



AGRICULTURAL POTENTIAL ASSESSMENT AND IMPACT ASSESSMENT:

## PROPOSED TOWNSHIP DEVELOPMENT ON PORTION 214, 269 & RE 60, WATERKLOOF 305 JQ RUSTENBURG, NORTHWEST PROVINCE

**Compiled for**

AB ENVIRO CONSULT  
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**Compiled by**

Dr Andries Gouws: Index

November 2022.

# DECLARATION

The observations, conclusions and recommendations made in this report are based on the best available data and on best scientific and professional knowledge of the directors of INDEX (Pty) Ltd. The report is based on GIS programming and utilises satellite tracking to map survey points. Survey points are normally accurate to within 3 metres; which must be considered in the use of the information.

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General declaration:

- INDEX acted as the independent specialist in this application;
- Performed the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- There were no circumstances that may compromise INDEX's objectivity in performing such work;
- INDEX have expertise in conducting the specialist report relevant to this application, including knowledge of NEMA and its regulations and any guidelines that have relevance to the proposed activity;
- Have no and will not engage in conflicting interests in the undertaking of the activity.

The study was undertaken by Dr Andries Gouws. He is a registered member of SACNASP in the category of Agriculture.



Specialist for agriculture

November 2022

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## ***SUMMARY***

Index was appointed by EIA practitioners AB ENVIRO CONSULT to do an agricultural impact assessment in terms of Notice No. 320 Government Gazette 43110 20 March 2020. The total area assessed is 26,9 ha.

### **Present situation**

The properties are vacant and not used for any farming activities. There are a number of homesteads that are occupied.

Crop production is practiced in the region, but only under irrigation or on the vertic clays that are able to store water for crops during the growing season.

Most of the soils are yellowish brown with a sandy loam structure and with a poorly developed blocky structure. A ferrallitic pebble marker occurs widely throughout the site and is the main layer that inhibit root development. There are no water rights on the property.

### **Proposed development**

The entire site is proposed for housing development.

### **Site verification**

The screening tool indicates that more than half of the site is cultivated – this is incorrect, no land is cultivated. Further, according to the screening tool, the site has *high sensitivity*. This is also incorrect because most of the potentially arable land is sandy with a low water holding capacity or has a hard plinthite layer that inhibit root development; even the deeper soil is only *moderately sensitive*.

There is no highly sensitive land on the site, no irrigation takes place and there is no irrigation water available.

Considering that the property can only sustain 3 head of cattle, retaining the land for farming is sustainable – it is too small to be considered a viable farming unit.

### **Recommendation**

No reason can be found not to allow the development.

It is our recommendation that the project be implemented.

# 1 BACKGROUND

Index was appointed by AB ENVIRO CONSULT to do an agricultural impact assessment in terms of Notice No. 320 Government Gazette 43110 20 March 2020. The total area assessed was 26,9 ha.

The assessment and reporting requirements of the protocol in Notice 320 are according to a level of environmental sensitivity as identified by the national web based environmental screening tool for agricultural resources. It is based on the land capability evaluation values provided by the Department of Agriculture, Land Reform and Rural Development (DALRRD).

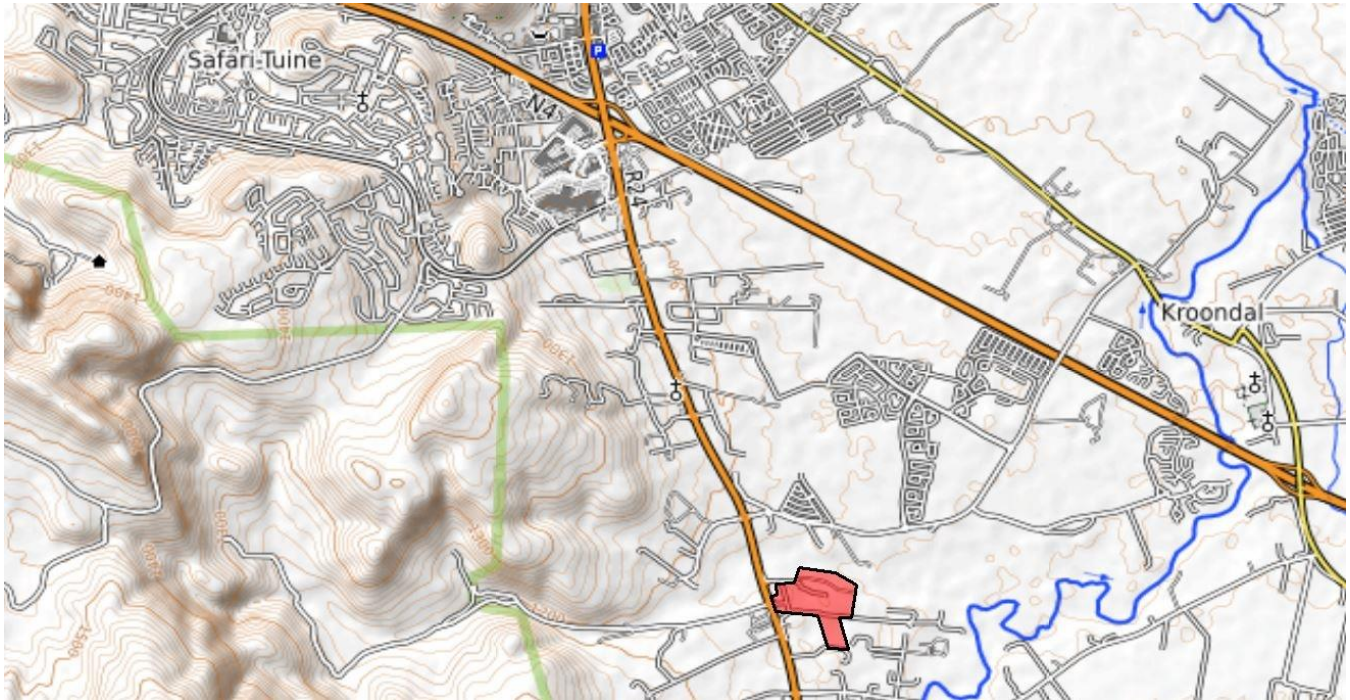


Figure 1. Locality of the site

# 2 METHODS AND PROCEDURES

## Site sensitivity verification

The current use of the land and the environmental sensitivity of the site are available in the screening tool<sup>1</sup>, and were used in assessing the site.

- The site sensitivity verification was done through use of satellite imagery and a site inspection;
- The outcome of the site sensitivity verification is described in this report.

The report will compare the current situation with the environmental sensitivity as indicated by the screening tool. It will include information on new developments or infrastructure, the change in vegetation cover or status etc.; It will further indicate, according to the requirements of the Environmental Impact Assessment Regulations, the differences between the screening tool and the actual status as found by the site visit.

## Site evaluation process

The results in this study followed a site visit on 25 November 2022. A satellite image of Bing was used as backdrop to digitised the present land uses. A number of soil profiles were assessed by using a soil augur or probe as well as profiles described in the geotechnical study. The dominant soil types were identified from which a generalised soil map was prepared.

<sup>1</sup> <https://screening.environment.gov.za/screeningtool>.



Vegetation was simultaneously logged to determine veld condition. Grazing capacity is according to the DALRRD and then adapted to present veld conditions.

Capability classification is according to the guidelines published on the AGIS website of the DALRRD was used to determine the capability of soils and the agricultural potential (Department of Agriculture, 2019).

Climate data was obtained from SA Weather and other on-line sources available on the internet.

### 3 SITE EVALUATION

#### 3.1 Present land uses

The properties are vacant and not used for any farming activities. There are a number of homesteads that are occupied. Old aerial photos indicate some orchards, but these have long been abandoned.

#### 3.2 Climate

The long-term average rainfall is 650 mm per year that falls mainly in the summer months. Winters are moderate because of the micro climate caused by the Magaliesberg. This phenomenon also makes the area very suitable for hydroponics because the minimum winter temperatures are somewhat higher than land further away from the mountain.

The climate is moderately suitable for rainfed crop production according to the DALRRD dataset included in the Environmental Protocol.

Crop production is practiced in the region, but only under irrigation or on vertic clays (Rensburg and Arcadia soils), that are able to store more water than the sandy soils that are prevalent on the site.

#### 3.3 Soil properties

The site is underlain by Kroondal Norite of the Rustenburg Layered Suite, Bushveld Complex, that is covered by alluvium and colluvium. The product is sandy soil.

Wide use was made of the soil profile description in the *Phase 1 Engineering Geological Investigation of Portion 214, 269 & Re 60, Waterkloof 305 Jq*, compiled by GEOSET CC Consulting Engineers.

Most of the soils are yellowish brown with a sandy loam structure and poorly developed blocky structure. A ferrallitic pebble marker occurs widely throughout the site and is the main layer that inhibit root development. These were classified as Dresden or Clovelly. The ferrallitic layer occurs at depths between 400mm and 600mm. Deeper Clovelly soils were found in the central portion of the site.

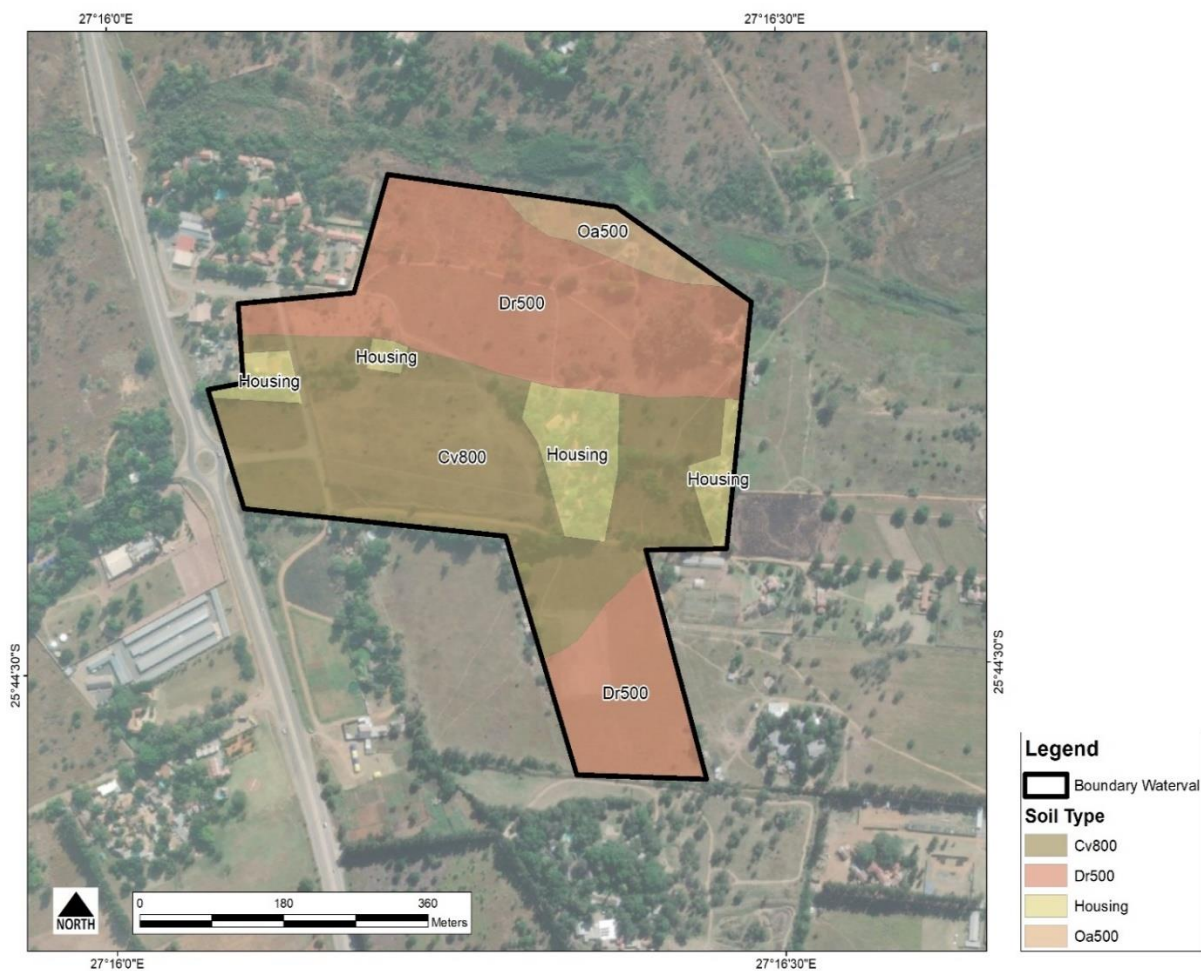
As example, Photo 1 indicates ferricrete at a depth of 350 mm. The soil was classified as Dresden.

A narrow strip of alluvial soil was found along the river.

The soil map and description of the dominant soils are provided below.



Photo 1. Typical soil profile (source: geotech Report)



**Figure 2. Soil types on the development area**

**Table 1. Soil descriptions**

Map unit	Description
Cv800	Sandy soil with a clay content of 18 - 28%. The soil depth that is normally more than 600mm. The topsoil is light brown with a grain structure. The topsoil is free of stones or nodules. The subsoil is yellowish brown sandy loam with poorly developed blocky or grain structure. The deeper subsoil can be ferricrete or have hard ferricrete nodules. The dominant soil forms identified are Clovelly, Avalon or Glencoe. They are medium potential soils.
Dr500	Sandy soil with a clay content of 18 - 28% with a total rooting depth of around 500mm. The topsoil is light brown with a grain structure. The subsoil is yellowish brown sandy loam with poorly developed blocky or grain structure. Hard ferricrete occurs at a 400 to 600mm. The dominant soil forms identified are Dresden, Clovelly or Glencoe. They are low potential soils mainly with the main reason being limiting soil depth.
Oa500	Moderately deep yellowish-brown alluvium. The unit occurs along the river in the northern portion of the site. The dominant soil forms identified are Oakleaf. These soils are arable but due to the low clay content and consequent water holding capacity, they are not normally cultivated.
Housing	This is land with housing infrastructure that is not suitable for farming use.



### 3.4 Vegetation

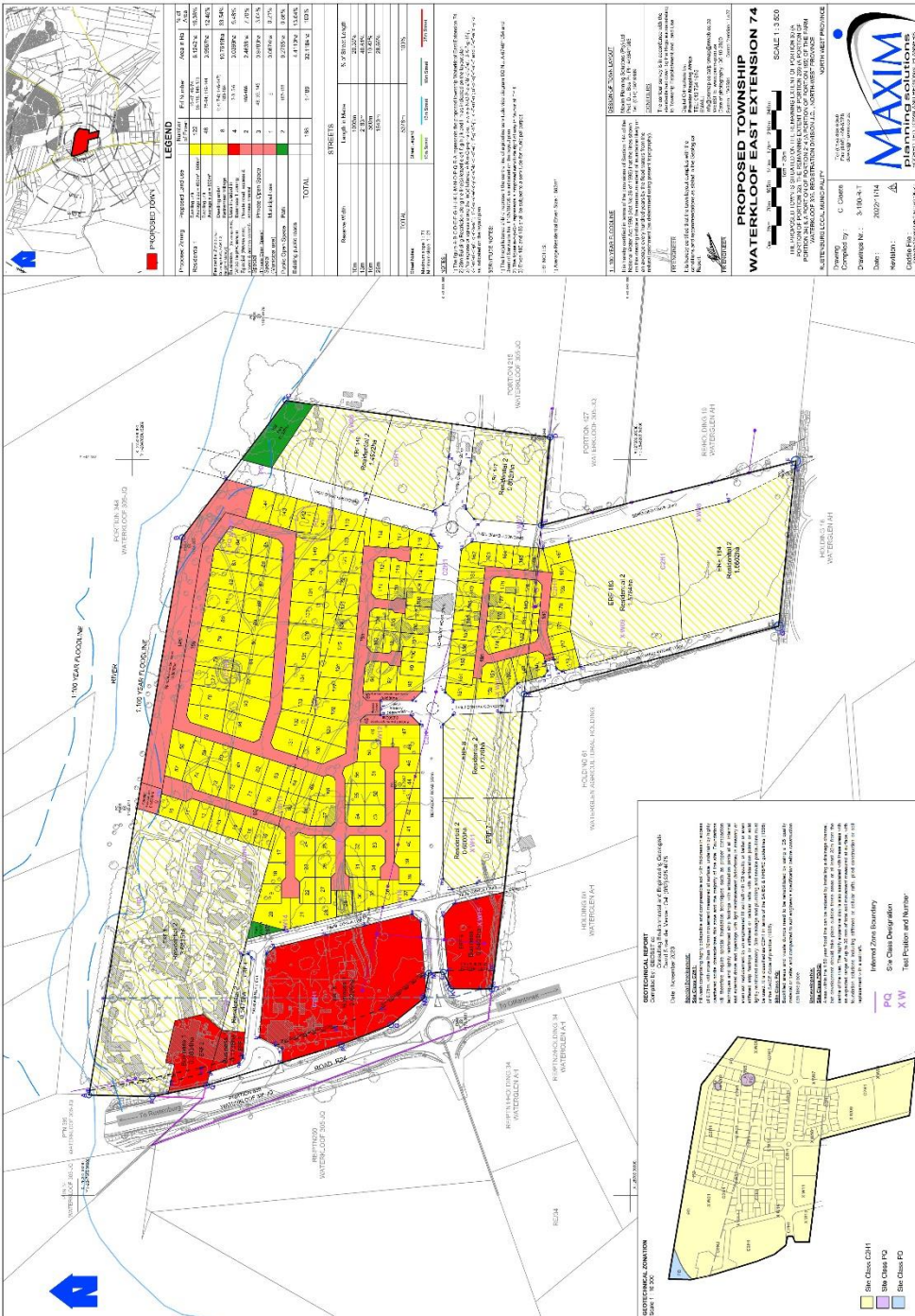
The veld's grazing capacity is estimated by the Department as 10 ha/LSU. The site can accommodate approximately 3 LSU.

### 3.5 Water

There are no water rights on the property. The Waterkloof River forms the northern boundary.

## 4 PROPOSED DEVELOPMENT

The entire site is proposed for housing development.





## 5 SITE SENSITIVITY VERIFICATION PROCESS

The Department of Environmental Affairs published Notice 320 in 2020 that describes the process to be followed and the minimum criteria when applying for environmental authorisation. The criteria are as follows:

Prior to commencing with a specialist assessment, the current use of the land and the potential environmental sensitivity of the site as indicated by the screening tool must be confirmed by a site sensitivity verification.

Sensitivity verification must be undertaken by an environmental assessment practitioner or a specialist, by using the following:

- a desk top analysis, using satellite imagery;
- a preliminary on-site inspection; and
- any other available and relevant information.

The outcome of the site sensitivity verification must be recorded in the form of a report that:

- a) confirms or disputes the current use of the land and the environmental sensitivity as identified by the screening tool, such as new developments or infrastructure, the change in vegetation cover or status etc.;
- b) contains a motivation and evidence (e.g., photographs) of either the verified or different use of the land and environmental sensitivity; and
- c) is submitted together with the relevant assessment report prepared in accordance with the requirements of the Environmental Impact Assessment Regulations.

The site sensitivity verification and the more detailed study was conducted simultaneously in order to save time and costs.

### **Ecological sensitivity – screening tool**

The Department of Environmental Affairs published Notice 320 in 2020 that describes the minimum criteria when applying for environmental authorisation.

This protocol provides the criteria for the assessment and reporting of impacts on agricultural resources for activities requiring environmental authorisation. The findings are according to the level of environmental sensitivity as indicated by the national web-based environmental screening tool for agricultural resources. It is based on the most recent land capability evaluation as provided by the DALRRD.

An applicant intending to undertake an activity identified in the scope of this protocol on a site identified on the screening tool as being of “very high” or “high” sensitivity for agricultural resources must submit an Agricultural Agro-Ecosystem Specialist Assessment unless:

- the application is for a linear activity for which impacts on the agricultural resource are temporary and the land in the opinion of the soil scientist or agricultural specialist, based on the mitigation and remedial measures, can be returned to the current land capability within two years of the completion of the construction phase. This applies to the transmission line linking the PV project with the substation;
- the impact on agricultural resources is from an electricity pylon; or
- information gathered from the site sensitivity verification differs from the designation.

## 6 RESULTS OF THE SCREENING TOOL

### 6.1 Crop land identification

The screening tool indicates that more than half of the site is cultivated.

**Error! Reference source not found.** indicates the land that is cultivated.

This is disputed – there is no cultivated land on the site, and there is also no evidence that it was for more than a decade.

Old photos indicate orchards, but these have long since been abandoned. The vegetation has reverted to natural veld.

### 6.2 Results of the site verification

Following the desktop study and site visit, the following was found:

- Most of the site was incorrectly classified as high or moderately sensitive. There is no cultivated land on the site that would have the land classified as highly sensitive.
- The motivation is provided in Section 5.4. The site is *moderately sensitive* because it falls within Land capability 8 in the new classification and in Class iv according to Montgomery (formerly used by DALRRD).
- The assessment report is the subject of this study.

## 7 SPECIALIST SITE ANALYSES

According to the guidelines of the protocol the minimum report content for EIA impacts on agricultural resources are as follows:

The development is on *low* and *medium sensitive* land. Provision 1.1.3 in the Protocol applies, which requires the specialist to submit an *Agricultural Compliance Statement*. This statement is provided in Section 8.

According to the screening tool the site has *high sensitivity* for the land that it classified as cultivated land and *medium sensitivity* for the grazing land.

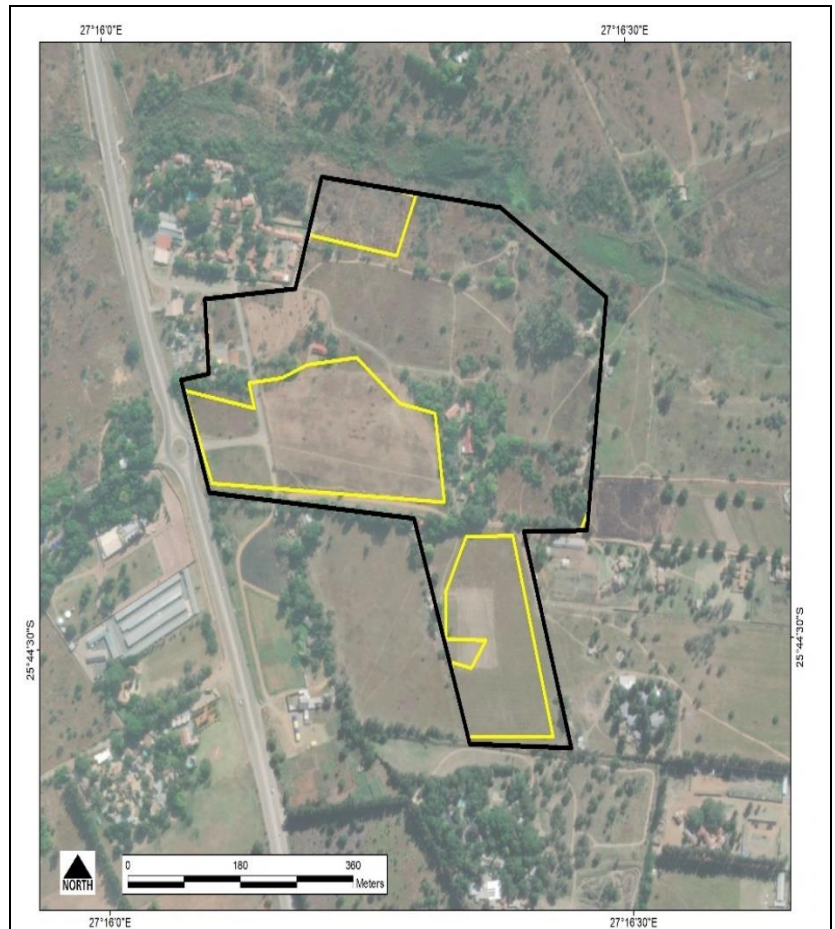


Figure 3. Crop land according to the screening tool

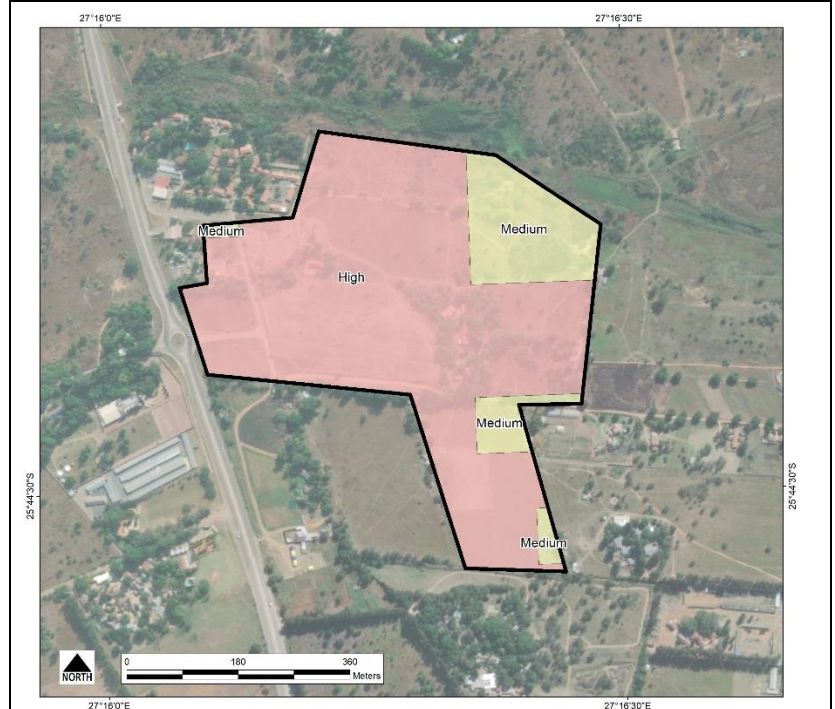


Figure 4. Results of the Screening tool

Because most of the potentially arable land is sandy with a low water holding capacity or has a hard plinthite layer that inhibit root development, even the deeper soil is only *moderately sensitive*.

The finding of the screening tool that this portion is *highly sensitive*, is therefore incorrect (see below for the reasoning).

The following will evaluate the land of the footprint for the development.

## 7.1 What is high potential land (high and very high sensitivity)

Norms and standards in terms of CARA (Conservation of Agricultural Resources Act) and HPUAL (National Policy of the Preservation of High Potential and Unique agricultural Land).

National policy on the protection of high potential and unique agricultural land published by Department of Agriculture in 2006 defines high potential land.

In terms of legislation high potential land includes:

- Land capability Classes i and ii;
- Unique agricultural land;
- Irrigated land and land suitable for irrigation but with irrigation rights from an approved source.

## 7.2 Land use capability

In 2002 the *Directorate of Land Use and Soil Management* (DLUSM) within DALRRD through the Agricultural Research Councils' (ARC), Institute of Soil, Climate and Water (ISCW) developed a national spatial land capability data set to depict the spatial delineation of the then defined eight land capability classes. The approach followed was based on the approach of Klingebiel and Montgomery (1961) but adapted for South Africa by the Multilateral Technical Committee for Agriculture and Environmental Affairs' Task team, to develop a system for soil and land capability classification, but it further aimed to incorporate the parameters within a Geographic Information System (GIS). The resulted spatial data set was derived at a scale of 1:250 000 with the land type data set being the main input data set for the derived land capability classes together with climatic and terrain parameters.

This dataset is used within the screening tool.

While the new dataset is more complex than that of Klingebiel *et al*, the latter has clear guidelines and is generally still followed when assigning capability to land. A comparison between the two systems is provided below.

**Table 2. Relationship between grading of the Screening tool and that of Klingebiel *et al*.**

DALRRD (2016)	Klingebiel	Capability	Arability
1-2	viii	Very low	Not arable
3-4	vii	Very low to low	
5-6	vi	Low	
7	v	Low to moderate	
8	iv	Moderate	Arable
9-10	iii	Moderate to high	
11-12	ii	High	
13-14	i	High to very high	
15	i	Very high	

According to the agricultural potential map of NDA, the land is arable (*Department of Agriculture, 2019*).

The soil on the property was found to be arable but there is no water is available for irrigation, making the soil medium potential.

Land capability classes are interpretive groupings of land with similar potential and limitations or similar hazards. Land capability involves consideration of difficulties in land use owing to physical land characteristics, climate and the risks of land damage from erosion and other causes.



The classic eight-class land capability system (Klingebiel & Montgomery, 1961) was adapted for use by the South African Department of Agriculture in their Agriculture Geographic Information System (AGIS).

Land capability is classified according to guidelines published by the National Department of Agriculture in AGIS.

Land Capability is determined by the collective effects of soil, terrain and climate features and shows the most intensive long-term use of land. At the same time, it indicates the permanent limitations associated with the different land-use classes (refer to Table 3).

- Order A: Arable land – high potential land with few limitations (Classes i and ii);
- Order B: Arable land – moderate to severe limitations (Classes iii and iv);
- Order C: Grazing and forestry land (Classes v, vi and vii);
- Order D: Land not suitable for agriculture (Class viii).

**Table 3. Land capability classes – intensity of land uses**

LAND CAPABILITY			Wildlife	Grazing and Forestry			Crop production			
Order		Class		Forestry	Veld	Pastures	Limited	Moderate	Intensive	Very intensive
Arable	A	i								
		ii								
	B	iii								
		iv								
Non arable	C	v								
		vi								
		vii								
	D	viii								

Note: the shaded area indicates the suitable land use.

### Land use capability of the site

The deep sandy soil classified as Clovelly (Cv800) and Oakleaf (Oa500) is *medium sensitive*. This is due to soil texture and climate. Soil with a hard plinthite layer has *low sensitivity* due to the restrictive soil depth, texture and climate. Housing infrastructure has a very low sensitivity. See below for details:

**Table 4. Land use capability of the site**

Soil Type	Capability (Klingebiel)	Capability (DALRRD)	Sensitivity
Cv800	ii	10	Medium
Oa500	iv	8	Medium
Dr500	iv	8	Low
Housing	vi - viii	15	Very low

Figure 5 indicates the Land use capability and sensitivity as per the criteria in AGIS of DALRRD. The following were found:

- *Medium* capability land for crop production (Class ii) occurs in the central part of the property. The balance is *low* capability (Classes iv and lower).
- The land capability was then used as input to determine agricultural sensitivity (refer to the previous section where the two classification systems are compared).
- There is no *highly sensitive* land on the site, no irrigation takes place and there is no irrigation water available.
- There is no cultivated land on the site. With the low animal grazing capacity of the veld, the entire property can only carry three head of cattle. This is not sustainable as the basis for a viable farming unit.

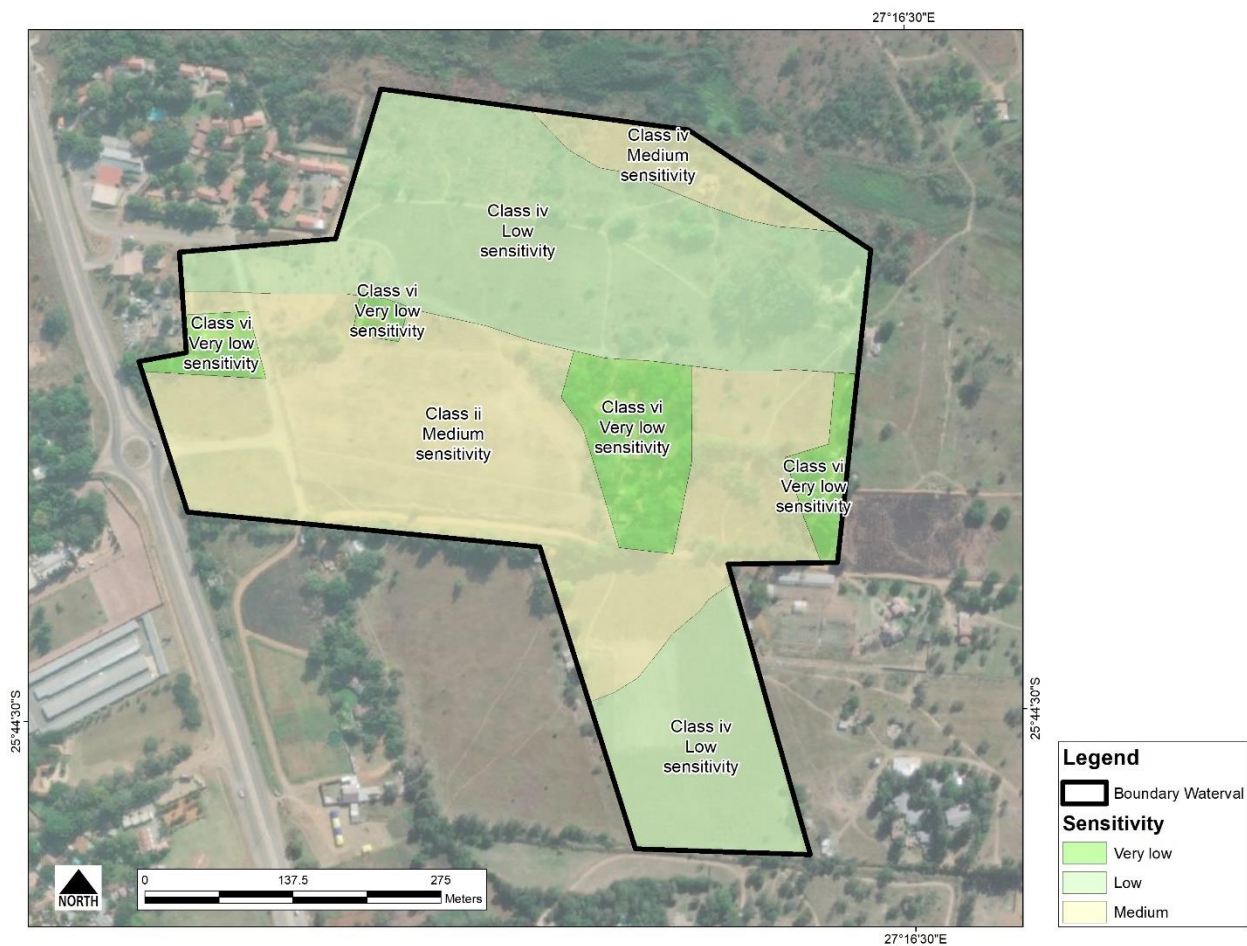


Figure 5. Land capability description

## 8 SPECIALIST DECLARATION

### Agricultural compliance statement

- SACNASP registration of specialist and a curriculum vita – Refer to Section 11;
- A signed statement of independence by the specialist – Refer to Section 1;
- The duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment. The main criteria for farming potential are soils, climate and water availability. These are not bound to seasons. However, the survey took place during the growing season of summer crops;
- For the description of the methodology used to undertake the on-site assessment: Refer to Section 2;
- A map showing the proposed development footprint: the entire site will be developed;
- Confirm that the site is of low or medium sensitivity for agriculture. Refer to Section 7. The site has *medium*, *low* and *very low sensitivity*. The proposed development will, therefore have little impact on the agricultural production capability - Refer to Sections 7.
- A signed statement of independence is provided as preamble to the report.
- A map showing the proposed development footprint (including supporting infrastructure) overlaid on the agricultural sensitivity map: the entire site will be developed;
- Confirmation that all reasonable measures have been taken through micro placement to avoid or minimise fragmentation and disturbance of agricultural activities: There are no highly sensitive areas that that could impact on the development;

- A statement from the soil scientist or agricultural specialist on the acceptability, or not, of the proposed development and a recommendation on the approval, or not, of the proposed development: The site is not highly sensitive. The site survey found that the grazing land is too small to constitute a viable livestock operation. The land is low to medium potential arable land, and there is no irrigation water available. Therefore, no reason can be found to prevent the development. It is our recommendation that the project be allowed and implemented;
- There are no conditions to which the statement is subjected;
- Stormwater runoff measures should be put in place to ensure that erosion of the soil does not occur. The stormwater management plan should be included in the EMP and strictly adhered to;
- The survey took place at the start of the growing season for cash crops. It was, therefore possible to assess the soil's productivity and also the present state of the grazing land. No gaps in knowledge or data were found.

## 9 IMPACT ASSESSMENT

### 9.1 Assumptions

#### Land uses

The entire site is grazing land or used for farm housing.

### 9.2 Rating criteria

The following rating was used to indicate impacts:

#### Extent

- 1: Local - extend to the site and its immediate surroundings.
- 2: Regional - impact on the region but within the province.
- 3: National - impact on an interprovincial scale.
- 4: International - impact outside of South Africa.

#### Magnitude

Degree to which impact may cause irreplaceable loss of resources.

- 0: None – no resources will be lost.
- 1: Low - natural and social functions and processes are not affected or minimally affected.
- 2: Medium - affected environment is notably altered.
- 3: High - natural or social functions or processes could be substantially affected or altered to the extent that they could temporarily or permanently cease.
- 4: Very high – Will affect the continued viability of the system/environment.

#### Duration

- 1: Short term: 0-5 years.
- 2: Medium term: 5-11 years.
- 3: Long term: impact ceases after the operational life cycle of the activity either because of natural processes or by human intervention.
- 4: Permanent: mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.



### Probability

- 1: Rare/Remote - the event may occur only in exceptional circumstances.
- 2: Unlikely - the event could occur at some time.
- 3: Moderate - the event should occur at some time.
- 4: Likely - the event will probably occur in most circumstances.
- 5: Almost certain - the event is expected to occur in most circumstances.

### Reversibility

- 1. Definite
- 2. Probable
- 3. Possible
- 4. Unlikely

### Irreplaceability

- 1. No loss of resources. Can be replaced elsewhere.
- 2. Marginal
- 3. Significant
- 4. Complete loss

### Significance

Provides an overall impression of an impact's importance, and the degree to which it can be mitigated.

## 6.1 Impact rating

The significance of each potential impact is calculated using the following formula:

$$\text{Significance points} = (\text{extent} + \text{probability} + \text{reversibility} + \text{irreplaceable} + \text{duration}) \times \text{magnitude}$$

The maximum value is 100 SP (significance points). The unmitigated and mitigated scenarios for each potential environmental impact should be rated as per Table 10 below.

**Table 5. Significance rating**

Score	Significance	Description of Rating
2 – 10	Low Significance	No specific management action required
10 – 20	Medium-low significance	Administrative management actions required
20 – 40	Medium significance	Management and monitoring action plans required
40 – 60	Medium-high significance	Specific management and monitoring plans required
>60	High significance	Detailed plans required, potential red flag impact

**Table 6. Impact rating – Direct impacts**

POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	Before mitigation								MITIGATION
	Extent	Probability	Reversibility	Irreplaceable	Duration	Magnitude	TOTAL (SP)	Significance	
LOSS OF HIGH POTENTIAL LAND									
Loss of land	0	0	0	0	0	0	0	L	There will be no loss of high potential land. No impact. No mitigation required.
LOSS OF GRAZING LAND									
Loss of grazing land	1	5	4	1	4	1	15	L	26,9 ha of grazing will be lost. This land can carry less than 3 livestock The impact is low. No mitigation is required.
LOSS OF AGRICULTURAL PRODUCTION									
Loss of crop production	0	0	0	0	0	0	0	L	There will be no loss al agricultural production, The land is now not used for farming purposes and is too small to be a viable farming unit. No mitigation required
Loss of animal production	0	0	0	0	0	0	0	L	There will be no loss al agricultural production, The land is now not used for farming purposes and is too small to be a viable farming unit. No mitigation required
LOSS OF AGRICULTURAL INFRASTRUCTURE									
Direct loss	0	0	0	0	0	0	0	L	No farming infrastructure will be lost. No impact, no mitigation required.
LOSS OF JOBS FROM FARMING									
Direct loss	0	0	0	0	0	0	0	L	There are no farming activities, hence, no loss of jobs. No mitigation required.

## 10 CONCLUSIONS AND RECOMMENDATIONS

The property is not used for any farming activities. There are a number of homesteads that are occupied.

### Results of the site verification

Most of the site was incorrectly classified as *high* or *moderately sensitive*. There is no cultivated land on the site that would have the land classified as *highly sensitive*.

The screening tool indicates that more than half of the site is cultivated.

This is disputed – there is no cultivated land on the site, and there is also no evidence that it was for more than a decade.

### Specialist site analyses

According to the screening tool, the site has *high sensitivity*. This is incorrect because most of the potentially arable land is sandy with a low water holding capacity or has a hard plinthite layer that inhibit root development; even the deeper soil is only *moderately sensitive*.

There is no highly sensitive land on the site, no irrigation takes place and there is no irrigation water available.

There is no cultivated land on the site and considering that the property can only sustain 3 head of cattle, retaining the land for farming is sustainable – is cannot be considered as a viable farming unit

### Recommendation

No reason can be found not to allow the development. It is our recommendation that the project be approved for implementation.



## **11 ADDENDA**

### **11.1 Sources of information**

- a) Criteria for high potential agricultural land in South Africa, Department of Agriculture, Directorate Land Use and Soil Management, 2002.
- b) Grondklassifikasie Werkgroep, 1991. Grondklassifikasie, 'n Taksonomiese sisteem vir Suid Afrika, Departement van Landbou-ontwikkeling, Pretoria.
- c) Department of Agriculture. Grazing capacity. Development of Agricultural Land Framework Bill , 2016
- d) WRC, 2003 South African Atlas of Agrohydrology and Climatology, Water Research Commission
- e) CROPWAT 8.0 has been developed by Joss Swennenhuis for the Water Resources Development and Management Service of FAO.
- f) Phase 1 Engineering Geological Investigation of Portion 214, 269 & Re 60, Waterkloof 305 Jq, compiled by GEOSET CC Consulting Engineers.

## 11.2 SACNASP certificate



### THE SOUTH AFRICAN COUNCIL FOR NATURAL SCIENTIFIC PROFESSIONS

herewith certifies that

**Johan Andries Gouws**

Registration number: 400140/06

has been registered as a

**Professional Natural Scientist**

in terms of section 20(3) of the Natural Scientific Professions Act, 2003  
(Act 27 of 2003)

in the following field(s) of practice  
(Schedule I of the Act)

**Agricultural Science**

11 July 2006

Pretoria

President

Chief Executive Officer

### 11.3 CV of Author

Position Title and No.	Agriculture, Land use planning and wetland specialist. INDEX
Name of Expert:	Andries Gouws
Date of Birth	12/04/1955
Country of Citizenship /Residence	South Africa

#### Education

Name of institution: College/University or other	Degree/diploma/certificate or other specialized education	Date completed
University of Pretoria, South Africa	BSc. Agriculture	1979
University of Bloemfontein	BSc. Honors, Agriculture	1987
Potchefstroom Collage for Agriculture	Diploma: Stereoscopic aerial photo interpretation of natural resources for farm planning	1981
University of South Africa	Diploma: Financial management	1992
University of Trinity	PhD: Integrated agricultural development	2007

#### Employment record relevant to the assignment:

Period	Employing organization and your title/position. Contact info for references	Country	Summary of activities performed relevant to the Assignment
1993 - current	INDEX - Director and co-owner: Responsibility: Agriculture and land use planning. Contact: Eugene Gouws - Director +27 82 55 33 787	RSA	Provided specialist assessment services in agriculture and land use planning for various development projects.

#### Membership in Professional Associations and Publications:

Soil Science society of South Africa.

South African Council for Natural Scientific Professions – Registered Professional Scientist (Reg no: 400140/06)

#### Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team of Experts:	Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks
Position: Agricultural Specialist	Agricultural Impact Assessment for the Proposed Mookodi- Mahikeng 400kv Line. 2018. Client: Nema Consulting
	Agricultural Impact Assessment for the Proposed Foxwood Dam 2015 – 2016



	<p>Compiled the specialist report on Agricultural impact Client: Nema Consulting, DWS</p>
	<p>Agricultural Impact Assessment for the Proposed Mokolo and Crocodile River (West) Water Augmentation Project (MCWAP) (2017 – 2019) Compiled the specialist report on Agricultural impact Client: Nema Consulting, DWS</p>
	<p>MSOBO COAL – HARWAR; economic study for the farming enterprises Discussion of the natural resources that influences agricultural potential; Farming and the potential for different enterprises; Indicate the potential income from main enterprises and indicate the financial impact of the development on the farmers. (2013/4) Client: Demacon</p>
	<p>Agricultural potential study of Portion 21 (Portion 1) of the farm Koppieskraal 1157-IR 2019. Client: Adv Johan du Plessis</p>
	<p>Agricultural Potential Assessment: Albany Wind Energy Facility &amp; Grid Infrastructure Near Makhanda, Eastern Cape Province 2020 Client: CES Environmental and Social advisory Services</p>
	<p>Agricultural potential and impact assessment of Available Land at Mopeia, Mozambique 2016 Client: Barari Forest Management. Department: Research &amp; Development Abu Dhabi</p>

Expert's contact information: E-mail: [index@iafrica.com](mailto:index@iafrica.com)  
Phone: +27 (0) 82 807 6717

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes my qualifications, my experience and myself.

Andries Gouws

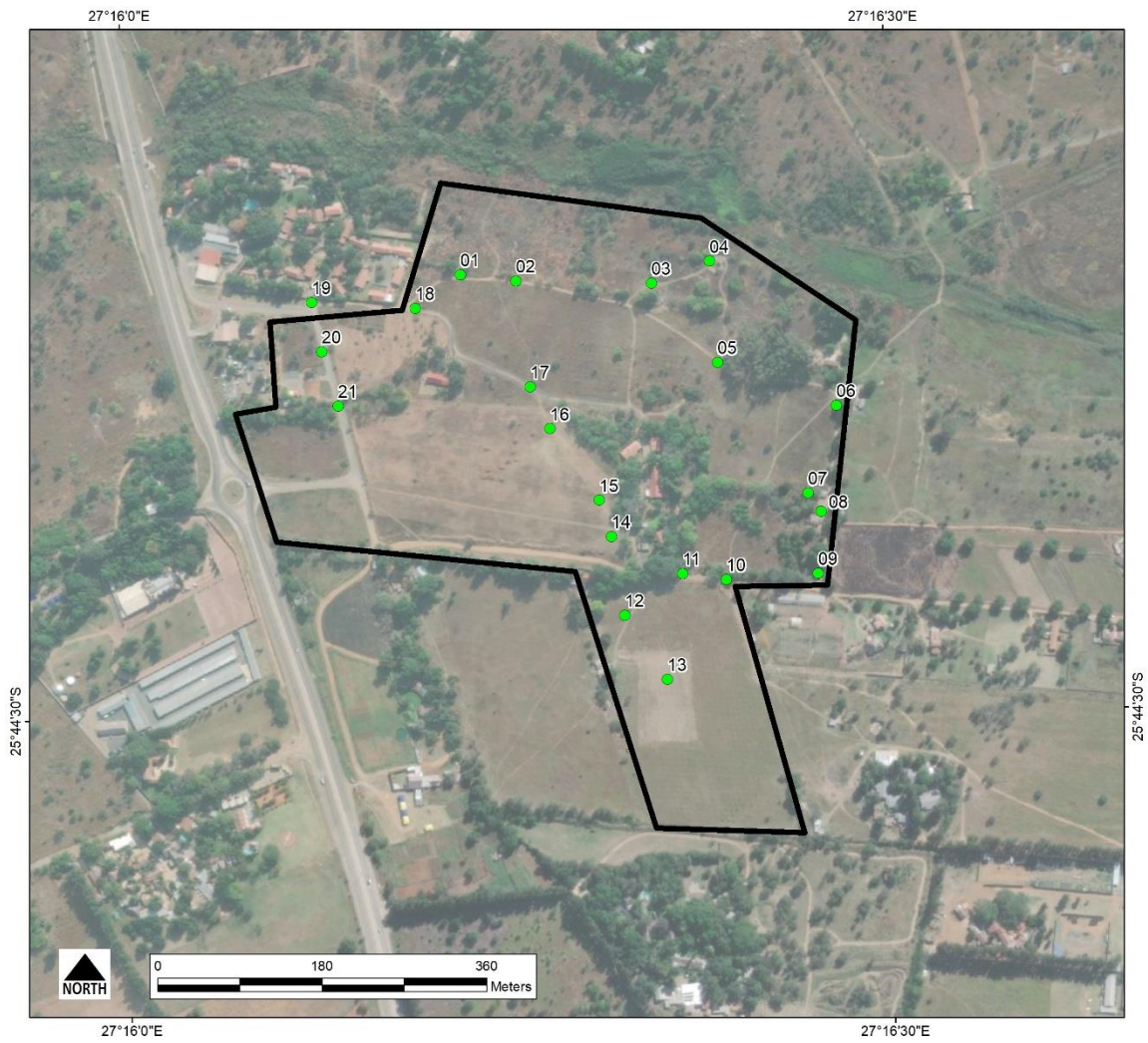
29/22/2022

Name of Expert

  
Signature

Date

## 11.4 Photos





**A 03**



**A 04**



**A 05**



**A 06**



**A 07**



**A 08**





**A 09**



**A 10**



**A 11**



**A 12**



**A 13**



**A 14**





**A 15**



**A 16**



**A 17**



**A 18**



**A 19**



**A 20**

