affect the biophysical and socio-economic environment. It is recommended that pro-active measures are taken to minimise the spread of alien invasive vegetation. Recommendations for the mitigation of impact are included within Section 6 and also the Draft Environmental Management Plan attached.

As noted within Section 3 of the report, the area has already been transformed by forestry activities. It is however very important that the seepage wetland located on the northern section of the property is protected, and subsequently an Ecological and Wetland Assessment was conducted and a buffer of 15m has been implemented to protect the wetland area within the perimeter of the site.

The significance of the potential environmental (biophysical and social) impacts associated with the proposed project are discussed in detail under **Section 6**.

It is the opinion of the EAP that the EA for this project should be granted, and the proposed mitigation included as the conditions of the authorisation.

### 8.3 Way forward

The next steps for the Basic Assessment process will be to distribute the Draft Basic Assessment Report and make it available to the public (including the registered I&APs) and Organs of State for a period of 30 days, during which the Competent Authority (DARDLEA) will also be given the opportunity to provide comments on the report. After the 30-day comment period, all comments will be addressed by the EAP and incorporated within the Final Basic Assessment Report to be

submitted to the DARDLEA for decision making. All registered I&APs will be notified of the decision and will be given an opportunity to appeal as per the NEMA requirements.

After the comment and review period of 30-days, all comments will be included within the final Basic Assessment Report which will be submitted to the Department of Agriculture, Rural Development, Land and Environmental Affairs (DARLDEA) for consideration. Once a decision has been issued, all registered I&APs will be notified of the decision and will be given an opportunity to appeal as per the NEMA requirements.

## 9. REFERENCES

---

*National Environmental Management Act 107 of 1998 (NEMA 107, 1998)*

*General Notice Regulation 982, 983, 984 and 985 of 2014 (as amended in 2017)*

*Mpumalanga Biodiversity Conservation Plan, 2014*