

Highveld X55

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Draft Basic Assessment Report

**Proposed Development of Highveld x 55 on Erf 2979,
Previously Known as Portion 157
of the Farm Brakfontein 390-JR**

October 2013

Ref No: 002/13-14/E0026

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APPLICATION FORM



APPLICATION FORM [REGULATION 12 (1) & (2)(A)(B)(I)(II)]



Gauteng Department of Agriculture and Rural Development

Application for authorization in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010 (Version 1)

Kindly note that:

1. This application form is to be completed for both the Basic Assessment process and the Scoping & EIA process.
2. This application form is current as of 2 August 2010. It is the responsibility of the EAP to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
3. The application must be typed within the spaces provided in the form. The sizes of the spaces provided are not necessarily indicative of the amount of information to be provided. It is in the form of a table that can extend itself as each space is filled with typing.
4. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.
5. Incomplete applications may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with **circumspection** because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. Three copies of this form and the attachments must be handed in at the offices of the relevant competent authority as detailed below.
8. No faxed or e-mailed applications shall be accepted. Only hand delivered or posted applications will be accepted.
9. Unless protected by law, and clearly indicated as such, all information filled in on this application will become public information on receipt by the competent authority. The applicant/Environmental Assessment Practitioner (EAP) must provide any Interested and Affected Party (I&AP's) with the information contained in this application on request, during any stage of the application process.
10. Attachments, where applicable, to this document are to be ordered in the following prescribed manner

Annexure - A	Locality map
Annexure - B	a) Proof of notification to the Land owner b) Proof of receipt of such notice by the owner
Annexure - C	List of all organs of state and State Departments of where the draft report will be submitted, their full contact details and contact person

Annexure -D	Property description list
Annexure -E	Current land use zonings list
Addendum-A	Declaration of Independence by EAP to be submitted with the report if the application form was submitted by applicant -

DEPARTMENTAL DETAILS

Gauteng Department of Agriculture and Rural Development
Attention: Administrative Unit of the Sustainable Utilisation of the Environment (SUE) Branch
P.O. Box 8769
Johannesburg
2000

Administrative Unit of the Sustainable Utilisation of the Environment (SUE) Branch
18th floor Glen Cairn Building
73 Market Street, Johannesburg

Administrative Unit telephone number: (011) 355 1345
Department central telephone number: (011) 355 1900

Handwritten signature and initials
1

(For official use only)

File Reference

Number:

Application Number:

Date Received:

1. NATURE OF THE ACTIVITY

The proposed establishment of a township to be known as **Highveld Extension 55 on Erf 2979**. The proposed development will consist of the following zonings and land-uses:

- "Landscaping"
- "Social Facilities"
- "Private Open Space"
- "Places of Education"
- "Shops"
- "Recreational Facilities"
- "Office"
- "Places of Refreshment"
- "Public Transportation Facilities"

Highveld Extension 55 is situated within the suburb of the existing Eco Park residential development and is 1, 9 hectares in extend. The site is located in the south-eastern quadrant of the N1-N14 interchange in the southern part of Centurion. Erf 2979 Highveld Extension 55 is situated on a strategically located enclave north of Olievenhoutbosch Road enclosed by Tamarillo Street and access to the proposed development will only be obtained from Tamarillo Street.

Select the appropriate box with regards to the application form submission

An application for conducting a basic assessment (as defined in the regulations)?

X

A resubmission of an application for conducting a basic assessment (as defined in the regulations)?

An application for conducting a Scoping & EIA process (as defined in the regulations)

A resubmission of an application for conducting a SR & EIA process (as defined in the regulations)

If this is a class application, has a copy of approval letter to undertake such an application been attached as such application may/shall not be undertaken without an approval from this Department

--

Has this project or a substantial similar project which has been previously submitted by the applicant been denied authorisation by the relevant authority in the last three (3) years

YES	NO X
-----	-----------------

APPLICATION FORM [REGULATION 12 (1) & (2)(A)(B)(I)(II)]

If yes will the application contain new or additional material not submitted previously

YES	NO
-----	----

To be noted that Regulation 68 of EIA Regulations, 2010 states that no applicant may resubmit an application which is substantially similar to an application previously denied authorisation by the relevant authority unless 3 years has lapsed since the refusal or new material is to be presented

1. PROJECT DETAILS

Project title:

Highveld Extension 55

To be noted that the project will be registered under this title and this title must be duplicated through the application life of the project

Local authority(ies) in whose jurisdiction the proposed application will fall

City of Tshwane Metropolitan Municipality

2. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Alternative:

Latitude (S):	Longitude (E):
25.886078 S	28° 75223 E

In the case of linear activities:

Alternative:

- Starting point of the activity
- Middle point of the activity
- End point of the activity

Latitude (S):	Longitude (E):

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Addendum of route alternatives attached

N/A

Property description:

Erf 2979 Highveld X 55, previously known as Portion 157 of the Farm Brakfontein 390-JR.

(Farm name, portion etc.) Where a large number of properties (including alternatives) are involved (e.g. linear activities), please attach a list of the property descriptions to this application.

3. ACTIVITIES APPLIED FOR

Describe the activity and associated infrastructure, which is being applied for, in detail

The proposed establishment of a township to be known as **Highveld Extension 55 on Erf 2979**. The proposed development will consist of the following zonings and land-uses:

- "Landscaping"
- "Social Facilities"
- "Private Open Space"
- "Places of Education"
- "Shops"
- "Recreational Facilities"
- "Office"
- "Places of Refreshment"


3

APPLICATION FORM [REGULATION 12 (1) & (2)(A)(B)(I)(II)]

• "Public Transportation Facilities"

Which Listing Notice is the activity (ies) listed under?

Listing Notice 1

Listing Notice 2

Listing Notice 3

If "or also" listed under Listing Notice 3, describe the Geographical Area triggering the activity and its regional, provincial, national & international significance

An application may be made for more than one listed or specified activity that, together, make up one development proposal. All the listed activities that make up this application must be listed.

Indicate the number and date of the relevant Government Notice: Activity No (s) (in terms of the relevant notice): e.g. Listing notices 1, 2 or 3 Describe each listed activity as per the wording in the relevant listing notice:

Listing No. 1 R.544, 18 June 2010	Activity 24	The transformation of land bigger than 1000 square meters in size, to residential, retail, commercial, industrial or institutional use, where, at the time of the coming into effect of the Schedule such land was zoned opens pace, conservation or had an equivalent zoning.
Listing No. 1 R. 544, 18 June 2010	Activity 56	Phased activities for all activities listed in this Schedule, which commenced on or after the effective date of this Schedule, where any one phase of the activity may be below a threshold but where a combination of the phases, including expansions or extension, will exceed a specified threshold, excluding the following activities listed in this Schedule: 2; 11 (i) – (vii); 16 (i) – (iv); 17; 19; 20; 22 (i) & 22 (iii); 25; 26; 27 (iii) & (iv); 28; 39; 45 (i) – (iv) & (vii) – (xv); 50; 51; 53; and 54.

Please note that any authorisation that may result from this application will only cover activities specifically applied for.

5. OTHER AUTHORISATIONS REQUIRED

5.1 DO YOU NEED ANY AUTHORISATIONS IN TERMS OF ANY OF THE FOLLOWING LAWS?

- | | |
|--|--------|
| 4.1.1 National Environmental Management: Waste Act | Yes/No |
| 4.1.2 National Environmental Management: Air Quality Act | Yes/No |
| 4.1.3 National Environmental Management: Protected Areas Act | Yes/No |
| 4.1.4 National Environmental Management: Biodiversity Act | Yes/No |

[Handwritten signatures and initials]

APPLICATION FORM [REGULATION 12 (1) & (2)(A)(B)(I)(II)]

4.1.5 Mineral Petroleum Development Resources Act	Yes/No
4.1.6 National Water Act	Yes/No
4.1.7 National Heritage Resources Act	Yes/No
4.1.8 Other (please specify)	Yes/No
4.2 Have such applications been lodged already?	Yes/No

6. BACKGROUND INFORMATION

Project applicant:	JR 209 Investments (Pty) Ltd		
Trading name (if any):	M&T Development		
Contact person:	Mr. Barry Hertzog		
Physical address:	Witch Hazel Avenue 340, Eco Court Building, Highveld, Centurion, 0046		
Postal address:	P O Box 39727, Faerie Glen		
Postal code:	0043	Cell:	079 693 2142
Telephone:	(012) 676 8594	Fax:	(012) 676 8585
E-mail:	pieterh@mtdevelopment.co.za		

Project Environmental Assessment Practitioner:	Bokamoso Landscape Architects & Environmental Consultants		
Contact person:	Lizelle Gregory		
Postal address:	P.O. Box 11375, Maroelana		
Postal code:	0161	Cell:	083 255 8384
Telephone:	(012) 346 3810	Fax:	086 570 5659
E-mail:	lizeleg@mweb.co.za		

EAP qualifications & relevant experience

Registered Landscape Architect & Environmental Consultant (degree obtained from the University of Pretoria) , with more than 18 years experience in:

- The compilation of Environmental Evaluation Reports,
- Environmental Management Plans,
- Strategic Environmental Assessments;
- All stages of Environmental Input;
- EIA under the ECA and the new and amended NEMA Regulations; and
- Various other Environmental Reports and documents.

Professional affiliation(s) (if any)

The South African Council of the Landscape Architects Profession (SACLAP); Institute for Landscape Architects in South Africa (ILASA); and Institute for Environmental Management and Assessment (IEMAS)

Landowner:	JR 209 Investments (Pty) Ltd		
Contact person:	Mr. Barry Hertzog		
Postal address:	P O Box 39727, Faerie Glen		
Postal code:	0043	Cell:	083 255 8384
Telephone:	(012) 676 8594	Fax:	086 570 5659
E-mail:	pieterh@mtdevelopment.co.za		

In instances where there is more than one landowner (including for alternative sites), please attach a list of landowners with their contact details to this application.

In instances where the landowner is not the applicant –attach proof of notification of the landowner and a proof of receipt of such notice by the owner, manager or person in control of the land.

List of the land owner is attached N/A
 Landowner notification proof is attached N/A

APPLICATION FORM [REGULATION 12 (1) & (2)(A)(B)(I)(II)]

Landowner proof of receipt of such notification is attached N/A

Local authority in whose jurisdiction the proposed activity will fall:

Contact person:

Postal address:

Postal code:

Telephone:

E-mail:

City of Tshwane Metropolitan Municipality			
Livhuwani Siphuma			
Private Bag X1454, Pretoria			
0001		Cell:	
(012) 358 8871		Fax:	
livhuwanis@tshwane.gov.za			

In instances where there is more than one local authority involved (including for alternative sites), please attach a list of local authorities with their contact details to this application.

List of local authorities is attached YES

List of properties is attached YES

Town(s) or district(s):

Street/Physical address:

City of Tshwane Metropolitan Municipality
The proposed development will take place on Erf 2979, Highveld X 55

In instances where there is more than one town or district involved, please attach a list of towns or districts to this application.

List of towns or districts is attached N/A

State Departments administering a law affecting the environment:

Contact person:

Postal address:

Postal code:

Telephone:

E-mail:

Department of Water Affairs			
Mr. Justice Maluleke			
Private Bag X313, Pretoria			
0001		Cell:	
012 336 6507		Fax:	012 336 8311
Maluleke.J@dwa.gov.za			

In instances where there is more than one State Department involved, please attach a list of all State Departments with their contact details.

Current land-use zoning:

"Private Open Space" to "Special"

In instances where there is more than one current land-use zoning (including alternatives), please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

List of current land-use zonings is attached YES
X

Locality map:

A locality map(s) (including alternatives) must be attached to the back of this document, as Annexure A. The scale of the locality map must be between 1:10 000 and 1:50 000. The scale must be indicated on the map. The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites;
- all rivers within a 1km radius of the site or alternative sites; and
- a north arrow.

[Handwritten signature]
6

7. COMPLIANCE WITH CONDITIONS

Have you ever been in non-compliance with a condition of an authorisation or exemption issued by this Department or any other provincial or national environmental department in terms of the Environment Conservation Act (No 73 of 1989) or the National Environmental Management Act (No 107 of 1998) as amended?

YES	NO X
-----	---------

If yes, indicate details of non-compliance together with reasons for non-compliance:

Attach all relevant documentation e.g. compliance audit reports, pre-directives, directives, compliance notices

8. ACTIVITY INFORMATION

Socio-economic value of the activity

What is the expected capital value of the activity on completion?

What is the expected yearly income that will be generated by or as a result of the activity?

Will the activity contribute to service infrastructure?

Will the activity contribute to a public amenity?

Total number of new employment opportunities to be created in the development phase of this activity.

Of these opportunities how many are:

Women

People with disabilities

Female

Male

Youth

Female

Male

What is the expected value of the employment opportunities during the development phase?

What percentage of this will accrue to previously disadvantaged individuals?

Total number of new employment opportunities to be created in the operational phase of this activity.

Of these opportunities how many are:

Women

People with disabilities

Female

Male

Youth

Female

Male

What is the expected current value of the employment opportunities during the first 10 years?

What percentage of this will accrue to previously disadvantaged individuals?

Need and Desirability of the activity

Motivate and explain the need and desirability of the activity (including demand for the activity):

The **need** for the rezoning application can be motivated under three spheres viz. the need for landscaped open spaces; the need for social facilities; and the need for place-making in densely populated areas.

R 5,000,000.00
R 0-00 to R 500,000.00
YES
YES
84
10%

2,5 %
2,5%

0%
0%
R 1,000,000.00
85 %
5
25
5
2
3
0
-
-
R 12,000,000.00
85%

Erf 2979 bisects the green belt formed by the Eco-Park Boulevard Road reserve, Erf 11 Highveld Extension 114, Erf 2978 Highveld Extension 55, and Erf 3079 Highveld Extension 75. This placement of the subject property stresses its importance in the spatial context of Eco-Park. It is important to note that the proposed rezoning will not influence the cohesion of the public open spaces due to the fact that the primary land-use viz. "Open Space" will remain unchanged with only the addition of a social facility that will be integrated with the landscaped surroundings.

The **need** for social facilities such as libraries, crèches and recreational facilities, are a well documented fact and is the focus point of several development policies in South Africa. Highveld Extension 120 offers an Erf measuring approximately 2.5 ha for the development of an educational facility, but does not offer any other social facilities in the direct vicinity. Housing approximately 2500 families, it can be acknowledged that there will be a **need** for such facilities in the direct vicinity. The subject property is ideally located for this purpose in close proximity to the proposed educational facility as well as on the pedestrian and vehicle route between the educational facility and the residential estate.

The mentality of providing erven for "Open Space", only to leave it barren and let it fall into disrepair, is an outdated school of thought. As residential areas become denser, the **need** for functional "Open Spaces" that add value to the surrounding properties increases.

The rezoning of Erf 2979 Highveld Extension 55 will allow 'place-making' on the otherwise barren vacant land. It will allow the enclave to be utilized by the general public while providing them with landscaped gardens and open space for recreational purposes.

It is M&T Development's submission that the proposed rezoning will help realize the vision of the Developer which is to create an urban setting which allows for the dynamic interaction between residential units, offices, commercial and social facilities. The proposed development will enhance the aesthetic value of the area and is in line with planning concepts such as infill development within the urban edge, and the higher intensity utilization of land.

Even though the property is encumbered by three servitudes, the buildable area of 1.2 ha on the application site is of sufficient size to accommodate the proposed development and will have no detrimental effect on the surrounding properties. In view of the above, the proposed rezoning can be considered **desirable**.

The proposed development is located in a market area where a demand for daily necessities, convenience retail as well as specialty / niche retail exists. The proposed development will also have a positive contribution to the local economy as well as on municipal income.

Indicate any benefits that the activity will have for society in general:

The proposed development will meet the demand from residential, commercial and retail developments for green open spaces as stated above. The proposed development will also limit the disturbance to the environment as illegal squatting and dumping is usually in accordance with vacant, undeveloped and un-maintained land. Invader and Alien plant species could also become a significant factor to consider, as these species usually infest areas of disturbance and neglect. The development will improve local infrastructure and improve service delivery to the area.

Indicate any benefits that the activity will have for the local communities where the activity will be located:

The proposed development will create various work opportunities during the construction and operational phases and will offer local residents an opportunity to work close to home.

9. DECLARATIONS

The Applicant

I, Barry Hertzog, declare that I -

- am¹, the applicant in this application for **Erf 2979 Highveld X55**;
- have appointed an environmental assessment practitioner to act as the independent environmental assessment practitioner for this application;
- will provide the environmental assessment practitioner and the competent authority with access to all information at my disposal that is relevant to the application;
- will be responsible for the costs incurred in complying with the Environmental Impact Assessment Regulations, 2010, including but not limited to -
 - costs incurred in connection with the appointment of the environmental assessment practitioner or any person contracted by the environmental assessment practitioner;
 - costs incurred in respect of the undertaking of any process required in terms of the Regulations;
 - costs in respect of any fee prescribed by the Minister or MEC in respect of the Regulations;
 - costs in respect of specialist reviews, if the competent authority decides to recover costs; and
 - the provision of security to ensure compliance with conditions attached to an environmental authorisation, should it be required by the competent authority;
- will ensure that the environmental assessment practitioner is competent to comply with the requirements of these Regulations and will take reasonable steps to verify whether the EAP complies with the Regulations;
- will inform all registered interested and affected parties of any suspension of the application as well as of any decisions taken by the competent authority in this regard;
- am responsible for complying with the conditions of any environmental authorisation issued by the competent authority;
- hereby indemnify the Government of the Republic, the competent authority and all its officers, agents and employees, from any liability arising out of the content of any report, any procedure or any action which the applicant or environmental assessment practitioner is responsible for in terms of these Regulations;
- will not hold the competent authority responsible for any costs that may be incurred by the applicant in proceeding with an activity prior to obtaining an environmental authorisation or prior to an appeal being decided in terms of these Regulations;
- will perform all other obligations as expected from an applicant in terms of the Regulations;
- all the particulars furnished by me in this form are true and correct; and
- I am aware that a false declaration is an offence in terms of regulation 71 and is punishable in terms of section 24F of the Act.

Signature of the applicant² / Signature on behalf of the applicant:

Name of company (if applicable):

Date:

Signature of the Commissioner of Oaths:

Date:

LEONARD THEO GREGORY
COMMISSIONER OF OATHS

Designation:

36 LEBOMBO ROAD

Commissioner of Oaths Official stamp (below)

ASHLEA GARDENS

PRETORIA 0081

CHARTERED ACCOUNTANT OF SOUTH AFRICA

¹ If this is signed on behalf of the applicant, proof of such authority from the applicant must be attached.

² If the applicant is a juristic person, a signature on behalf of the applicant is required as well as proof of such authority.

The Environmental Assessment Practitioner

I, **Lizelle Gregory**, declare under oath that I –

- I act as the independent environmental practitioner for this application **Erf 2979 Highveld Extension 55**;
- I will perform 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;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in regulation 8 of the regulations when preparing the application and any report relating to the application;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- I will keep a register of all interested and affected parties that participated in a public participation process; and
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- all the particulars furnished by me in this form are true and correct;
- will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I realise that a false declaration is an offence in terms of regulation 71 and is punishable in terms of section 24F of the Act.

For Basic Assessment applications I further declare under oath that:

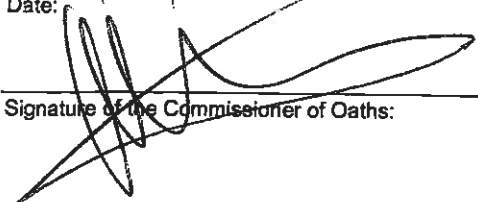
- I will fix the site notice(s) in a conspicuous place, on the property(ies) where it is intended to undertake the activity(ies);
- I will place a notice in the required newspaper(s);
- I will provide the following with all the project information and give I&AP's an opportunity to register as an I&AP
 - landowners and occupiers of adjacent land
 - landowners and occupiers of land within 100 metres of the boundary of the property
 - the ward councillor
 - any organisation that represents the community in the area of the application
 - the municipality which has jurisdiction over the area in which the proposed activity will be undertaken
 - any organ of state that may have jurisdiction over any aspect of the activity of the applicant's intention to submit an application to the competent authority; and
- I will include on the register all persons as required per Regulation 55 (1) (c);
- The Reports as submitted will contain the same information (including layout, project design and mitigation) as provided to the registered I&APs for comment; and
- All issues raised by the I&APs during the public participation process will be included in the Comments and Response Report as attached.


Signature of the Environmental Assessment Practitioner:

Bokamoso Environmental Consultants

Name of Company:

Date:


Signature of the Commissioner of Oaths:

APPLICATION FORM [REGULATION 12 (1) & (2)(A)(B)(i)(ii)]

0/4/2017

Date:

~~LEONARD THEO GREGORY~~

Designation:

COMMISSIONER OF OATHS
36 LEBOMBO ROAD
ASHLEA GARDENS
PRETORIA 0081
CHARTERED ACCOUNTANT OF SOUTH AFRICA

Commissioner of Oaths Official stamp (below)

11. CHECKLIST

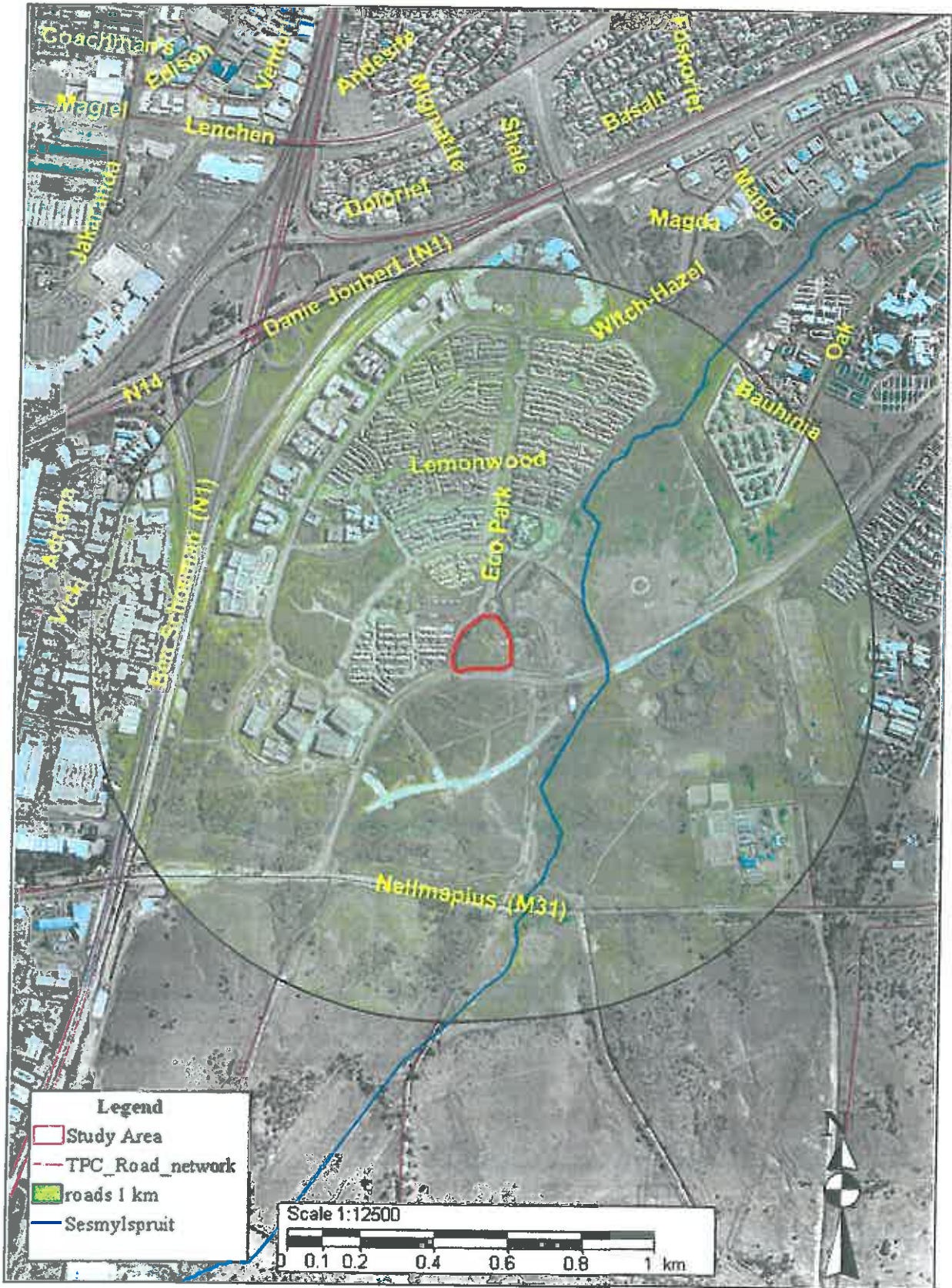
To ensure that all information that the Department needs to be able to process this application, please check that:

- > Where requested, supporting documentation has been attached;
- > All relevant sections of the form have been completed; and
- > The form has been signed by the applicant, by the EAP or both.

12. ANNEXURES


11

Annexure A: Locality Map



APPLICATION FORM [REGULATION 12 (1) & (2)(A)(B)(I)(II)]

Annexure B (c): Proof of Notification of the Land Owner
Annexure B (d): Proof of Receipt of such Notice by the Owner

Not Applicable

APPLICATION FORM [REGULATION 12 (1) & (2)(A)(B)(I)(II)]

Annexure C: List of all Organs of State and State Departments of where the Draft Report will be submitted

Local authority in whose jurisdiction the proposed activity will fall:

Contact person:
Postal address:
Postal code:
Telephone:
E-mail:

City of Tshwane Metropolitan Municipality	
Livhuwani Siphuma	
Private Bag X1454, Pretoria	
0001	Cell:
(012) 358 8871	Fax:
lvhuwanis@tshwane.gov.za	

Local authority in whose jurisdiction the proposed activity will fall:

Contact person:
Postal address:
Postal code:
Telephone:
E-mail:

Department of Water Affairs	
Mr. Justice Maluleke	
Private Bag X 313, Pretoria	
0001	Cell:
(012) 336 6507	Fax: (012) 336 8311
Maluleke.J@dwa.gov.za	

Other State Organs where the Draft Basic Assessment Report will be submitted to:

Local authority in whose jurisdiction the proposed activity will fall:

Contact person:
Postal address:
Postal code:
Telephone:
E-mail:

Department of Transport	
Mr. Mangisi George Mahlalela	
Private Bag X 193, Pretoria	
0001	Cell:
(012) 309 3698	Fax: (012) 328 3370

Local authority in whose jurisdiction the proposed activity will fall:

Contact person:
Postal address:
Postal code:
Telephone:
E-mail:

Department of Human Settlements	
Mr. Thabane Zulu	
Private Bag X 644, Pretoria	
0001	Cell:
(012) 421 1312	Fax: (012) 341 2998
Nokuthula.mbeje@dhs.gov.za	

Local authority in whose jurisdiction the proposed activity will fall:

Contact person:
Postal address:
Postal code:
Telephone:
E-mail:

Department of Economic Development	
Mr. Ebrahim Patel	
Private Bag X 149, Pretoria	
0001	Cell:
(012) 394 1006	Fax: (012) 394 0255

Annexure D: Property Description List

Farm Description	Extend in ha
Erf 2979 Highveld X55	1,9113.1 ha

Annexure E: Current Land-use Zoning List

Farm Description	Current Land-use Zoning
Erf 2979 Highveld X55	Private Open Space



Annexure F: Local Authorities

Local authority in whose jurisdiction the proposed activity will fall:

Contact person:

Postal address:

Postal code:

Telephone:

E-mail:

City of Tshwane Metropolitan Municipality	
Livhuwani Siphuma	
Private Bag X1454, Pretoria	
0001	Cell:
(012) 358 8871	Fax:
livhuwanis@tshwane.gov.za	



Letter of Acknowledgement Of Receipt





agriculture and rural development

Department: Agriculture and Rural Development
GAUTENG PROVINCE

Diamond Corner Building, 68 Eloff & Market Street, Johannesburg
P O Box 8769, Johannesburg, 2000

Telephone: (011) 355-1900

Fax: (011) 355-1000

Website: <http://www.gdard.gpg.gov.za>

Reference:	Gaut: 002/13-14/E0026
Enquiries:	Faith Mlambo
Telephone:	(011) 355-1974
Email:	Faith.mlambo@gauteng.gov.za

Bokamoso Landscape Architects & Environmental Consultants

Email: lizelleg@mweb.co.za

PER EMAIL

Dear Sir / Madam

Application for Environmental Authorisation: Highveld extension 55

The Department acknowledges having received the application form for environmental authorisation of the above-mentioned project on 15/04/2013.

The application has been assigned the reference number Gaut: 002/13-14/E0026. Kindly quote this reference number in any future correspondence in respect of the application.

Please circulate the draft report to any state department that administers a law relating to a matter affecting the environment to comment.

You are required to submit two (2) copies (full colour CDs-PDF) of the Draft Basic Assessment Report as well as proof of submission to state departments referred to above.

In order to determine whether a biodiversity assessment is required and, if so, which specialist studies are required, please send a shapefile (WGS84 datum; geographic co-ordinate system) of the application site to our biodiversity information service (GDACE_BiodiversityInfo@gauteng.gov.za), the e-mail clearly indicating the project reference number. Where biodiversity assessment is required; please ensure that it is

conducted consistent with the *GDACE Requirements for Biodiversity Assessments*. A copy of this document can be obtained by e-mailing GDACE_BiodiversityInfo@gauteng.gov.za

In terms of Regulation 67(1) (2) of the NEMA EIA Regulations 2010, this application will lapse should you fail to submit the requested information within 6 months of the date of signature of this letter, except in the case where the Department has received and accepted written explanation for failure to submit such information.

Please draw the applicant's attention to the fact that the activity may not commence prior to an environmental authorisation being granted by the Department.

Yours faithfully

ubwa

Boniswa Belot

Deputy Director: Strategic Administration Support

Date: 18/04/2013

CC: JR 209 Investments (Pty) Ltd

Att: Mr B Hertzog
Tel: 012 676 8594
Email: pieterh@mtdevelopment.co.za

BASIC ASSESSMENT REPORT





Gauteng Department of Agriculture and Rural Development (GDARD)

Basic Assessment Report in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2010

List of all organs of state and State Departments where the draft report has been submitted, their full contact details and contact person

Kindly note that:

1. This **Basic Assessment Report** is the standard report required by GDARD in terms of the EIA Regulations, 2010 and must be submitted together with the application form.
 2. This application form is current as of 2 August 2010. It is the responsibility of the EAP to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
 3. **A draft Basic Assessment Report must be submitted to all State Departments administering a law relating to a matter likely to be affected by the activity to be undertaken; the submission of such a draft report to such State Departments must be done on the day of submission of the draft report to the competent authority, this Department. (Attach a signed proof of such submission). signed**
 4. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
 5. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.
 6. An incomplete report may be returned to the applicant for revision.
 7. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
 8. Five (5) copies (3 hard copies and 2 CDs-PDF) of the final report and attachments must be handed in at offices of the relevant competent authority, as detailed below.
 9. No faxed or e-mailed reports will be accepted. Only hand delivered or posted applications will be accepted.
 10. Unless protected by law, and clearly indicated as such, all information filled in on this application will become public information on receipt by the competent authority. The applicant/EAP must provide any interested and affected party with the information contained in this application on request, during any stage of the application process.
-

DEPARTMENTAL DETAILS

Gauteng Department of Agriculture and Rural Development
Attention: Administrative Unit of the Sustainable Utilisation of the Environment (SUE) Branch
P.O. Box 8769
Johannesburg
2000

Administrative Unit of the Sustainable Utilisation of the Environment (SUE) Branch
18th floor Glen Cairn Building
73 Market Street, Johannesburg

Admin Unit telephone number: (011) 355 1345
Department central telephone number: (011) 355 1900

BASIC ASSESSMENT REPORT [REGULATION 22(1)]

(For official use only)

File Reference Number:					
Application Number:					
Date Received:					

(i) Submission to State Department (Section 3 above)

(A) Has a draft report for this application been submitted to all State Department administering a law relating to a matter likely to be affected as a result of the activity? **YES**

(B) Is a list of State Departments referred to in section A above been attached to this report, **YES**

if no, state reasons for not attaching the list.

SECTION A: ACTIVITY INFORMATION

1. ACTIVITY DESCRIPTION

Project title (must be the same name as per application form):

Highveld Extension 55

Select the appropriate box

The application is for an upgrade of an existing development The application is for a new development Other, specify

Describe the activity and associated infrastructure, which is being applied for, in detail

It should be noted that an application for the proposed Highveld x 55 development was submitted previously during 2011 (with reference number: Gaut: 002/11-12/E0227) and due to the project being placed on hold the file was closed at GDARD. Therefore a complete new application was submitted to GDARD in 2013 and a new reference number (Gaut: 002/13-14/E0026) was obtained.

JR 209 Investments, trading as M&T Development, is applying for a proposed mixed use development to be known as Highveld X 55, on Erf 2979 Highveld X 55, previously known as Portion 157 of the Farm Brakfontein 390-JR. (Refer to Figure 1: Locality Map and Figure 2: Aerial Map)

The proposed Highveld x 55 development will consist of a variety of land uses namely: "Landscaping; Social Facilities: Private Open Space; Places of Education; Shops; Recreational Facilities; Offices; Places of Refreshment; Public Transportation Facilities", the reticulation of internal infrastructure as well as Streets on the 1.9035 hectare site.

The proposed application site is situated within the suburb of the existing Eco Park residential development. The site is located in the south-eastern quadrant of the N1/N14 interchange (Brakfontein

Interchange) in the southern part of Centurion. Erf 2979 Highveld x 55 is positioned on the enclave north of Olievenhoutbosch Road and is enclosed by Tamarillo Street which will provide access to the proposed development.

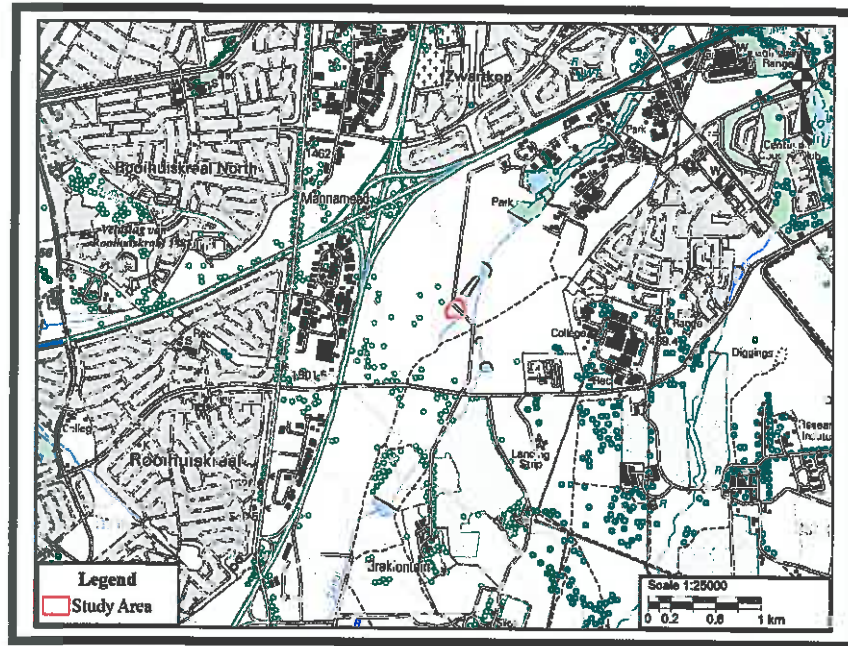


Figure 1: Locality Map



Figure 2: Aerial Photo

Activities Applied for:

Indicate the number and date of the relevant Government Notice:	Activity No (s) (in terms of the relevant notice) :	Describe each listed activity:
R.544, 18 June 2010	Activity 24	The transformation of land bigger than 1000 square meters in size, to residential, retail, commercial, industrial or institutional use, where, at the time of the coming into effect of the Schedule or thereafter such land was zoned opens pace, conservation or had an equivalent zoning
R. 544, 18 June 2010	Activity 56	Phased activities for all activities listed in this Schedule, which commenced on or after the effective date of this Schedule, where any one phase of the activity may be below a threshold but where a combination of the phases, including expansions or extension, will exceed a specified threshold, excluding the following activities listed in this Schedule: 2; 11 (i) – (vii); 16 (i) – (iv); 17; 19; 20; 22 (i) & 22 (iii); 25; 26; 27 (iii) & (iv); 28; 39; 45 (i) – (iv) & (vii) – (xv); 50; 51; 53; and 54.

2. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations:

Title of legislation, policy or guideline:	Administrating Authority:	Promulgation Date:
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National Environmental Management Act No. 107 of 1998	National & Provincial	27 November 1998
<p>The NEMA is primarily an enabling Act in that it provides for the development of environmental implementation plans and environmental management plans. The principles listed in the act serve as a general framework within which environmental management and implementation plans must be formulated.</p> <p>The Minister of Environmental Affairs and Tourism passed (in April 2006) Environmental Impact Assessment Regulations¹ (the Regulations) in terms of Chapter 5 of the National Environmental management Act, 1998² (NEMA). The new Regulations came into effect on 3 July 2006.</p> <p>Notice No. R 386 and R 387 of the New Regulations list activities which require that the EIA Process be followed. The Activities listed in Notice No. R 386 requires that a Basic Assessment Process be followed and the Activities listed in Notice No. R 387 requires that the Scoping and EIA process be followed.</p> <p>Implications to the development: The application for the proposed mixed use development consist only of activities listed under Notice No. R 386, therefore a Basic Assessment Report will be submitted for the authorization from the Local Authority.</p>		
Environmental Impact Assessment Regulations in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act No 107 of 1998)	National	2010
<p>The Minister of Environmental Affairs passed (in June 2010) the Amended Environmental Impact Assessment Regulations in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA). The Amended Regulations came into effect on 2 August 2010, and therefore all new applications must be made in terms of the Amended NEMA regulations and not in terms of the 2006 NEMA Regulations or the New Regulations of the ECA. The purpose of this process is to determine the possible negative and positive impacts of the proposed development on the surrounding environment and to provide measures for the mitigation of negative impacts and to maximize positive impacts.</p> <p>Notice No. R 544, R 545 and R 546 of the Amended Regulations list the activities that indicate the process to be followed. The activities listed in Notice No. R 544 requires that a Basic Assessment process be followed and the Activities listed in terms of Notice No. R 545 requires that the Scoping and EIA process be followed. Notice No. 546 has</p>		

been introduced to make provision for Activities in certain geographical and sensitive areas.

Subsequently, Listing (R. 546) requires that a Basic Assessment Process be followed. It should however be noted that the Draft Guideline Document of DEA [Department of Environmental Affairs, (Previously known as the Department of Environmental Affairs and Tourism)] states that if an activity being applied for is made up of more than one listed activity, and the Scoping and EIA process is required for one or more of these activities, the Scoping and EIA process must be followed for the whole application.

Implications for development:

Significant- The application for the proposed development consist of activities listed under Notice R. 544 (Listing No. 1) and R. 546 (Listing No. 3) and therefore a Basic Assessment Report will be submitted to GDARD for consideration.

National Water Act, 1998 (Act No. 36 of 1998)	National & Provincial	20 August 1998
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The purpose of this Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways that take into account, amongst other factors, the following:

- Meeting the basic human needs of present and future generations;
- Promoting equitable access to water;
- Promoting the efficient, sustainable and beneficial use of water in the public interest;
- Reducing and preventing pollution and degradation of water resources;
- Facilitating social and economic development; and
- Providing for the growing demand for water use.

In terms of the section 21 of the National Water Act, the developer must obtain water use licences if the following activities are taking place:

- a) Taking water from a water resource;
- b) Storing water;
- c) Impeding or diverting the flow of water in a water course;
- d) Engaging in a stream flow reduction activity contemplated in section 36;
- e) Engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1);
- f) Discharging waste or water containing waste into a water resource through a pipeline, canal, sewer, sea outfall or other

- conduit;
- g) Disposing of waste in a manner which may detrimentally impact on a water resource;
- h) Disposing in any manner which contains waste from or which has been heated in any industrial or power generation process;
- i) Altering the bed, banks, course or disposing of water found underground if it is necessary for the safety of people;
- j) Removing, discharging, or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and
- k) Using water for recreational purposes.

The National Water Act also requires that (where applicable) the 1:50 and 1:100 year flood line be indicated on all the development drawings (even the drawings for the external services) that are submitted for approval.

Implications for the Development

The proposed development is not subjected to flood lines of any natural stream or water course within an expected frequency of 1:50 and 1:100 years. A Perennial River is situated to the east of the proposed site. This delineated perennial river with its associated 32m buffer remains outside of the proposed development and therefore in terms of Section 21 of the National Water Act, the developer will not need any water licenses for the proposed development. Mitigation measures will be implemented to ensure the nearby stream is not affected. (Refer to Figure 3 – Hydrology Map)



Figure 3: Hydrology Map

Provincial

The NEMA: AQA serves to repeal the Atmospheric Pollution Prevention Act (45 of 1965) and various other laws dealing with air pollution and it provides a more comprehensive framework within which the critical question of air quality can be addressed.

The purpose of the Act is to set norms and standards that relate to:

- Institutional frameworks, roles and responsibilities
- Air quality management planning
- Air quality monitoring and information management
- Air quality management measures
- General compliance and enforcement.

Amongst other things, it is intended that the setting of norms and standards will achieve the following:

- The protection, restoration and enhancement of air quality in South Africa
- Increased public participation in the protection of air quality and improved public access to relevant and meaningful information about air quality.
- The reduction of risks to human health and the prevention of the degradation of air quality.

The Act describes various regulatory tools that should be developed to ensure the implementation and enforcement of air quality management plans. These include:

- Priority Areas, which are air pollution 'hot spots'.
- Listed Activities, which are 'problem' processes that require an Atmospheric Emission Licence.
- Controlled Emitters, which includes the setting of emission standards for 'classes' of emitters, such as motor vehicles, incinerators, etc.
- Control of Noise.
- Control of Odours.

Implications for the development

During the construction phase, dust and the generation of noise can become a significant factor, especially to the surrounding landowners. However if the development is well planned and the mitigating measures are successfully implemented the proposed development's contribution to air pollution and the generation of air pollution can become less significant.

National Heritage Resources Act, 1999 (Act No. 45 of 1965 (NHRA))	National & Provincial	April 1965
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The National Heritage Resources Act legislates the necessity and heritage impact assessment in areas earmarked for development, which exceed 0.5ha. The Act makes provision for the potential destruction to existing sites, pending the archaeologist's recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA).

Implications for the development

The National Cultural History Museum compiled a survey for the whole Eco Park Development of which the proposed Highveld X55 development forms a part of. A few sites dating to historical times were identified, however none of these were judged to be of significance and the documentation thereof as part of the project can be taken as sufficient and there is no reason why the proposed development can not continue in the area. **(Refer to Appendix G2 – Cultural and Historical Assessment)**

National Environmental Management Protected Areas Act, 2003 (Act No. 57 of 2003)	National	2003
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The purpose of this application is to provide for the protection and conservation of ecological viable areas representative of South Africa's biological diversity and its natural land scapes.

Implications for the development

Not significant. This Act will not have to be considered for the application as the study area does not fall in any protected areas. **(Refer to Figure 4 – Protected areas).**

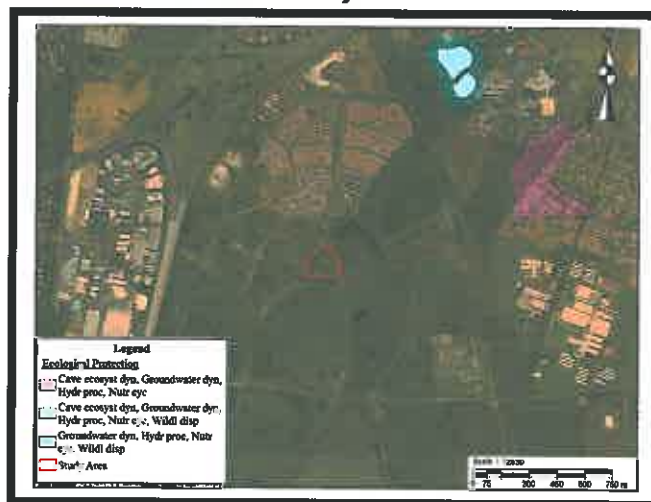


Figure 4: Protected areas

National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004)	National	2004
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The Biodiversity Act, provides for the management and protection of the country's biodiversity within the framework established by NEMA. It provides for the protection of species and ecosystems in need of protection, sustainable use of indigenous biological resources, equity and bioprospecting, and the establishment of a regulatory body on biodiversity- **South African Biodiversity Institute.**

Objectives of the Act:

(a) With the framework of the National Environmental Management Act, to provide for:

- (i) The management and conservation of biological diversity within the Republic and of the components of such biological diversity;
- (ii) The use of indigenous biological resources in a sustainable manner; and
- (iii) The fair and equitable sharing among stakeholders of benefits arising from bio-prospecting involving indigenous biological resources;

(b) To give effect to ratified international agreements relating to biodiversity which are binding on the republic;

(c) To provide for co-operative governance in biodiversity management and conservation; and

(d) To provide for a South African National Biodiversity Institute to assist in achieving the objectives of this Act.

Implications for proposed development:

In terms of the GDARD C-Plan no sites of ecological importance such as sensitivity, irreplaceable sites and or ecological protection has been identified and therefore this Act is not applicable. **(Refer to Figure 5 – Irreplaceable Sites and Figure 6 – Sensitivity map)**



Figure 5: Irreplaceable Sites

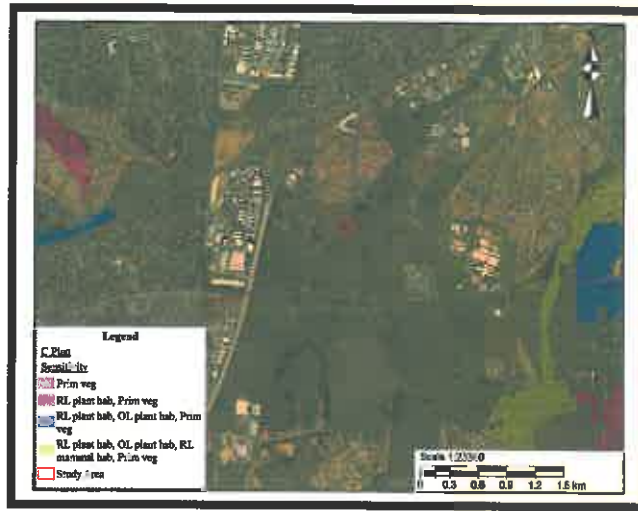


Figure 6: Sensitivity map

GDARD Draft Ridges Policy	Provincial	2007
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The main purpose of the draft Red Data Policy is to protect red data plant species in Gauteng Province. This policy requires that red data species remain in situ and it gives priority ratings (based on where they occur) to the different Red Data species. If Red Data species are discovered on the study area this policy will have relevance and it should be described in detail as to how it is applicable to this project in the BA report.

Implications for the development

The policy will not have to be considered for the application as the study area does not fall on a ridge or in a buffer zone of any ridge. (Refer to Figure 7 – Ridges Map)



Figure 7: Ridges

Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	National	1 June 1983
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This act provides for control over the utilization of natural agricultural resources of South Africa in order to promote the conservation of soil, water sources and the vegetation as well as the combating of weeds and invader plants; and for matters connecting therewith.

Implications for the development

Not Significant. In terms of the GDARD C-Plan the study area is regarded as having a very low to none agricultural potential. **(Refer to Figure 8 – Agricultural potential map)**



Figure 8: Agricultural Potential

GDARD Agricultural Hub Policy	Provincial	2006
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GDARD identified 7 Agricultural Hubs in Gauteng province. These hubs are earmarked for agricultural activities and there are policies and guidelines that should be taken into consideration when one plans to develop in these hubs areas. Urban development is usually not supported in these hubs.

Implications for the development

Not significant. The study area is not situated within any of the 7 agricultural hubs identified for Gauteng.

Gauteng Urban Edge 2008 / 2009	Provincial	2009
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According to Mr. Neels du Toit of the Gauteng Department of Economic Development the urban edge is now delineated on a yearly basis and it is the responsibility of the local authorities to request for a yearly amendment to the urban edge.

From this year onwards the urban edge will be reviewed at the end of September and it will be adjusted to be in accordance with the proposals supplied by the various local authorities.

Implication for the development

The study area is included into the urban edge as indicated on the spatial development framework, the 2007 provincial urban edge and into the revised 2008 / 2009 urban edge. The proposed development is regarded as in line with this policy. **(Refer to Figure 9 – Urban Edge map)**

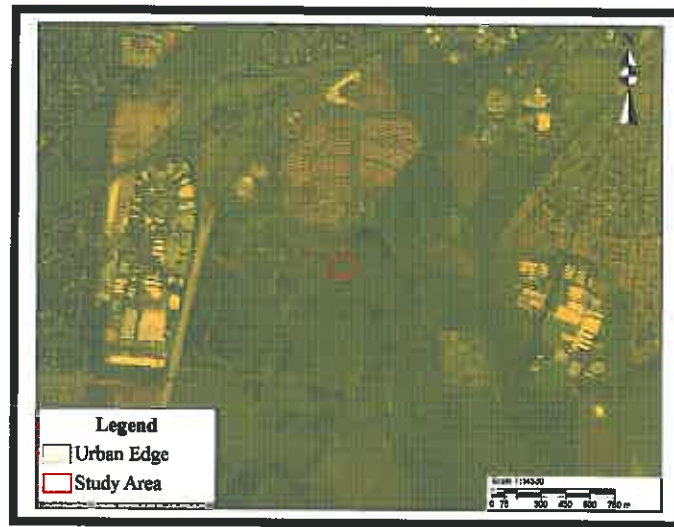


Figure 9: Urban Edge

National Environmental Management: Waste Act (Act 59 of 2009)	National	11 June 2010
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This Act came into effect on 11 June 2009. It aims to consolidate waste management in South Africa, and contains a number of commendable provisions, including:

- The establishment of a national waste management strategy, and national and provincial norms and standards, for amongst other, the classification of waste, waste service delivery, and tariffs for such waste services;
- Addressing reduction, reuse, recycling and recovery of waste;
- The requirements for industry and local government to prepare integrated waste management plans;
- The establishment of control over contaminated land;
- Identifying waste management activities that requires a license, which currently include facilities for the storage, transfer, recycling, recovery, treatment and disposal of waste on land;
- Co-operative governance in issuing licenses for waste management facilities, by means of which a licensing authority

- can issue an integrated or consolidated license jointly with other organs of state that has legislative control over the activity; and
- The establishment of a national waste information system.

Implication for the development:

Not Significant – No waste management license will be required during the construction or operational phases of the proposed Township. Due to the fact that a limited amount of solid construction waste will be stored and handled on the site, before it is hauled away and dumped at the nearest registered landfill site.

Gauteng Noise Control Regulations, 1999	Provincial	1999
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The regulation controls noise pollution. According to the acceptable noise levels in a residential area situated within an urban area is 55dBA and the maximum acceptable noise levels in a rural area is 45dBA.

Implications for the Development:

Within the construction phase of the proposed development, the impact of noise could be problematic, but such impacts are generally short term. One should note that practical mitigation measures for noise pollution are low, but certain measures can be implemented to mitigate the severity. **(Please Refer to Appendix H (EMP) for a list of suitable guidelines and mitigation measures)**

The Gauteng Transport Infrastructure Act, 2001	Provincial	2001
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The Act was created to consolidate the laws relating to roads and other types of transport infrastructure in Gauteng; and to provide for the planning, design, development, construction, financing, management, control, maintenance, protection and rehabilitation of provincial roads, railway lines and other transport infrastructure in Gauteng; and to provide for matter connected therewith.

Implications for the proposed development

All developments in Gauteng must take the Gauteng Road network as published into consideration and no development may be planned across any provincial or K-route.

(Refer to Figure 10 – Existing Roads map)



Figure 10: Existing Roads

3. ALTERNATIVES

Describe the proposal and alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. The determination of whether the site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment.

The no-go option must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. Do not include the no go option into the alternative table below.

Note: After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Provide a description of the alternatives considered

No.	Alternative type, either alternative, site or property, properties, activity design, technology, operational or other (provide details of "other")	Description
1	Proposal	<p>The purpose of the application is to establish a proposed mixed use development consisting of the following land-uses and zonings:</p> <ul style="list-style-type: none"> • "Landscaping" • "Social Facilities" • "Private Open Space" • "Places of Education" • "Shops" • "Recreational Facilities" • "Office"

		<ul style="list-style-type: none"> • "Places of Refreshment" • "Public Transportation Facilities"
2	Alternative 2	Light Industrial purposes

In the event that no alternative(s) has/have been provided, a motivation must be included in the table below.)

"The purpose of this application is to create an urban setting which allows for the dynamic interaction between residential units, offices, commercial and social facilities. The proposed development will enhance the aesthetic value of the area and is in line with planning concepts such as infill development within the urban edge, and the higher intensity utilization of land. The proposed development can be motivated under three spheres viz. the need for landscaped open spaces; the need for social facilities; and the need for place-making in densely populated areas.

The proposed development on Erf 2979 bisects the green belt formed by the Eco Park Boulevard Road reserve, Erf 11 of Highveld Extension 114, Erf 2978 of Highveld Extension 55, and Erf 3079 of Highveld Extension 75. This placement of the subject property stresses its importance in the spatial context of Eco-Park. Therefore It is important to note that the proposed development will not influence the cohesion of the public open spaces due to the fact that the primary land-use viz. "Open Space" will remain unchanged with only the addition of a social facility that will be integrated with the landscaped surroundings.

In the surrounding community there exists a need for social facilities such as libraries, crèches and recreational facilities. This is a well-documented fact and is the focus point of several development policies in South Africa. Highveld Extension 120 offers an Erf measuring approximately 2.5 hectares, for the development of an educational facility, but does not offer any other social facilities in the direct vicinity.

Eco Park houses approximately 2500 families, and it can be acknowledged that there will be a necessity for recreational facilities in the direct vicinity. The subject property is ideally located for this purpose in close proximity to the proposed educational facility as well as on the pedestrian and vehicle route between the educational facility and the Eco Park Residential Estate. The proposed development is also on the new Gautrain Bus Route and can offer potential users a place to socialize and refresh while waiting for the bus.

The mentality of providing erven for "Open Space" only to leave it barren and let it fall into disrepair, is an out-dated school of thought. As residential areas become denser, a need is created for more functional "Open Spaces" that add value to the surrounding

properties. The proposed development on Erf 2979 Highveld Extension 55 will allow 'place-making' on the otherwise barren vacant land. It will allow the enclave to be utilized by the general public while providing them with landscaped gardens and open space for recreational purposes.

Even though the property is encumbered by three servitudes, the buildable area of 1.2 hectare on the application site is of sufficient size to accommodate the proposed development and will have no detrimental effect on the surrounding properties. The proposed development is located in a market area where a demand for daily necessities, convenience retail as well as specialty / niche retail exists. The proposed development will also have a positive contribution to the local economy as well as on municipal income.

The proposed development will meet the demand from residential, commercial and retail developments for 'Green Open Spaces' and will aid in limiting the disturbance to the environment as illegal squatting and dumping is usually in accordance with vacant, undeveloped and un-maintained open land. Invader and alien plant species could also become a significant factor to consider, as these species usually infest areas of disturbance and neglect. The development will therefore improve the local infrastructure and improve service delivery to the area.

The proposed development will create various work opportunities during the construction and operational phases and will offer local residents an opportunity to work close to home.

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the total physical size (footprint) of the proposal as well as alternatives. Footprints are to include all new infrastructure (roads, services etc), impermeable surfaces and landscaped areas:

Alternative:

- Alternative 1(Proposed activity)
- Alternative 2 (if any)

Size of the activity:

1, 9035
1, 9035

Ha

or, for linear activities:

Alternative:

- Alternative 1(Proposed activity)
- Alternative 2 (if any)
- Alternative 3 (if any)

Length of the activity:

N/A

m/km

Indicate the size of the site(s) or servitudes (within which the above footprints will occur):

Alternative:

- Alternative 1(Proposed activity)
- Alternative 2 (if any)
- Alternative 3 (if any)

Size of the site/servitude:

1, 9035
1, 9035

Ha/m²

5. SITE ACCESS

Alternative 1 (Proposal)

Does ready access to the site exist, or is access directly from an existing road?

YES	NO
X	

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

Access to the proposed development can only be obtained by the existing Tamarillo Street. Tamarillo Street forms a part of Eco Park Boulevard which connects with Olievenhoutbosch Road (M36). Tamarillo Street provides adequate access to the proposed development. No new infrastructure is required for this proposed development. (Refer to Figure 10: Existing Road Map)

Include the position of the access road on the site plan.

Alternative 2

Does ready access to the site exist, or is access directly from an existing road?

YES	NO
X	
	m

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

Access to the proposed development can only be obtained by the existing Tamarillo Street. Tamarillo Street forms a part of Eco Park Boulevard which connects with Olievenhoutbosch Road (M36). Tamarillo Street provides adequate access to the proposed development. No new infrastructure is required for this proposed development. (Refer to Figure 10: Existing Road Map)

Include the position of the access road on the site plan.

Alternative 3

Does ready access to the site exist, or is access directly from an existing road?

If NO, what is the distance over which a new access road will be built

YES	NO
	m

Describe the type of access road planned:

Include the position of the access road on the site plan.

PLEASE NOTE: Points 6 to 8 of Section A must be duplicated where relevant for alternatives

Section A 6-8 has been duplicated

0

Number of times

(only complete when applicable)

6. SITE OR ROUTE PLAN

A detailed site or route (for linear activities) plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document. The site or route plans must indicate the following:

- the scale of the plan, which must be at least a scale of 1:2000 (scale can not be larger than 1:2000 i.e. scale can not be 1:2500 but could where applicable be 1:1500)
- the property boundaries and numbers of all the properties within 50m of the site;
- the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- the exact position of each element of the application as well as any other structures on the site;
- the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, septic tanks, storm water infrastructure and telecommunication infrastructure;
- walls and fencing including details of the height and construction material;
- servitudes indicating the purpose of the servitude;

- sensitive environmental elements on and within 100m of the site or sites including (but not limited thereto):
 - Rivers and wetlands;
 - the 1:100 and 1:50 year flood line;
 - ridges;
 - cultural and historical features;
 - areas with indigenous vegetation (even if it is degraded or infested with alien species);
- for gentle slopes the 1m contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
- the positions from where photographs of the site were taken.
- Where a watercourse is located on the site at least one cross section of the water course must be included (to allow the 32m position from the bank to be clearly indicated)

7. SITE PHOTOGRAPHS

Colour photographs from the center of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under the appropriate Appendix. It should be supplemented with additional photographs of relevant features on the site, where applicable.

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity. To be attached in the appropriate Appendix.

SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT

Note: Complete Section B for the proposal

Further:

Instructions for completion of Section B for linear activities

- 1) For linear activities (pipelines etc) it may be necessary to complete Section B for each section of the site that has a significantly different environment.
- 2) Indicate on a plan(s) the different environments identified
- 3) Complete Section B for each of the above areas identified
- 4) Attach to this form in a chronological order
- 5) Each copy of Section B must clearly indicate the corresponding sections of the route at the top of the next page.

Section B has been duplicated for sections of the route times

Instructions for completion of Section B for location/route alternatives

- 1) For each location/route alternative identified the entire Section B needs to be completed
- 2) Each alternative location/route needs to be clearly indicated at the top of the next page
- 3) Attach the above documents in a chronological order

Section B has been duplicated for location/route alternatives times
(complete only when appropriate)

Instructions for completion of Section B when both location/route alternatives and linear activities are applicable for the application

Section B is to be completed and attachments order in the following way

- All significantly different environments identified for Alternative 2 is to be completed and attached in a chronological order; then
- all significantly different environments identified for Alternative 3 is to be completed and attached chronological order
- etc

Section B - Section of Route (complete only when appropriate for above)

Section B - Location/route Alternative No. (complete only when appropriate for above)

1. PROPERTY DESCRIPTION

Property description:

Erf 2979 Highveld X55, previously known as Portion 157 of the Farm Brakfontein 390-JR.

(Farm name, portion etc.)

2. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Alternative:

Latitude (S):	Longitude (E):
25°88'60.78" S	28°17'52.23" E

In the case of linear activities:

Alternative:

- Starting point of the activity
- Middle point of the activity
- End point of the activity

Latitude (S):	Longitude (E):
°	°
°	°
°	°

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

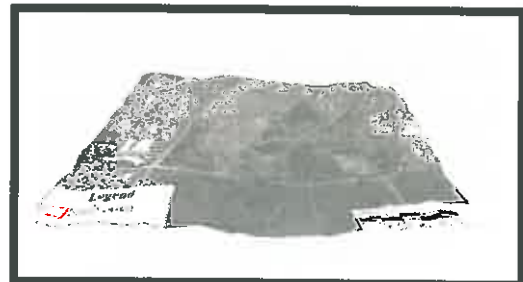
Addendum of route alternatives attached

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	-------------	-------------	-------------	--------------	-------------	------------------

According to a Desktop Study conducted by using GIS and GDIS Data, the study area has a slope of between 0% and 5%. (Refer to Figure 11: Slope Map)



Implications for the proposed development:

Not significant. The proposed development site has no steep slopes; therefore no complicated structures will need to be built.

Figure 11 and 12: Slope Map & 3D Illustration

4. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site.

Ridgeline	Plateau	Side slope of hill/ridge	Valley	Plain	Undulating plain/low hills	River front
-----------	---------	--------------------------	--------	--------------	----------------------------	-------------

5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Please note for clarity purposes all figures within the Basic Assessment for Sunderland Ridge Ext 30 is in a larger format at the back of the Report as Appendix J.

- a) Is the site located on any of the following?
- Shallow water table (less than 1.5m deep)
 - Dolomite, sinkhole or doline areas
 - Seasonally wet soils (often close to water bodies)
 - Unstable rocky slopes or steep slopes with loose soil
 - Dispersive soils (soils that dissolve in water)
 - Soils with high clay content (clay fraction more than 40%)
 - Any other unstable soil or geological feature
 - An area sensitive to erosion

YES	NO
YES	NO
YES	NO
YES	NO
YES	NO
YES	NO
YES	NO
YES	NO

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

A Desktop Geotechnical and Dolomite Stability Study was conducted by using GIS and GDIS Data from GDARD which showed that the study area does not fall in a dolomitic area. Although the study area does not fall within the immediate vicinity of the dolomite area, the prevailing dolomitic conditions in the area were considered mitigation measures were incorporated into this report. **(Refer to Figure 13: Dolomite Map and Figure 14: Soils Map).**



Figure 13: Dolomite Map



Figure 14: Soils Map

The following recommendations might be applicable to the proposed development site:

- **Groundwater**
It is recommended that provision be made to address conditions relating to perched water which may result in treacherous excavations and may hamper construction.

Soilkraft CC has stated that the report does not constitute for a purpose specific investigation on the study area and the site must be reconsidered and assessed for such specific purpose and investigated on a so-called footprint basis.

b) are any caves located on the site(s) YES NO

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	Longitude (E):

c) are any caves located within a 300m radius of the site(s) YES NO

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	Longitude (E):

d) are any sinkholes located within a 300m radius of the site(s) YES NO

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	Longitude (E):

If any of the answers to the above are "YES" or "unsure", specialist input may be requested by the Department

6. AGRICULTURE

No Agricultural Potential Study was recommended by GDARD Biodiversity Information, for the proposed development, therefore no Agricultural Potential Study was conducted. A Desktop Study was done by using GIS and GDIS Data from GDARD and showed that the study area had low to none agricultural potential. It can be concluded that the proposed development will have no significant impact on the environment. **(Refer to Figure 8: Agricultural Potential Map)**

Implications for the proposed development:

Not significant. The proposed development will have no negative economic or social impact on the Agricultural Land of the Gauteng Province. The study area falls within an area which is considered to be have a very low to none agricultural potential.

Does the site have high potential agricultural soils as contemplated in the Gauteng Agricultural Potential Atlas (GAPA)?

YES	NO
-----	-----------

Please note: The Department may request specialist input/studies depending on the nature of the soil type and location of the site

7. GROUNDCOVER

GDARD Biodiversity Information did not request that a study be compiled for the Flora and Fauna on the proposed site. Therefore, no study was conducted for these aspects.

However, it was recommended to verify the presence of a wetland and a specialist was appointed to conduct the relevant study. The study area was found to have been subjected to high levels of soil disturbances and topographical alterations. No 'true' wetlands were identified, although vegetation known to indicate the presence of wetlands was found. **(Refer to Appendix G1 – Wetland Verification Assessment)**

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

Natural veld - good condition % =	Natural veld with scattered aliens % =	Natural veld with heavy alien infestation % = 95%	Veld dominated by alien species % = 5%	Landscaped (vegetation) % =
Sport field % =	Cultivated land % =	Paved surface (hard landscaping) % =	Building or other structure % =	Bare soil % =

Please note: The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

BASIC ASSESSMENT REPORT [REGULATION 22(1)]

Are there any rare or endangered flora or fauna species (including red list species) present on the site

YES	NO X
-----	---------

If YES, specify and explain:

Not applicable

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m (if within urban edge, May 2002) or within 600m (if outside the urban edge, May 2002) radius of the site

YES	NO X
-----	---------

If YES, specify and explain:

Not applicable.

Are there any special or sensitive habitats or other natural features present on the site?

YES	NO X
-----	---------

If YES, specify and explain:

Not applicable

Was a specialist consulted to assist with completing this section

YES X	NO
----------	----

If yes complete specialist details:

Name of the specialist:	Stephen van Staden		
Qualification(s) of the specialist: Professional Registration	Pri. Sci. Nat		
Postal address:	347 Highland Road, Kensington		
Postal code:	2094		
Telephone:	(011) 616 7893	Cell:	083 425 2356
E-mail:	admin@sasenvironmental.co.za	Fax:	(011) 615 4106
Are any further specialist studies recommended by the specialist?	YES	NO X	

If YES, specify:

GDARD Biodiversity Information did require the verification of the absence of wetlands on the site, and therefore a Wetland Delineation Study was compiled by Scientific Aquatic Services.

The study concluded that no 'true' wetland or wetland features were present on the site, although plant species occur on site which is known to be wetland indicators. The Wetland specialist indicated that the study site has been subjected to high levels of soil disturbance and topographical alterations due to previous and current construction activities on and in the vicinity of the site.

It was also concluded that the site consists of vertic clays. These soils will retain moisture for extended periods of time which has allowed for facultative wetland species to become established even though no true wetland conditions exist.

The species which occur on site are *Imperata cylindrical* and *Phragmites australis*. These species are facultative wetland species, but are also known to colonize disturbed land areas.

	<p>The construction of drainage canals on site has led to concentrated flow in certain areas. Therefore adequate wetness persists which allows the establishment of facultative wetland vegetation.</p> <p>Scientific Aquatic Services concluded that the drainage features on the study site can be considered to be artificial drainage lines and are not true wetlands. They area also considered to have very limited ecological function, integrity and service provision.</p> <p>Implications for the proposed development: Not significant. The proposed development does not fall within a wetland or wetland feature and will take place on highly disturbed soils. Therefore the proposed development will have no significant impact.</p>		
If YES, is such a report(s) attached?		YES X	NO
Appendix G1: Wetland Verification Assessment by Scientific Aquatic Services dated 14 October 2011.			
Signature of specialist:		Date:	October 2011

Please note; If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

NOTE: Each block represents an area of 250m X250m

1. Vacant land	2. River, stream, wetland	3. Nature conservation area	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	9. Medium to high density residential	10. Informal residential
11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial ^{AN}	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport ^N	23. Train station or shunting yard ^N	24. Railway line ^N	25. Major road (4 lanes or more) ^N
26. Sewage treatment plant ^A	27. Landfill or waste treatment site ^A	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33. Spoil heap or slimes dam ^A	34. Small Holdings	
Other land uses (describe):	35. Nursery			


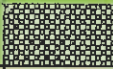
	NORTH					
	13	13	9	9	9	 = Site
	13	9	9	1	1	
WEST	1	9		1	1	
	1	1	1	1	1	
	13	1	1	1	1	
	SOUTH					EAST



Figure 15: Land-use Map

Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "A" and with an "N" respectively.

Have specialist reports been attached

YES	NO X
-----	---------

If yes indicate the **type** of reports below

Not applicable.

9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

The proposed application site is situated within the suburb of Eco Park, which in turn is located in the south-eastern quadrant of the N1-N14 Interchange in the southern part of Centurion. Furthermore, the site is located in an urban setting which allows for a dynamic interaction between residential units, offices, commercial and social facilities.

The Tshwane Open Space Development Framework emphasizes the need for ecological, socio-economic and place-making open space which allows for natural systems to function. This is essential for human beings to exist and vital in the healing of people and communities.

The application site has been subjected to high levels of soil disturbance and topographical alteration due to current and previous construction in the vicinity. Vegetation were identified which area indicators of wetlands, but they also colonized disturbed areas.

Although there is a wide array of documentation guiding Open Space planning and development, reference can be made to the following sources: The City Vision; The City Development Strategy (CDS); The Metropolitan Spatial Development Framework (MSDF); The Tshwane Integrated Environmental Policy (TIEP); and The vision of the Environmental Management Division.

The motivation for the proposed development that Erf 2979 bisects the green belt formed by the Eco Park Boulevard road reserve, with stresses the importance of the site in the spatial context of Eco Park. The proposed site will not influence the cohesion of the public open spaces, but with the addition of a social facility, be integrated into the landscape surroundings.

The need for social facilities (e.g. libraries, crèches and recreational facilities) is a well-documented fact and is the subject focus point of several development policies in South Africa. The proposed development can be of great importance to the community since the property is ideally located in close proximity to a proposed educational facility and pedestrian and vehicle routes connecting the educational facility with the residential estate.

Implications for the development:

The proposed development ideally falls within the development framework set out for this area. The development will provide green open space for the surrounding residential development, known as Eco Park, as well as a "Place of Refreshment" for offices and commercial development vicinity.

The proposed development is situated next to vacant, undeveloped land and can provide for more developments to take place. It will also allow the community to take ownership of the area they live in and will encourage social interaction between members of the community.

10. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alterantives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

- (a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- (b) the construction of a bridge or similar structure exceeding 50m in length;
- (c) any development or other activity which will change the character of a site-
 - (i) exceeding 5 000 m2 in extent; or
 - (ii) involving three or more existing erven or subdivisions thereof; or
 - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
 - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- (d) the re-zoning of a site exceeding 10 000 m2 in extent; or
- (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site?
If YES, explain:

YES	NO X
-----	-----------------------

Not applicable

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

The survey was compiled by the National Cultural History Museum (dated 2001) and was done for the whole area known as Eco Park. The area that was investigated is located on the Farm Brakfontein 390-JR, and is bordered by the R28/N1 on the northern side and the N1/M1 on the western side. Large sections of the study area were subjected to agricultural activities in the past and many areas are quite wet as it forms part of a vlei area.

National Cultural History Museum noted that stone tools, especially from the Middle Stone Age, are known to occur in a number of places in the larger geographical area, but none were found in the study area. No Iron Age sites were identified either.

A few sites of historical dates were identified and documented. These sites were judge to be of insignificance, and that the documentation thereof was sufficient for the purpose of this proposed development.

National Cultural History Museum concluded that based on what was

found and evaluated on the study area, the proposed development of Highveld X55 can continue subject to the acceptance of the following recommendations:

- The site identified as a possible grave should be investigated before development takes place; and
- The developer should be notified that archaeological sites might be exposed during the construction work. If anything is noticed, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made

Will any building or structure older than 60 years be affected in any way?

YES	NO X
YES	NO X

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

If yes, please attached the comments from SAHRA in the appropriate Appendix

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT

The Environmental Assessment Practitioner must follow any relevant guidelines adopted by the competent authority in respect of public participation and must at least –

- 1(a) Fix a notice in a conspicuous place, on the property where it is intended to undertake the activity which states that an application will be submitted to the competent authority in terms of these regulations and which provides information on the proposed nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations on the application may be made.
- 1(b) inform landowners and occupiers of adjacent land of the applicant's intention to submit an application to the competent authority
- 1(c) inform landowners and occupiers of land within 100 metres of the boundary of the property where it is proposed to undertake the activity and whom may be directly affected by the proposed activity of the applicant's intention to submit an application to the competent authority;
- 1(d) inform the ward councillor and any organisation that represents the community in the area of the applicant's intention to submit an application to the competent authority;
- 1(e) inform the municipality which has jurisdiction over the area in which the proposed activity will be undertaken of the applicant's intention to submit an application to the competent authority; and
- 1(f) inform any organ of state that may have jurisdiction over any aspect of the activity of the applicant's intention to submit an application to the competent authority; and
- 1(g) place a notice in one local newspaper and any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of these regulations.

2. LOCAL AUTHORITY PARTICIPATION

Local authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least 30 (thirty) calendar days before the submission of the application.

Has any comment been received from the local authority?

YES	NO X
-----	---------

If "YES", briefly describe the comment below (also attach any correspondence to and from the local authority to this application):

If "NO" briefly explain why no comments have been received

The DBAR will be made available to CoT for a period of 40 days commencing from 22 October 2013. Comments will be received from the Local Authority, The City of Tshwane, once the Draft Basic Assessment Report (BA) was available for public review.

3. CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the site or property, such as servitude holders and service providers, should be informed of the application at least 30 (thirty) calendar days before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?

YES	NO
X	

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

Comments were received from the following stakeholders:

- DWA: Requested a copy of the DBAR once it is available.
- Department of Sports, Arts, Culture and Recreation: Acknowledge receipt of the email that was send from Bokamoso informing the Department of the Notice (Public Participation period).

If "NO" briefly explain why no comments have been received

--

4. GENERAL PUBLIC PARTICIPATION REQUIREMENTS

The Environmental Assessment Practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees and ratepayers associations. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

The practitioner must record all comments and respond to each comment of the public / interested and affected party before the application is submitted. The comments and responses must be captured in a Comments and Responses Report as prescribed in the regulations and be attached to this application.

5. APPENDICES FOR PUBLIC PARTICIPATION

All public participation information is to be attached in the appropriate Appendix. The information in this Appendix is to be ordered as detailed below

- Appendix 1 – Proof of site notice
- Appendix 2 – written notices issued to those persons detailed in 1(b) to 1(f) above
- Appendix 3 – Proof of newspaper advertisements
- Appendix 4 – Communications to and from persons detailed in Point 2 and 3 above
- Appendix 5 – minutes of any public and or stakeholder meetings
- Appendix 6 - Comments and Responses Report
- Appendix 7 –Comments from I&APs on Basic Assessment (BA) Report
- Appendix 8 –Comments from I&APs on amendments to the BA report
- Appendix 9 – Copy of the register of I&APs
- Appendix 10 – Comments from I&APs on the application
- Appendix 11 - Other

SECTION D: RESOURCE USE AND PROCESS DETAILS

Note: Section D is to be completed for the proposal

Instructions for completion of Section D for alternatives

- 1) For each alternative under investigation, where such alternatives will have different resource and process details (e.g. technology alternative), the entire Section D needs to be completed
- 4) Each alternative needs to be clearly indicated in the box below
- 5) Attach the above documents in a chronological order

Section D has been duplicated for alternatives times
(complete only when appropriate)

Section D Alternative No. (complete only when appropriate for above)

1. WASTE, EFFLUENT, AND EMISSION MANAGEMENT

Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

YES	NO
X	
Not Available	

If yes, what estimated quantity will be produced per month?

How will the construction solid waste be disposed of (describe)?

An area on the study site will be set apart for the dumping of solid waste to be disposed of during the construction phase. The demarcated area must be accessible to dumping trucks for the collection of waste. Waste will be disposed of at the nearest, registered and approved landfill site.

Where will the construction solid waste be disposed of (describe)?

The Waste Group (Pty) Ltd confirmed that they are able to render the waste removal services for the proposed development. The nearest approved and registered landfill site is the Mooiplaats Landfill Site (GLB-) and waste will be disposed of there.

Will the activity produce solid waste during its operational phase?

YES	NO
X	
Not available	

If yes, what estimated quantity will be produced per month?

How will the solid waste be disposed of (describe)?

During the Operational Phase, the disposal of all solid waste will be the responsibility of the Local Authority, the City of Tshwane and all solid wastes generated will be at a registered and approved landfill site.

Has the municipality or relevant service provider confirmed that sufficient air space exists for treating/disposing of the solid waste to be generated by this activity?

YES	NO
X	

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

Not applicable

Note: If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

BASIC ASSESSMENT REPORT [REGULATION 22(1)]

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?

YES	NO X
-----	----------------

If yes, inform the competent authority and request a change to an application for scoping and EIA.
Is the activity that is being applied for a solid waste handling or treatment facility?

YES	NO X
-----	----------------

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Describe the measures, if any, that will be taken to ensure the optimal reuse or recycling of materials:

No extreme measures will be in place to ensure the re-use or recycling of materials. Collection bins for glass, paper and tin can be provided for recycling purposes.

Liquid effluent (other than domestic sewage)

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

YES	NO X
-----	----------------

If yes, what estimated quantity will be produced per month?

Not Applicable	
-------------------	--

If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the liquid effluent to be generated by this activity(ies)?

Yes	No
-----	----

Will the activity produce any effluent that will be treated and/or disposed of on site?

Yes	NO X
-----	----------------

If yes, what estimated quantity will be produced per month?

Not Applicable	
-------------------	--

If yes describe the nature of the effluent and how it will be disposed.

Not Applicable

Note that if effluent is to be treated or disposed on site the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA

Will the activity produce effluent that will be treated and/or disposed of at another facility?

YES	NO X
-----	----------------

If yes, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

Not applicable

Liquid effluent (domestic sewage)

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system?

YES X	NO
-----------------	----

If yes, what estimated quantity will be produced per month?

Not available	
------------------	--

If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity(ies)?

YES X	NO
-----------------	----

Will the activity produce any effluent that will be treated and/or disposed of on site?

YES	NO X
-----	----------------

If yes describe how it will be treated and disposed off.

Not applicable

Emissions Into the atmosphere

Will the activity release emissions into the atmosphere?

YES	NO X
-----	----------------

If yes, is it controlled by any legislation of any sphere of government?

Yes	No
-----	----

BASIC ASSESSMENT REPORT [REGULATION 22(1)]

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the emissions in terms of type and concentration:

Not significant. The only emissions that will be emitted into the atmosphere as a result of the development will be additional traffic exhaust fumes.

2. WATER USE

Indicate the source(s) of water that will be used for the activity

Municipal	Directly from water board	groundwater	river, stream, dam or lake	other	the activity will not use water
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

Not
Applicable

If Yes, please attach proof of assurance of water supply, e.g. yield of borehole, in the appropriate Appendix

Does the activity require a water use permit from the Department of Water Affairs and Forestry?

YES	NO X
-----	----------------

If yes, list the permits required

Not applicable

If yes, have you applied for the water use permit(s)?

Yes	No
Yes	No

If yes, have you received approval(s)? (attached in appropriate appendix)

3. POWER SUPPLY

Please indicate the source of power supply eg. Municipality / Eskom / Renewable energy source

City of Tshwane Metropolitan Municipality.

If power supply is not available, where will power be sourced from?

Not Applicable

4. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

The following energy saving recommendations can be considered:

- Where possible, energy saving light bulbs must be used in all the facilities as well as the lighting used outdoors.
- Outdoor lighting can be fitted with a day/night switch to ensure that the lights are switched on and off at appropriate times.
- Geysers must be fitted with insulation blankets
- Solar panels can be used as an alternative to municipal energy.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

No extreme measures have been considered to ensure that the proposed development is energy efficient.

SECTION D: RESOURCE USE AND PROCESS DETAILS

Note: Section D is to be completed for the proposal

Instructions for completion of Section D for alternatives

- 2) For each alternative under investigation, where such alternatives will have different resource and process details (e.g. technology alternative), the entire Section D needs to be completed
- 6) Each alternative needs to be clearly indicated in the box below
- 7) Attach the above documents in a chronological order

Section D has been duplicated for alternatives 2 times
(complete only when appropriate)

Section D Alternative No. 2 (complete only when appropriate for above)

5. WASTE, EFFLUENT, AND EMISSION MANAGEMENT

Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

YES	NO
X	
Not Available	

If yes, what estimated quantity will be produced per month?

How will the construction solid waste be disposed of (describe)?

During the construction phase the disposal of solid waste will be the responsibility of the developer. An area on the application site will be earmarked for dumping of solid waste to be disposed of during construction. This area must be situated carefully not to be visual from the surrounding residents. The demarcated area must be easily accessible for dumping trucks to collect waste. The waste will be carted to registered landfill site. During the operational phase all disposal of solid waste will be the responsibility of the Local Authority.

Where will the construction solid waste be disposed of (describe)?

All construction solid waste will be disposed of at the nearest registered dumping site. No solid waste will be dumped on surrounding open areas or adjacent properties.

Will the activity produce solid waste during its operational phase?

YES	NO
X	
±2.5 kg / person / day	

If yes, what estimated quantity will be produced per month?

How will the solid waste be disposed of (describe)?

All the waste will be collected within the proposed development, where the relevant service provider will collect and dispose the waste once a week.

Has the municipality or relevant service provider confirmed that sufficient air space exists for treating/disposing of the solid waste to be generated by this activity?

YES	NO
X	

The Waste Group landfill Site:

There are +- 5 million m² of airspace available on phase 1
More than sufficient to accommodate the proposed developments in the Sunderland Ridge area
The waste group landfill site are the closest, thus they can collect the solid waste as well as recycling reducing therefore the solid waste streams and carbon footprint
Composting of Greens can also be accommodated.
Waste Group can thus do the physical collection as well as Landfill facility provision.

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

BASIC ASSESSMENT REPORT [REGULATION 22(1)]

The solid waste will be collected in bins on the application site and then dumped at the nearest dumping/landfill site on a weekly basis.

Note: If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?

YES	NO X
-----	----------------

If yes, inform the competent authority and request a change to an application for scoping and EIA.
Is the activity that is being applied for a solid waste handling or treatment facility?

YES	NO X
-----	----------------

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Describe the measures, if any, that will be taken to ensure the optimal reuse or recycling of materials:

Frequent correspondence between the different contractors on the proposed development will ensure optimum reuse and recycling of materials where possible. Furthermore it is proposed that all waste construction materials be sorted into recyclable and non-recyclable materials. The recyclable materials should be re-used where ever possible or disposed off by a recycling company.

Liquid effluent (other than domestic sewage)

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

YES	NO X
-----	----------------

If yes, what estimated quantity will be produced per month?

Not Applicable	
----------------	--

If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the liquid effluent to be generated by this activity(ies)?

Not Applicable	
----------------	--

Will the activity produce any effluent that will be treated and/or disposed of on site?

Yes	NO X
-----	----------------

If yes, what estimated quantity will be produced per month?

Not Applicable	
----------------	--

If yes describe the nature of the effluent and how it will be disposed.

Not Applicable

Note that if effluent is to be treated or disposed on site the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA

Will the activity produce effluent that will be treated and/or disposed of at another facility?

YES	NO X
-----	----------------

If yes, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

No Measures will be taken to ensure water re-use or recycling

Liquid effluent (domestic sewage)

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system?

YES X	NO
-----------------	----

If yes, what estimated quantity will be produced per month?

Approximately 450.24KI/day	
--------------------------------------	--

If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity(ies)?

YES	NO
-----	----

BASIC ASSESSMENT REPORT [REGULATION 22(1)]

Will the activity produce any effluent that will be treated and/or disposed of on site?

X	
YES	NO X

If yes describe how it will be treated and disposed off.

Not Applicable

Emissions Into the atmosphere

Will the activity release emissions into the atmosphere?

YES	NO X
Not Applicable	

If yes, is it controlled by any legislation of any sphere of government?

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the emissions in terms of type and concentration:

The proposed development will not generate any emissions. Only the additional vehicle traffic, exhaust fumes may have an influence, but is regarded as insignificant.

6. WATER USE

Indicate the source(s) of water that will be used for the activity

Municipal	Directly from water board	groundwater	river, stream, dam or lake	other	the activity will not use water
------------------	---------------------------	-------------	----------------------------	-------	---------------------------------

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

Not Applicable

If Yes, please attach proof of assurance of water supply, e.g. yield of borehole, in the appropriate Appendix

Does the activity require a water use permit from the Department of Water Affairs and Forestry?

YES	NO X
-----	-----------------------

If yes, list the permits required **Note: Although the answer is no, it was decided to supply some detail regarding the water use permit.**

In terms of the Section 21 of the National Water Act, the developer will not need any water licenses for the proposed development, as the proposed development is not influenced by any 1:50 or 1:100 year flood lines. Furthermore the proposed development are not in close proximity to any rivers or streams.

If yes, have you applied for the water use permit(s)?

Not Applicable

If yes, have you received approval(s)? (attached in appropriate appendix)

Not Applicable

7. POWER SUPPLY

Please indicate the source of power supply eg. Municipality / Eskom / Renewable energy source

City of Tshwane Metropolitan Municipality

If power supply is not available, where will power be sourced from?

Not Applicable

8. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

The following could be considered:

- Units could be orientated in a northern direction
- Where possible energy saving light bulbs must be used in all the units as well as outside
- Time switches must be used for outdoor lighting
- Geysers must be fitted with insulation blankets
- Solar panels can be used to heat the water and geysers and for outdoor lighting.

The developer is committed to search and investigate more solutions and opportunities to increase the sustainability of this development making it a project that will be a landmark on many levels.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

The following alternative energy sources can be considered:

Hydro Power

This option was rejected because the hydrological conditions required for hydro generation in this area could not be met i.e. water quantity, etc

Wind turbines

This option was rejected because the wind conditions required cannot be met in this region.

Biomass

This option was rejected because the fuel required for producing electricity is not locally available, the distance between the source of biomass and the power plant must be short for economic viability.

Gas

This option was rejected because natural gas is not available and the Egoli Gas pipeline is remote and the energy spent in processing the gas and transporting it affects the viability of this process.

Coal fired generation

This option was rejected because of the distance from the coal fields and because pollution is not allowed in this area.

Nuclear

This option could not be considered due to South Africa's nuclear policy.

Solar

Solar power generation will be encouraged with each individual development however cannot be considered as the prime generation system due to the 24 hour power requirements of the industrial, residential, office/business park etc. projects.

SECTION E: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2006, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summarise the issues raised by interested and affected parties.

- Bokamoso was "cc'd" on an email from Eco Park Estate informing all their residents of the proposed development. No further comments or registration from I&AP's was received.
- Mr. Pragason phoned Bokamoso and requested telephonically that a copy of the notice, locality and aerial map be forwarded to him.
- No other communication was received from any other Interested and Affected Parties. **(Please refer to Appendix E6 for the Comments and Response Report.)**

Summary of response from the practitioner to the issues raised by the interested and affected parties
(A full response must be provided in the Comments and Response Report that must be attached to this report):

- No comments or correspondence was received from any Eco Park Estate Resident;
- A copy of the notice, locality and aerial map was emailed to Mr. Pragason on 23 September 2013. No further correspondence was received from Mr. Pragason.

2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION AND OPERATIONAL PHASE

Briefly describe the methodology utilised in the rating of significance of impacts

The beneficial and adverse impacts of the proposed development have been discussed below.

The impacts are rated based on consideration of the following

A) SIGNIFICANCE:

Improbable	A low possibility of impact to occur either because of design or historic experience
Probable	Distinct possibility that impact will occur

Highly Probable	Most likely that impact will occur
Definite	Impact will occur, in the case of adverse impacts, regardless of any prevention measures
B) INTENSITY FACTOR:	
Low Intensity	Natural and manmade functions are affected
Medium Intensity	Environment affected but natural and man-made functions and processes continue
High Intensity	Environment affected to the extent that natural and/or man-made functions are altered to the extent that it will temporarily or permanently cease
C) DURATION	
Short Term	< 1 to 5 years – Factor 2
Medium Term	5 to 15 years – Factor 3
Long Term	Impact will only cease after the operational life of the activity, either because of natural processes or by human intervention
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.

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the construction phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

Alternative 1 (Proposal) – Mixed uses development

Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
<u>BENEFICIAL IMPACTS</u>			
Construction Phase			
Beneficial Impacts			
Institutional Environment			

BASIC ASSESSMENT REPORT [REGULATION 22(1)]

The proposed development will be in line with the current and proposed developments in the vicinity.	High	Not applicable	Low
Fauna and flora			
Eradication of invasive species.	High	Not applicable.	High
Social and Economic Environment			
Creation of job opportunities during the construction and operational phases.	Medium	The proposed development would create job opportunities during the construction phase. Should the local community not benefit from these opportunities, it could lead to an influx of people from other areas. Only employing people from the local community could mitigate the potential adverse impact.	Medium
Increase in rates and taxes payable to the City of Tshwane Metropolitan Municipality.	Medium	More rates and taxes will be owed to the City of Tshwane Metropolitan Municipality.	Medium
Reduction of area that have potential for informal settlements and illegal dumping to occur.	High	The proposed development will allow for social spaces for the local community. This will prevent illegal settlements and dumping to occur.	High
Services			
Upgrading of existing services and the construction of new services.	High	The upgrading of existing services and the establishment of new services will be essential to support the proposed development. The developer will also maintain the existing and established services during the operational phase of the development.	High
Optimum utilization of services	High	The proposed development will utilize the existing services which supports development optimally. The developer/facility manager will also manage and provide for the routine maintenance of such services.	High
ADVERSE IMPACTS			
Flora & Fauna			
Construction works will cause the eradication of existing vegetation – Site clearance forms part of any project of this scale. Large areas of exposed soil will cause erosion and dust pollution. Due to the already	Low	<ul style="list-style-type: none"> The project should be planned to ensure that only specific areas are cleared as the project progress to ensure that large areas are not exposed over long periods. Before the removal of vegetation takes place, the area to be cleared must be 	None

BASIC ASSESSMENT REPORT [REGULATION 22(1)]

<p>extensive disturbance within the study area by human activity, large bare soil areas are visible and can create opportunity for extensive erosion on site.</p>		<p>clearly marked.</p> <ul style="list-style-type: none"> Strip topsoil at start of works and store in stockpiles no more than 1.5m high in designated storage areas. The topsoil should contain the natural grass component as the seeds may help with the re-vegetation of the site during rehabilitation. As many of the large indigenous tree specimens must be retained on the application site during construction. The trees to be retained must be marked and may not be dusted during the construction activities. 	
<p>Uncontrolled fires may cause damage and loss to vegetation and fauna in the area.</p>	<p align="center">Low</p>	<p>If fires are required for cooking and heating purposes, these fires will only be permitted in designated areas on site.</p>	<p align="center">None</p>
<p>Possible spreading of invaders into the natural surrounding areas.</p>	<p align="center">Low</p>	<p>No plants, not indigenous to the area, or exotic plant species should be introduced into the landscaping of the proposed development.</p>	<p align="center">None</p>
Geology & Soils			
<p>Soil erosion due to drainage systems –</p> <p>During the construction phase temporary measures should be implemented to manage storm water and water flow on the application site. If the storm water and water flow is not regulated and managed on site it could cause significant erosion of soil, as well as the pollution and siltation of water bodies.</p>	<p align="center">Medium</p>	<ul style="list-style-type: none"> Only the identified areas should be cleared of vegetation. This should be done in stages as construction works progress; Implement temporary storm water management measures that will help to reduce the speed of the water. This measures must also assist with the prevention of water pollution, erosion and siltation; If excavations or foundations fill up with storm water, these areas should immediately be drained and measures to prevent further water from entering the excavations should be implemented. Biodegradable matting, geotextiles and other means of erosion control should be implemented during the construction phase on large exposed areas and where storm water are temporarily 	<p align="center">None</p>

		<p>channeled;</p> <ul style="list-style-type: none"> • Any storm water outfalls should be designed and measures should be implemented to prevent erosion and water pollution at these points. Areas around buildings, where gutters and outlets are implemented should be paved; • The services which will be installed in the area, should be designed to run in the same direction as the existing services to make installation and maintenance easy; • Trees may not be planted any closer to services than 1.5 times their mature height; 	
<p>If not planned and managed correctly topsoil will be lost.</p>	<p align="center">Medium</p>	<ul style="list-style-type: none"> • A shake down area at the exits of the construction site should be established where the excessive soil on the tires of the construction vehicles can be brushed off and kept aside for later use during rehabilitation works; • The layout of the construction site should be planned before construction activities take place. The areas where soil will be compacted by construction activities, heavy vehicle movement, site camp, material storage areas and stockpiling areas should be marked out and the topsoil should be removed. • The areas where topsoil will not be removed and which will be conserved during the construction phase should be marked with barrier tape to ensure that vehicles do not move across these areas, and construction activities does not damage the in-situ topsoil. • The removed topsoil should be stored separately from all stockpiled materials and subsoil, according to the stockpiling methods as described below. The stockpiled topsoil should be used for rehabilitation and 	<p align="center">Low</p>

BASIC ASSESSMENT REPORT [REGULATION 22(1)]

		<p>landscaping purposes after construction has been completed;</p> <ul style="list-style-type: none"> • The installation of services could leave soils exposed and susceptible to erosion. Soils should be stored adjacent to the excavated trenches that are excavated to install services, and this should be filled up with the in-situ material as the services are installed. All stones and rocks bigger than 80 mm should be removed from the top layer of soil and these disturbed areas should be re-vegetated immediately after works in a specific area are completed to prevent erosion; • Excavations on site must be kept to minimum and done only one section at a time. Excavated soils must be stockpiled directly on the demarcated area on site. 	
Excavations are not kept dry.	Medium	<ul style="list-style-type: none"> • Construction works and bulk earth works which involve the construction of excavations must be proposed for the dryer season, 	Low
Climate			
Construction during the rainy season can cause delays and damage to the environment.	Low	<ul style="list-style-type: none"> • It is recommended that the construction phase be scheduled for the winter months especially activities such as the installation of services, foundations, excavations and road construction; • It is also recommended that the precautionary measures be taken in order to prevent the extensive loss of soil during rainstorms. Large exposed areas should adequately be protected against erosion by matting or cladding; • Measures should be implemented during the rainy season to channel storm water away from open excavations and foundations. 	None
Construction during the dry	Low	<ul style="list-style-type: none"> • Regular and effective 	None

BASIC ASSESSMENT REPORT [REGULATION 22(1)]

and windy season could cause excessive dust pollution during construction works.		damping down working areas (especially during the dry and windy periods) must be carried out to avoid dust pollution that will have a negative impact on the surrounding environment. When necessary, these working areas should be damped down at least twice a day.	
Hydrology & groundwater			
The use of insufficient drainage systems.	Medium	<ul style="list-style-type: none"> A storm water management plan should be designed by an engineer to ensure sufficient drainage on site. 	None
Excavated materials that are stockpiled in wrong areas can interfere with the natural drainage.	Medium	<ul style="list-style-type: none"> An area must be allocated for stockpiling of topsoil before any construction take place on the application site. The stockpiles must be situated away from any water source or drainage channel. A sediment fence or barrier must be constructed around the stockpile, to prevent soil from washing away by rain or any water. 	Low
Cultural and Archaeology			
Occurrence of cultural historical assets on the proposed development site.	Medium	<ul style="list-style-type: none"> If archeological sites are exposed during construction work, it should immediately be reported to a museum, preferably on at which an archaeologist are available so that an investigation and evaluation of the site can be made. 	None
Localized Vibration			
The noise created by earthmoving machinery will result in the greatest increase in ambient levels. This will be short term, being generated only during the day.	Medium	<ul style="list-style-type: none"> All construction activities must be restricted during normal working hours from 8:00 in the morning to no later than 18:00 in the afternoons. No construction may take place on Sundays and public holidays. 	Low
Air pollution			
Nuisance to neighbours in terms of dust generation due to construction during the dry and windy season.	Medium	<ul style="list-style-type: none"> The application site must be damped at a regular basis with water (more or less 3 to 4 times on a dry day). A water tanker should be used if possible. 	Low
Roads and Traffic			
Heavy vehicle traffic increase	Medium	Heavy vehicles must be	Low

BASIC ASSESSMENT REPORT [REGULATION 22(1)]

could disrupt the surrounding landowners' daily routines.		instructed to only use the main roads during off-peak hours.	
Restrictions of access to surrounding properties and the study area during construction phases.	Medium	<ul style="list-style-type: none"> To minimize the impacts or risks, heavy construction vehicles should avoid using the local road network during peak traffic times. These vehicles should use only specific roads and strictly keep within the speed limits and abide to all traffic laws. No speeding or reckless driving should be allowed. Access to the site for construction vehicles should be planned to minimize the impact on the surrounding network; and Warning signs should be erected on the roads that these vehicles will use, at big crossings/ access roads and on the site if needed. 	Low
Damage to roads.	Medium	<ul style="list-style-type: none"> Specific roads must be allocated for the use by construction vehicles. 	Low
Safety and Security			
During the construction phase safety and security problems (especially for the surrounding residents) are likely to occur.	Medium	<ul style="list-style-type: none"> Construction must be completed in as short time as possible. No construction worker or relative may reside on the application site during the construction phase. All construction workers must leave the site at the end of a day's work. A security guard should be appointed on site to prevent any security problems. 	Low
Any proposed development offers the potential for unplanned informal settlement (squatting) before construction commences or after construction.	Medium	<ul style="list-style-type: none"> No construction worker, friend or relative may settle/ reside on site. Only security may be present on site after construction hours. 	Low
Construction activities could cause danger to children and animals of the surrounding residents.	Low	<ul style="list-style-type: none"> Although regarded as a normal practice, it is important to erect proper signs indicating the operation of heavy vehicles in the vicinity of dangerous crossings and access roads or even within the development site, if necessary; It is also important to indicate all areas where excavations 	None

		<p>took place/ are taking place and warning signs that clearly indicate areas with excavations must be placed immediately adjacent to excavations;</p> <ul style="list-style-type: none"> • A barrier should be established around dangerous excavation areas; • With the exception of appointed security personnel, no other worker, friend or relatives will be allowed to sleep on the construction site (weekends included), in the public open space or on adjacent properties; and • No worker should be allowed to enter adjacent private properties without written consent of the legal owners to the contractor. 	
Visual Impact			
Dumping of builder's rubble on neighbouring properties.	Medium	<ul style="list-style-type: none"> • A specific location for building rubble must be allocated on site, to concentrate and collect the building rubble and cart it to a certified landfill site. The allocated area must be out of sight of neighbouring properties to have a less visual impact. 	Low
Stockpile areas for construction materials.	Medium	<ul style="list-style-type: none"> • An area on the site must be allocated for the stockpile of construction materials. The area must be situated on the application site, and must be situated to have a minimal visual impact on the neighbouring area. 	Low
Veld fires may cause damage to infrastructure, vegetation and neighbouring properties.	Low	<ul style="list-style-type: none"> • A specific area on site must be allocated, which will have the least impact on the environment and surrounding landowners, for fires of construction workers. This allocated area must be far from any structures and no fires may be lit except in the designated location. 	Low
The construction vehicles, the site camp and other construction related facilities will have a negative visual impact during the	Medium	<ul style="list-style-type: none"> • Before any construction commence on site, an area on site must be demarcated for a site camp. 	Low

BASIC ASSESSMENT REPORT [REGULATION 22(1)]

construction phase.			
Waste Management			
Site office, camp and associated waste (visual, air and soil pollution)	Medium	<ul style="list-style-type: none"> • Temporary waste storage points on site shall be determined. These storage points shall be accessible by waste removal trucks; • These points should not be located in areas highly visible from the properties of the surrounding landowners/ tenants/ in areas where the wind direction will carry bad odours across the properties of adjacent tenants or landowners; • The site camp and the rest of the study area should appear neat at all times; • Waste materials should be removed from the site on a regular basis, to a registered dumping site; and • The site camp should not be located in a highly visual area on the study area, or a screen or barrier should be erected as not have a negative impact on the sense of place. 	Low
Disposal of building waste & liquids	Medium	<ul style="list-style-type: none"> • All the waste generated by the proposed developments must be dumped at a preselected area on site to be carted to a register landfill site; • These areas shall be predetermined and located in areas that are already disturbed; • Small lightweight waste items should be contained in skips with lids to prevent wind littering; • All waste must be removed to a recognized waste disposal site/ landfill site on a weekly basis. No waste materials may be disposed of on or adjacent to the site; • The storage of solid waste on site, until such time that it may be disposed of, must be in the manner acceptable to the local authority; and • Keep records of waste reuse, recycling and disposal for 	Low

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		future reference.	
OPERATIONAL PHASE			
Beneficial Impacts			
Social & Economic Environment			
Creation of temporary and permanent jobs.	Medium	During the operational phase numerous permanent jobs will be created on various levels (house, garden, maintenance, etc.).	Medium
Increasing security in the area.	High	In the long term the proposed development will improve the security of the area. The monitored access points will improve the security of the proposed site and surrounding areas.	High
Higher quality of livelihoods.	High	The community's quality of life will increase and more people will be economically active.	High
Increase in rates and taxes payable to the City of Tshwane Metropolitan Municipality.	Medium	More rates and taxes will be paid to the CTMM.	Medium
Increase in surrounding property values	High	If planned and managed correctly, the proposed development could have a positive impact on property values. Due to the proposed theme, the development will generally be in line with the surrounding land uses.	High
Visibility and accessibility of study area.	High	The visibility and accessibility of the study area contributes to the study area's ideal suitability for the proposed land use.	High
Adverse Impacts			
Hydrology			
An increase in surface water runoff to storm water management systems (because of an increase of hard-surfaces such as roofs and paved areas), may have an impact on surface quality and quantities.	Low	<ul style="list-style-type: none"> Storm water through the site should be managed to accommodate the higher quantities of runoff, Sheet flow should be encouraged as far as possible, and channels should be designed sufficiently to address the problem or erosion, and Bio-swale system could be implemented to filter water from paved areas and especially from roads and parking areas to sufficiently clean water of heavy metals and other hazardous materials contained in storm water in a natural manner. 	Low

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		This will further provide an opportunity for water to infiltrate the soil, break the energy of storm water and keep the water on site for longer.	
Leaking pipes could cause ground water pollution risks.	Low	<ul style="list-style-type: none"> Pipes should be inspected on a regular basis; 	None
Light pollution			
<p>Light pollution</p> <p>The proposed development could cause a significant level of light pollution as the light industrial development will need some security lighting.</p>	Low	<ul style="list-style-type: none"> Lighting within the proposed development, including security lighting, could easily glare into surrounding residences if not designed appropriately. It is recommended that all the lighting on site be designed to point downwards and designed in such a way to not cause glare dispersal or unnecessary flickering. 	None
Pollution			
The generation of Air pollution.	Low	The proposed development is located within an area that is characterized by commercial and residential developments. It is therefore that one can consider the fact that the study area is surrounded by activities that will contribute to regional air pollution. One however, has to note that on a local scale, the proposed development does not include noxious industries, and therefore specifically would not contribute to any air pollution. As mentioned previously the exhaust fumes of additional vehicles may have an influence, but in this particular instance it is deemed as insignificant, and therefore on a local scale would not have any affect.	Low
<p>The generation of noise pollution –</p> <p>Additional traffic generated by the proposed development will have some impact on the ambient noise levels within the area.</p>	Low	As mentioned previously, one has to note that the study area is wedged between many Provincial and National Roads which already generate ambient noise levels that exceed the acceptable levels for urban and residential areas. It is therefore, when one consider the above mentioned, that ambient noise levels generated by this particular	Low

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		development would not be that significant, as the proposed development, is located within an area that already exceed the acceptable noise levels.	
Roads & Traffic			
Additional vehicle traffic could have a detrimental impact on the existing roads within the vicinity of proposed development.	Medium	If required, the road network which surrounds the proposed development will have to be correctly maintained/ upgraded in order to support additional traffic generated.	Low
Visual Impact			
The proposed development will have some visual impact on the surrounding areas.	Medium	<ul style="list-style-type: none"> • It is important that the roofs of all the buildings within the proposed development should not reflect any sunlight; • The colour scheme for the buildings should be taken from the palette of colours in the natural surroundings; • Existing trees, if any should be retained as far possible on the site, in order to soften the visual impact of the buildings associated with the development, and to bring the scale of the large buildings in scale with the surrounding environment; • It is also proposed that as many additional indigenous trees be planted in areas that were previously disturbed, in order to soften the harsh visual impact of the proposed development. The planting of additional trees will help to develop a certain character for the site which will fit in with the surrounding environment. 	Low
Impact on the sense of place.	Low	<p>If not managed correctly, the proposed mixed use development will have a negative impact on the sense of place of the surrounding environment, due to the height of the buildings that will form part of the proposed development;</p> <p>In order to "Promote the Sense of Place" of the surrounding area, the colour scheme of the buildings which will form part of</p>	None

		<p>the proposed development, should be taken from a palette of colours in the natural surroundings.</p> <p>It is also important that a landscape development plan should be developed and implement for the study area, prior to the operational phase. Landscaped areas which will form part of the proposed development will in essence soften the harsh architectural lines and elements which are associated with the proposed development. Landscaped areas within the proposed development will also bring the scale of the buildings in relation to the surrounding environment.</p>	
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Alternative 2 (Proposal) – Light Industrial

Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
CONSTRUCTION PHASE			
Beneficial Impacts			
institutional Environment			
The proposed development will be in line with the current and proposed developments in the vicinity.	High	Not applicable.	High
Fauna & Flora			
Eradication of invasive species.	High	Eradication of invasive species during the construction phase would benefit the biophysical environment. Not necessary to mitigate.	High
Social & Economic Environment			
Creation of Job opportunities.	Medium	The proposed development would create job opportunities during the construction phase. Should the local community not benefit from these opportunities, it could lead to an influx of people from other areas. Only employing people from the local community could mitigate the potential adverse impact.	Medium
Increase in the rates and taxes payable to the City of Tshwane Metropolitan	Medium	More rates and taxes will be paid to the City of Tshwane Metropolitan Municipality.	Medium

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Municipality.			
Services			
Upgrading of existing services and the construction of new services.	High	The upgrading of existing services and the establishment of new services will be essential to support the proposed development. The developer will also maintain the existing and established services during the operational phase of the development.	High
Optimum utilization of services.	High	The proposed development will utilize the existing services which supports development optimally. The developer/ facility manager will also manage and provide for the routine maintenance of such services.	High
Adverse Impacts			
Flora & Fauna			
Construction works will cause the eradication of existing vegetation – Site clearance forms part of any project of this scale. Large areas of exposed soil will cause erosion and dust pollution. Due to the already extensive disturbance within the study area by human activity, large bare soil areas are visible and can create opportunity for extensive erosion on site.	Low	<ul style="list-style-type: none"> • The project should be planned to ensure that only specific areas are cleared as the project progress to ensure that large areas are not exposed over long periods; • Before the removal of vegetation takes place, the area to be cleared must be clearly marked. • Strip topsoil at start of works and store in stockpiles no more than 1.5 m high in designated storage areas. The topsoil should contain the natural grass component as the seeds may help with the re-vegetation of the site during rehabilitation. • As many of the large indigenous tree specimens must be retained on the application site during construction. The trees to be retained must be marked and may not be disturbed during the construction activities. 	None
Uncontrolled fires may cause damage and loss to vegetation and fauna in the area.	Low	<ul style="list-style-type: none"> • If fires are required for cooking and heating purposes, these fires will only be permitted in designated areas on site. 	None
Possible spreading of invaders	Low	<ul style="list-style-type: none"> • No plants, not indigenous to 	None

into the natural surrounding areas.		the area, or exotic plant species should be introduced into the landscaping of the proposed development.	
Geology & Soils			
<p>Soil erosion due to drainage systems –</p> <p>During the construction phase temporary measures should be implemented to manage storm water and water flow on the application site. If the storm water and water flow is not regulated and managed on site it could cause significant erosion of soil, as well as the pollution and siltation of water bodies.</p>	Medium	<ul style="list-style-type: none"> • Only the identified areas should be cleared of vegetation. This should be done in stages as construction works progress; • Implement temporary storm water management measures that will help to reduce the speed of the water. This measures must also assist with the prevention of water pollution, erosion and siltation; • If excavations or foundations fill up with storm water, these areas should immediately be drained and measures to prevent further water from entering the excavations should be implemented. • Biodegradable matting, geo-textiles and other means of erosion control should be implemented during the construction phase on large exposed areas and where storm water are temporarily channeled; • Any storm water outfalls should be designed and measures should be implemented to prevent erosion and water pollution at these points. Areas around buildings, where gutters and outlets are implemented should be paved; • The services which will be installed in the area, should be designed to run in the same direction as the existing services to make installation and maintenance easy; • Trees may not be planted any closer to services than 1.5 times their mature height; 	None

<p>If not planned and managed correctly topsoil will be lost.</p>	<p align="center">Medium</p>	<ul style="list-style-type: none"> • A shake down area at the exits of the construction site should be established where the excessive soil on the tires of the construction vehicles can be brushed off and kept aside for later use during rehabilitation works; • The layout of the construction site should be planned before any activities take place. The areas where soil will be compacted by construction activities, heavy vehicle movement, site camp, material storage areas and stockpiling areas should be marked out and the topsoil should be removed. • The areas where topsoil will not be removed and which will be conserved during the construction phase should be marked with barrier tape to ensure that vehicles do not move across these areas, and construction activities does not damage the in-situ topsoil • The removed topsoil should be stored separately from all stockpiled materials and subsoil, according to the stockpiling methods as described below. The stockpiled topsoil should be used for rehabilitation and landscaping purposes after construction has been completed; • The installation of services could leave soils exposed and susceptible to erosion. Soils should be stored adjacent to the excavated trenches that are excavated to install services, and this should be filled up with the in-situ material as the services are installed. All stones and rocks bigger than 80 mm should be removed from the top layer of soil and these disturbed areas should be re-vegetated 	<p align="center">Low</p>
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		<p>immediately after works in a specific area are completed to prevent erosion;</p> <ul style="list-style-type: none"> Excavations on site must be kept to minimum and done only one section at a time. Excavated soils must be stockpiled directly on the demarcated area on site. 	
Excavation are not kept dry.	Medium	<ul style="list-style-type: none"> Construction works and bulk earth works which involve the construction of excavations must be proposed for the dryer season, 	Low
Climate			
Construction during the rainy season can cause delays and damage to the environment.	Low	<ul style="list-style-type: none"> It is recommended that the construction phase be scheduled for the winter months especially activities such as the installation of services, foundations, excavations and road construction; It is also recommended that the precautionary measures be taken in order to prevent the extensive loss of soil during rainstorms. Large exposed areas should adequately be protected against erosion by matting or cladding; Measures should be implemented during the rainy season to channel storm water away from open excavations and foundations. 	None
Construction during the dry and windy season could cause excessive dust pollution during construction works.	Low	<ul style="list-style-type: none"> Regular and effective damping down working areas (especially during the dry and windy periods) must be carried out to avoid dust pollution that will have a negative impact on the surrounding environment. When necessary, these working areas should be damped down at least twice a day. 	None
Hydrology & groundwater			
The use of insufficient drainage systems.	Medium	<ul style="list-style-type: none"> A storm water management plan should be designed by an engineer to ensure sufficient drainage on site. 	None
Excavated materials that are	Medium	<ul style="list-style-type: none"> An area must be allocated 	Low

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stockpiled in wrong areas can interfere with the natural drainage.		for stockpiling of topsoil before any construction take place on the application site. The stockpiles must be situated away from any water source or drainage channel. A sediment fence or barrier must be constructed around the stockpile, to prevent soil from washing away by rain or any water.	
Cultural and Archaeology			
Occurrence of cultural historical assets on the proposed development site.	Medium	<ul style="list-style-type: none"> If archeological sites are exposed during construction work, it should immediately be reported to a museum, preferably on at which an archaeologist are available so that an investigation and evaluation of the site can be made. 	None
Localized Vibration			
The noise created by earthmoving machinery will result in the greatest increase in ambient levels. This will be short term, being generated only during the day.	Medium	<ul style="list-style-type: none"> All construction activities must be restricted during normal working hours from 8:00 in the morning to no later than 18:00 in the afternoons. No construction may take place on Sundays and public holidays. 	Low
Air pollution			
Nuisance to neighbours in terms of dust generation due to construction during the dry and windy season.	Medium	<ul style="list-style-type: none"> The application site must be damped at a regular basis with water (more or less 3 to 4 times on a dry day). A water tanker should be used if possible. 	Low
Roads and Traffic			
Heavy vehicle traffic increase could disrupt the surrounding landowners' daily routines.	Medium	Heavy vehicles must be instructed to only use the main roads during off-peak hours.	Low
Restrictions of access to surrounding properties and the study area during construction phases.	Medium	<ul style="list-style-type: none"> To minimize the impacts or risks, heavy construction vehicles should avoid using the local road network during peak traffic times. These vehicles should use only specific roads and strictly keep within the speed limits and abide to all traffic laws. No speeding or reckless driving should be allowed. Access to the site for construction vehicles should be planned to minimize the impact on the surrounding 	Low

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		<p>network; and</p> <ul style="list-style-type: none"> • Warning signs should be erected on the roads that these vehicles will use, at big crossings/ access roads and on the site if needed. 	
Damage to roads.	Medium	<ul style="list-style-type: none"> • Specific roads must be allocated for the use by construction vehicles. 	Low
Safety and Security			
During the construction phase safety and security problems (especially for the surrounding residents) are likely to occur.	Medium	<ul style="list-style-type: none"> • Construction must be completed in as short time as possible. No construction worker or relative may reside on the application site during the construction phase. All construction workers must leave the site at the end of a days work. A security guard should be appointed on site to prevent any security problems. 	Low
Any proposed development offers the potential for unplanned informal settlement (squatting) before construction commences or after construction.	Medium	<ul style="list-style-type: none"> • No construction worker, friend or relative may settle/ reside on site. Only security may be present on site after construction hours. 	Low
Construction activities could cause danger to children and animals of the surrounding residents.	Low	<ul style="list-style-type: none"> • Although regarded as a normal practice, it is important to erect proper signs indicating the operation of heavy vehicles in the vicinity of dangerous crossings and access roads or even within the development site, if necessary; • It is also important to indicate all areas where excavations took place/ are taking place and warning signs that clearly indicate areas with excavations must be placed immediately adjacent to excavations; • A barrier should be established around dangerous excavation areas; • With the exception of appointed security personnel, no other worker, friend or relatives will be allowed to sleep on the construction site (weekends included), in the public open space or on adjacent properties; and 	None

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		<ul style="list-style-type: none"> No worker should be allowed to enter adjacent private properties without written consent of the legal owners to the contractor. 	
Visual Impact			
Dumping of builder's rubble on neighbouring properties.	Medium	<ul style="list-style-type: none"> A specific location for building rubble must be allocated on site, to concentrate and collect the building rubble and cart it to a certified landfill site. The allocated area must be out of sight of neighbouring properties to have a less visual impact. 	Low
Stockpile areas for construction materials.	Medium	<ul style="list-style-type: none"> An area on the site must be allocated for the stockpile of construction materials. The area must be situated on the application site, and must be situated to have a minimal visual impact on the neighbouring area. 	Low
Veld fires may cause damage to infrastructure, vegetation and neighbouring properties.	Low	<ul style="list-style-type: none"> A specific area on site must be allocated, which will have the least impact on the environment on the environment and surrounding landowners, for fires of construction workers. This allocated area must be far from any structures and no fires may be lit except in the designated location. 	Low
The construction vehicles, the site camp and other construction related facilities will have a negative visual impact during the construction phase.	Medium	<ul style="list-style-type: none"> Before any construction commence on site, an area on site must be demarcated for a site camp. 	Low
Waste Management			
Site office, camp and associated waste (visual, air and soil pollution)	Medium	<ul style="list-style-type: none"> Temporary waste storage points on site shall be determined. These storage points shall be accessible by waste removal trucks; These points should not be located in areas highly visible from the properties of the surrounding landowners/ tenants/ in areas where the wind direction will carry bad odours across the properties of adjacent tenants or landowners; 	Low

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		<ul style="list-style-type: none"> • The site camp and the rest of the study area should appear neat at all times; • Waste materials should be removed from the site on a regular basis, to a registered dumping site; and • The site camp should not be located in a highly visual area on the study area, or a screen or barrier should be erected as not have a negative impact on the sense of place. 	
Disposal of building waste & liquids	Medium	<ul style="list-style-type: none"> • All the waste generated by the proposed developments must be dumped at a preselected area on site to be carted to a register landfill site; • These areas shall be predetermined and located in areas that are already disturbed; • Small lightweight waste items should be contained in skips with lids to prevent wind littering; • All waste must be removed to a recognized waste disposal site/ landfill site on a weekly basis. No waste materials may be disposed of on or adjacent to the site; • The storage of solid waste on site, until such time that it may be disposed of, must be in the manner acceptable to the local authority; and • Keep records of waste reuse, recycling and disposal for future reference. 	Low
OPERATIONAL PHASE			
Beneficial Impacts			
Social & Economic Environment			
Creation of temporary and permanent jobs.	Medium	During the operational phase numerous permanent jobs will be created on various levels (house, garden, maintenance, etc.).	Medium
Increasing security in the area.	High	In the long term the proposed development will improve the security of the area. The monitored access points will improve the security of the proposed site and surrounding areas.	High

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Higher quality of livelihoods.	High	The community's quality of life will increase and more people will be economically active.	High
Reduction of areas that have potential for informal settlements and illegal dumping.	High	The proposed township development will prevent informal settlements and illegal dumping on the proposed development area.	High
Increase in rates and taxes payable to the City of Tshwane Metropolitan Municipality.	Medium	More rates and taxes will be paid to the CTMM.	Medium
Increase in surrounding property values	High	If planned and managed correctly, the proposed development could have a positive impact on property values. Due to the proposed theme, the development will generally be in line with the surrounding land uses.	High
Visibility and accessibility of study area.	High	The visibility and accessibility of the study area contributes to the study area's ideal suitability for the proposed land use.	High
Adverse Impacts			
Hydrology			
An increase in surface water runoff to storm water management systems (because of an increase of hard-surfaces such as roofs and paved areas), may have an impact on surface quality and quantities.	Low	<ul style="list-style-type: none"> Storm water through the site should be managed to accommodate the higher quantities of runoff, Sheet flow should be encouraged as far as possible, and channels should be designed sufficiently to address the problem or erosion, and Bio-swale system could be implemented to filter water from paved areas and especially from roads and parking areas to sufficiently clean water of heavy metals and other hazardous materials contained in storm water in a natural manner. This will further provide an opportunity for water to infiltrate the soil, break the energy of storm water and keep the water on site for longer. 	Low
Leaking pipes could cause ground water pollution risks.	Low	<ul style="list-style-type: none"> Pipes should be inspected on a regular basis; 	None
Light pollution			
Light pollution	Low	<ul style="list-style-type: none"> Lighting within the proposed development, including 	None

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<p>The proposed development could cause a significant level of light pollution as the light industrial development will need some security lighting.</p>		<p>security lighting, could easily glare into surrounding residences if not designed appropriately. It is recommended that all the lighting on site be designed to point downwards and designed in such a way to not cause glare dispersal or unnecessary flickering.</p>	
Pollution			
<p>The generation of Air pollution –</p>	Low	<p>The proposed development is located within an area that is characterized by commercial and residential developments. It is therefore that one can consider the fact that the study area is surrounded by activities that will contribute to regional air pollution. One however, has to note that on a local scale, the proposed development does not include noxious industries, and therefore specifically would not contribute to any air pollution. As mentioned previously the exhaust fumes of additional vehicles may have an influence, but in this particular instance it is deemed as insignificant, and therefore on a local scale would not have any affect.</p>	Low
<p>The generation of noise pollution –</p> <p>Additional traffic generated by the proposed development will have some impact on the ambient noise levels within the area.</p>	Low	<p>As mentioned previously, one has to note that the study area is wedged between many Provincial and National Roads which already generate ambient noise levels that exceed the acceptable levels for urban and residential areas. It is therefore, when one consider the above mentioned, that ambient noise levels generated by this particular development would not be that significant, as the proposed development, is located within an area that already exceed the acceptable noise levels.</p>	Low
Roads & Traffic			
<p>Additional vehicle traffic could have a detrimental impact on the existing roads with in the vicinity of proposed development.</p>	Medium	<p>If required, the road network which surrounds the proposed development will have to be correctly maintained/ upgraded in order to support additional</p>	Low

		traffic generated.	
Visual Impact			
The proposed development will have some visual impact on the surrounding areas.	Medium	<ul style="list-style-type: none"> • It is important that the roofs of all the buildings within the proposed development should not reflect any sunlight; • The colour scheme for the buildings should be taken from the palette of colours in the natural surroundings; • Existing trees, if any should be retained as far possible on the site, in order to soften the visual impact of the buildings associated with the development, and to bring the scale of the large buildings in scale with the surrounding environment; • It is also proposed that as many additional indigenous trees be planted in areas that were previously disturbed, in order to soften the harsh visual impact of the proposed development. The planting of additional trees will help to develop a certain character for the site which will fit in with the surrounding environment. 	Low
Impact on the sense of place.	Low	<p>If not managed correctly, the proposed light industrial development will have a negative impact on the sense of place of the surrounding environment, due to the height of the buildings that will form part of the proposed development;</p> <p>In order to "Promote the Sense of Place" of the surrounding area, the colour scheme of the buildings which will form part of the proposed development, should be taken from a palette of colours in the natural surroundings.</p> <p>It is also important that a landscape development plan should be developed and implement for the study area, prior to the operational phase.</p>	None

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		<p>Landscaped areas which will form part of the proposed development will in essence soften the harsh architectural lines and elements which are associated with the proposed development. Landscaped areas within the proposed development will also bring the scale of the buildings in relation to the surrounding environment.</p>	
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Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
Adverse Impacts			
Flora & fauna			
<p>Construction works will cause the eradication of existing vegetation –</p> <p>Site clearance forms part of any project of this scale. Large areas of exposed soil will cause erosion and dust pollution. Due to the already extensive disturbance within the study area by human activity, large bare soil areas are visible and can create opportunity for extensive erosion on site.</p>	Low	<ul style="list-style-type: none"> • The project should be planned to ensure that only specific areas are cleared as the project progress to ensure that large areas are not exposed over long periods; • Before the removal of vegetation takes place, the area to be cleared must be clearly marked. • Strip topsoil at start of works and store in stockpiles not more than 1.5 m high in designated storage areas. The topsoil should contain the natural grass component as the seeds may help with the re-vegetation of the site during rehabilitation. • As many of the large indigenous tree specimens must be retained on the application site during construction. The trees to be retained must be marked and may not be disturbed during the construction activities. 	None
<p>Uncontrolled fires may cause damage and loss to vegetation and fauna in the area.</p>	Low	<ul style="list-style-type: none"> • If fires are required for cooking and heating purposes, these fires will only be permitted in designated areas on site; 	None
<p>Possible spreading of invaders into the natural surrounding</p>	Low	<ul style="list-style-type: none"> • No plants, not indigenous to the area, or exotic plant 	None

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areas.		species should be introduced into the landscaping of the proposed development.	
Geology and Soils			
<p>Soil erosion due to insufficient drainage systems-</p> <p>During the construction phase temporary measures should be implemented to manage storm water and water flow on the application site. If the storm water and water flow is not regulated and managed on site it could cause significant erosion of soil, as well as the pollution and siltation of water bodies.</p>	Medium	<ul style="list-style-type: none"> • Only the identified areas should be cleared of vegetation. This should be done in stages as construction works progress; • Implement temporary storm water management measures that will help to reduce the speed of the water. This measures must also assist with the prevention of water pollution, erosion and siltation; • If excavations or foundations fill up with storm water, these areas should immediately be drained and measures to prevent further water from entering the excavations should be implemented. • Biodegradable matting, geo-textiles and other means of erosion control should be implemented during the construction phase on large exposed areas and where storm water are temporarily channeled; • Any storm water outfalls should be designed and measures should be implemented to prevent erosion and water pollution at these points. Areas around buildings, where gutters and outlets are implemented should be paved; • The services which will be installed in the area, should be designed to run in the same direction as the existing services to make installation and maintenance easy; • Trees may not be planted any closer to services than 1.5 times their mature height; 	None
If not planned and managed	Medium	<ul style="list-style-type: none"> • A shake down area at the 	Low

<p>correctly topsoil will be lost</p>		<p>exit of the construction site should be established where the excessive soil on the tires of the construction vehicles can be brushed off and kept aside for later use during rehabilitation works;</p> <ul style="list-style-type: none"> • The layout of the construction site should be planned before any construction activities take place. The areas where soil will be compacted by construction activities, heavy vehicle movement, site camp, material storage areas and stockpiling areas should be marked out and the topsoil should be removed; • The areas where topsoil will not be removed and which will be conserved during the construction phase should be marked with barrier tape to ensure that vehicles do not move across these areas, and construction activities does not damage the in-situ topsoil. • The removed topsoil should be stored separately from all stockpiled materials and subsoil, according to th stockpiling methods as described below. The stockpiled topsoil should be used for rehabilitation and landscaping purposes after construction has been completed; • The installation of services could leave soils exposed and susceptible to erosion. Soils should be stored adjacent to the excavated trenches that are excavated to install services, and these should be filled up with the in-situ material as the services area installed. All stones and rocks bigger than 80 mm should be removed from the top layer of soil and these disturbed areas should be re-vegetated 	
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		<p>immediately after works in a specific area are completed to prevent erosion;</p> <ul style="list-style-type: none"> Excavations on site must be kept to minimum and done only one section at a time. Excavated soils must be stockpiled directly on the demarcated area on site. 	
Excavations are not kept dry.	Medium	<ul style="list-style-type: none"> Construction works and bulk earth works which involve the construction of excavations must be proposed for the dryer season; 	Low
Climate			
Construction during the rainy season can cause delays and damage to the environment.	Low	<ul style="list-style-type: none"> It is recommended that the construction phase be scheduled for the winter months especially activities such as the installation of services, foundations, excavations and road construction; It is also recommended that the precautionary measures be taken in order to prevent the extensive loss of soil during rainstorms. Large exposed areas should adequately be protected against erosion by matting or cladding; Measures should be implemented during the rainy season to channel storm water away from open excavations and foundations. 	None
Construction during the dry and windy season could cause excessive dust pollution during construction works.	Low	<ul style="list-style-type: none"> Regular and effective damping down working areas (especially during the dry and windy periods) must be carried out to avoid dust pollution that will have a negative impact on the surrounding environment. When necessary, these working areas should be damped down at least twice a day. 	None
Hydrology & groundwater			
The use of insufficient drainage systems.	Medium	<ul style="list-style-type: none"> The storm water and drainage systems must be designed by an engineer to ensure sufficient drainage on 	None

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<p>Excavated materials that are stockpiled in wrong areas can interfere with the natural drainage.</p>	<p align="center">Medium</p>	<p>site.</p> <ul style="list-style-type: none"> • An area must be allocated for stockpiling of topsoil before any construction take place on the application site. The stockpiles must be situated away from any water source or drainage channel. A sediment fence or barrier must be constructed around the stockpile, the prevent soil from washing away by rain or any water. 	<p align="center">Low</p>
<p>Surface water flows will be altered during the construction phase.</p>	<p align="center">Medium</p>	<ul style="list-style-type: none"> • Due to the excavations that will take place (there will be trenches, topsoil and subsoil mounts in and around the study area), the topography of the study area will temporarily be altered. However this will only be a short term impact, and if the levels are restored to normal, the surface drainage patterns from the new levels should not differ too much from the surface water drainage of the original levels. 	<p align="center">Low</p>
<p>The possibility of ground water pollution.</p>	<p align="center">Medium</p>	<p>Develop a central waste temporary holding site to be used during construction (near the access entrance). This site should comply with the following:</p> <ul style="list-style-type: none"> • Skips for the containment and disposal of all waste that could cause soil and water pollution, i.e. paint, lubricants, etc.; • These areas shall be predetermined and located in areas that are already disturbed. These areas shall not be within 100m from the 1:100 year floodline area. • Workers will only be allowed to use temporary chemical toilets on the site. Chemical toilets shall not be within 100 m of the floodline area. • No French drain systems may be installed on site at any time; • No bins containing organic 	<p align="center">None</p>

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		<p>solvents such as paints and thinners shall be cleaned on site, unless containers for liquid waste disposal are placed for this purpose on site;</p> <ul style="list-style-type: none"> No leaking vehicle shall be allowed on site. Before entering the study area, all vehicles and equipment shall be inspected for leaks by a qualified mechanic/ other suitably qualified person and the environmental officer. The mechanic/ the mechanic of the appointed contractor must supply the environmental officer with a letter of confirmation that the vehicles and equipment are leak proof, and If maintenance on site is absolutely necessary, it should be conducted on a concrete surface in the site camp. Spilled oil should be cleaned up and disposed off appropriately (not dumped on site). This area may not be washed with soaps and dissolvent and allowed to enter the drainage system. 	
Cultural and Archaeology			
Occurrence of cultural historical assets on the proposed development site.	Medium	<ul style="list-style-type: none"> If archeological sites are exposed during construction work, it should immediately be reported to a museum, preferably on at which an archaeologist are available, so that an investigation and evaluation of the site can be made. 	None
Localised Vibration			
The noise created by earthmoving machinery will result in the greatest increase in ambient levels. This will be short term, being generated only during the day.	Medium	<ul style="list-style-type: none"> All construction activities must be restricted during normal working hours from 8:00 in the morning to no later than 18:00 in the afternoons. No construction may take place on Sundays and public holidays. 	Low
Air pollution			
Nuisance to neighbours in terms of dust generation due to construction during the dry	Medium	<ul style="list-style-type: none"> The application site must be damped at a regular basis with water (more or less 3 to 	Low

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and windy season.		4 times on a dry day). A water tanker should be used if possible.	
Roads and Traffic			
Heavy vehicle traffic increase could disrupt the surrounding landowners' daily routines.	Medium	<ul style="list-style-type: none"> Heavy vehicles must be instructed to only use the main roads during off-peak hours. 	Low
Restrictions of access to surrounding properties and the study area during construction phases.	Medium	<ul style="list-style-type: none"> To minimize this impacts or risks, heavy construction vehicles should avoid using the local road network during peak traffic times; These vehicles should use only specific roads and strictly keep within the speed limits and abide to all traffic laws. No speeding or reckless driving should be allowed. Access to the site for construction vehicles should be planned to minimize the impact on the surrounding network; and Warning signs should be erected on the roads that these vehicles will use, at big crossings/ access roads and on the site if needed. 	Low
Damage to roads.	Medium	<ul style="list-style-type: none"> Specific roads must be allocated for the use by construction vehicles. 	Low
Safety and Security			
During the construction phase safety and security problems (especially for the surrounding residents) are likely to occur.	Medium	<ul style="list-style-type: none"> Construction must be completed in as short time as possible. No construction worker or relative may reside on the application site during the construction phase. All construction workers must leave the site at the end of a days' work. A security guard should be appointed on site to prevent any security problems. 	Low
Any proposed development offers the potential for unplanned informal settlement (squatting) before construction commences or after construction.	Medium	<ul style="list-style-type: none"> No construction worker, friend or relative may settle/ reside on site. Only security may be present on site after construction hours. 	Low
Construction activities could cause danger to children and animals of the surrounding residents.	Low	<ul style="list-style-type: none"> Although regarded as a normal practice, it is important to erect proper signs indicating the operation of heavy vehicles 	Low

		<p>in the vicinity of dangerous crossings and access roads or even within the development site, if necessary;</p> <ul style="list-style-type: none"> • It is also important to indicate all areas where excavations took place/ are taking place and warning signs that clearly indicate areas with excavations must be placed immediately adjacent to excavations; • A barrier should be established around dangerous excavation areas, • With the exception of appointed security personnel, no other worker, friend or relatives will be allowed to sleep on the construction site (weekends included), in the public open space or on adjacent properties; and • No worker should be allowed to enter adjacent private properties without written consent of the legal owners to the contractor. 	
Visual Impact			
<p>Dumping of builder's rubble on neighbouring properties.</p>	Medium	<ul style="list-style-type: none"> • A specific location for building rubble must be allocated on site, to concentrate and collect the building rubble and cart it to a certified landfill site. The allocated area must be out of sight of neighbouring properties to have a less visual impact. 	Low
<p>Stockpile areas for construction materials.</p>	Medium	<ul style="list-style-type: none"> • An area on the site must be allocated for the stockpile of construction materials. The area must be situated on the application site, and must be situated to have a minimal visual impact on the neighbouring area. 	Low
<p>Veld fires may cause damage to the infrastructure, vegetation and neighbouring properties.</p>	Low	<ul style="list-style-type: none"> • A specific area on site must be allocated, which will have the least impact on the environment and surrounding landowners, for fires of construction workers. 	None

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		This allocated area must be far from any structures and no fires may be lit except in the designated location.	
The construction vehicles, the site camp and other construction related facilities will have a negative visual impact during the construction phase.	Medium	<ul style="list-style-type: none"> • Before any construction commence on site, an area on site must be demarcated for a site camp. 	Low
Waste Management			
Site office, camp and associated waste (Visual, air and soil pollution).	Medium	<ul style="list-style-type: none"> • Temporary waste storage points on site shall be determined. These storage points shall be accessible by waste removal trucks; • These points should not be located in areas highly visible from the properties of the surrounding landowners/ tenants, in areas where the wind direction will carry bad odours across the properties of adjacent tenants or landowners; • The site camp and the rest of the study area should appear neat at all times; • Waste materials should be removed from the site on a regular basis, to a registered dumping site; and • The site camp should not be located in a highly visual area on the study area, or a screen or barrier should be erected as not have a negative impact on the sense of place. 	Low
Disposal of building waste & liquid.	Medium	<ul style="list-style-type: none"> • All the waste generated by the proposed development must be dumped at a preselected area on site to be carted to a register landfill site; • These areas shall be predetermined and located in areas that are already disturbed.; • Small lightweight waste items should be contained in skips with lids to prevent wind littering; • All waste must be removed to a recognized waste disposal site/ landfill site on a 	Low

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		<p>weekly basis. No waste materials may be disposed of on or adjacent to the site;</p> <ul style="list-style-type: none"> • The storage of solid waste on site, until such time that it may be disposed of, must be in the manner acceptable to the local authority; and • Keep records of waste reuse, recycling and disposal for future reference. 	
OPERATIONAL PHASE			
Beneficial Impacts			
Social & Economic Environment			
<p>The creation of permanent job opportunities –</p> <p>The proposed development will create permanent employment opportunities for the local workforce and entrepreneurs. Several job opportunities will be created for the skilled, semi-skilled and unskilled employees within the surrounding environment.</p>	High	Not applicable	High
<p>The proposed development will provide for a better safe environment as the security within the vicinity of the proposed development will increase.</p>	High	Not applicable	High
<p>Compatibility of the proposed land use with the frameworks and strategies for the area –</p> <p>The proposed development is compatible with the current and future planning and to the surroundings of the direct vicinity.</p>	High	Not applicable	High
<p>Infrastructure upgrades –</p> <p>The proposed infrastructure and road upgrades will benefit the surrounding community.</p>	Medium	Not applicable	Medium
<p>The proposed development will contribute to the creation of well balanced and attractive Light Industrial properties.</p>	Medium	Not applicable	Medium
<p>The proposed development will have a positive impact on the local economy as well as municipal income.</p>	Medium	Not applicable	Medium

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<p>The proposed development will have a positive impact on the "Sense of Place".</p> <p>The proposed development will enhance the Sense of Place and the Place structure of the immediate environment.</p>	<p align="center">Medium</p>	<p>Not applicable</p>	<p align="center">Medium</p>
Adverse Impacts			
Hydrology			
<p>According to GIDS the proposed development is not affected by the 1:50 and 1:00 year flood line.</p>	<p align="center">High</p>	<ul style="list-style-type: none"> • A storm water management plan should be implemented for the proposed development, in order to manage storm water effectively in the proposed storm water servitudes and attenuation areas. • It is important that the storm water management system be correctly maintained, in order to prevent the failure of the system, which could result into floods etc. 	<p align="center">Low</p>
<p>An increase in surface water runoff to storm water management systems (because of an increase of hard surfaces such as roofs and paved areas), may have an impact on surface and groundwater quality and quantities.</p>	<p align="center">Medium</p>	<ul style="list-style-type: none"> • Storm water throughout the site should be managed to accommodate the higher quantities of runoff; • Sheet flow should be encouraged as far as possible, and channels should be designed sufficiently address the problem of erosion; and • Bio-swale system could be implemented to filter water from paved areas and especially from roads and parking areas to sufficiently clean water of heavy metals and other hazardous materials in storm water on a natural manner. This will further provide an opportunity for water to infiltrate the soil, break the energy of storm water and keep the water on site for longer. • Permeable paving should also be used if possible. 	<p align="center">Low</p>
<p>Leaking pipes could cause ground water pollution risks, as well as the formation of sinkholes and dolines.</p>	<p align="center">Low</p>	<ul style="list-style-type: none"> • Pipes should be inspected on a regular basis; and • Ground water must be monitored once every six 	<p align="center">None</p>

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		months a sample should be taken and tested.	
Light pollution			
The proposed development could cause a significant level of light pollution as the light industrial development will need some security lighting.	Low	Lighting within the proposed development, including security lighting, could easily glare into surrounding residences if not designed appropriately. It is recommended that all the lighting on site be designed to point downwards and designed in such a way to not cause glare dispersal or unnecessary flickering.	None
Roads & Traffic			
Additional vehicle traffic could have a detrimental impact on the existing roads with in the vicinity of proposed development.	Medium	If required, the road network which surrounds the proposed development will have to be correctly maintained/ upgraded in order to support additional traffic generated.	Low
Visual Impact			
The proposed development will have some visual impact on the surrounding areas.	Medium	<ul style="list-style-type: none"> • It is important that the roofs of all the buildings within the proposed development should not reflect any sunlight; • The colour scheme for the buildings should be taken from the palette of colours in the natural surroundings; • Existing trees, if any should be retained as far possible on the site, in order to soften the visual impact of the buildings associated with the development, and to bring the scale of the large buildings in scale with the surrounding environment; • It is also proposed that as many additional indigenous trees be planted in areas that were previously disturbed, in order to soften the harsh visual impact of the proposed development. The planting of additional trees will help to develop a certain character for the site which will fit in with the surrounding environment. 	Low
Impact on the sense of place	Medium	If not managed correctly, the proposed Industrial park will have a negative impact on the sense of place of the	Low

		<p>surrounding environment, due to the height of the buildings that will form part of the proposed development;</p> <p>In order to "promote the Sense of Place" of the surrounding area, the colour scheme of the buildings which will form part of the proposed development, should be taken from a palette of colours in the natural surroundings.</p> <p>It is also important that a landscape development plan should be developed and implemented for the study area prior to the operational phase. Landscaped areas which will form part of the proposed development will in essence soften the harsh architectural lines and elements which are associated with the proposed development. Landscaped areas within the proposed development will also bring the scale of the buildings in relation to the surrounding environment.</p>
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Potential impacts: <u>ADVERSE IMPACTS</u>	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
CONSTRUCTION PHASE			
Geology and Soils			
Soil erosion, siltation and gully formation.	Medium	<p>In order to prevent erosion, siltation and water pollution the following must be done:</p> <ul style="list-style-type: none"> ▪ The involved engineer should compile a storm water management plan; ▪ Mitigation measures to prevent erosion, siltation and water pollution at the storm water discharge points should be provided by the involved storm water engineer; ▪ The storm water management plan should be designed inherent to the following principles: 	Low

		<ul style="list-style-type: none"> o Retain inherent drainage systems in natural areas; o Simulate natural run-off and convergence of storm water; o Minimize unnatural drainage diversions; o Promote sheet flow of storm water run-off on open areas; o Conserve the in situ soil mantle as far as possible by ensuring that accelerated erosion caused by human activities are addressed and attended to; o Make use of energy dissipation solutions to storm water systems where necessary; and o Protect and line open storm water drainage channels, as an aid and secondary assistance to storm water management. <ul style="list-style-type: none"> ▪ The storm water management plan should be designed and implemented in a way that aims to ensure that post development runoff does not exceed predevelopment values in: <ul style="list-style-type: none"> o Peak discharge for any given storm; o Total volume of runoff for any given storm; o Frequency of runoff; and o Pollutant and debris concentrations reaching water courses. <p>Construction works must be kept to a minimum on site and only be done one section at a time to prevent excessive open soil areas that could lead to soil erosion, siltation and excessive compaction.</p>	
<p>If not planned and managed correctly, topsoil will be lost.</p>	<p align="center">Medium</p>	<ul style="list-style-type: none"> ▪ A shake down area at the exit of the construction site should be established where the excessive soil on the tires of construction vehicles can be brushed off and kept aside for later use during rehabilitation works; ▪ The construction site should be planned before any construction activities take 	<p align="center">Low</p>

		<p>place on site. The areas where soil will be compacted by construction activities, heavy vehicle movement (on site construction routes), site camp, material storage areas and stockpiling areas should be marked out and the topsoil should be removed;</p> <ul style="list-style-type: none"> ▪ The areas where topsoil will not be removed and that will be conserved during the construction phase should be marked with barrier tape to ensure vehicles do not move across these areas and construction activities do not damage the in situ topsoil; ▪ The removed topsoil should be stored separately from all stockpiled materials and subsoil, according to the stockpiling methods as described below. The stockpiled topsoil should be used for rehabilitation and landscaping purposes after construction has been completed; ▪ The installation of services could leave soils exposed and susceptible to erosion. Soils should be stored adjacent to the excavated trenches that are excavated to install services, and these should be filled up with the in situ material as the services are installed. All stones and rocks bigger than 80 mm should be removed from the top layer of soil and these disturbed areas should be re-vegetated immediately after works in a specific area has been completed; ▪ Rehabilitation works must be done immediately after the involved works in an area is completed to prevent erosion; and <p>Excavations on site must be kept to a minimum and done only one section at a time. Excavated soils must be stockpiled directly on the</p>	
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		demarcated area on site.	
Hydrology & Groundwater			
The use of insufficient drainage systems.	Medium	The storm water and drainage systems must be designed by an engineer to ensure sufficient drainage on site.	None
Vehicle maintenance.	Medium	Vehicle maintenance may not be done on the application site. Whenever a vehicle needs maintenance it must be taken to a certified workshop for the maintenance.	None
Excavated materials that are stockpiled in the wrong areas can interfere with the natural drainage.	Medium	An area must be allocated for stockpiling of topsoil before any construction take place on the application site and must be situated from any water source or drainage channels. A sediment fence or barrier must be constructed around the stockpile to prevent soil from washing away by rain or any water.	Low
Surface water flows will be altered during the construction phase.	Medium	Due to the excavations that will take place (there will be trenches, topsoil and subsoil mounds in and around the study area), the topography of the study area will temporarily be altered. However, this will only be a short-term impact and if the levels are resorted to normal, the surface drainage patterns from the new levels should not differ too much from the surface water drainage of the original levels.	Low
The possibility of ground water pollution.	Medium	<ul style="list-style-type: none"> ▪ Develop a central waste temporary holding site to be used during construction (near the access entrance). This site should comply with the following: <ul style="list-style-type: none"> ○ Skips for the containment and disposal of all waste that could cause soil and water pollution, i.e. paint, lubricants, etc.; ○ These areas shall be predetermined and located in areas that are already disturbed; ○ Workers will only be allowed to use temporary chemical toilets on the site; ○ No french drain systems may 	Low

		<p>be installed on site at any time;</p> <ul style="list-style-type: none"> o No bins containing organic solvents such as paints and thinners shall be cleaned on site, unless containers for liquid waste disposal are placed for this purpose on site; ▪ No leaking vehicle shall be allowed on site. Before entering the study area, all vehicles and equipment shall be inspected for leaks by a qualified mechanic/other suitably qualified person and the environmental officer. The mechanic/ the mechanic of the appointed contractor must supply the environmental officer with a letter of confirmation that the vehicles and equipment are leak proof; and ▪ If maintenance on site is absolutely necessary, it should be conducted on a concrete surface in the site camp. Spilled oil should be cleaned up and disposed off appropriately (not dumped on site). This area may not be washed with soaps and dissolvent and allowed to enter the drainage system. 	
Climate			
<p>Construction during the rainy season can cause unnecessary delays and damage to the environment.</p>	Medium	<p>Should the construction phase be scheduled for the wetter months, frequent rain could cause very wet conditions, which makes it extremely difficult to do excavations and to do the necessary rehabilitation works of disturbed areas. Wet soils are also more vulnerable to compaction. Wet conditions often cause delays to construction projects and the draining of water away from the construction works (in the case of high water tables) into the water bodies of the adjacent properties, could (if not planned and managed correctly) have an impact on the water quality of these water bodies.</p>	Low

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Construction during the dry and windy season.	Low	The application site must be damped at a regular basis with sprinkling of water (more or less 3 to 4 times on a dry day). A water tanker should be used if possible.	None
Fauna & Flora			
The clearing of the site and the construction of the development will result in the eradication of the existing vegetation.	Low	The proposed development area is already disturbed and dominated by weeds.	None
Due to the fact that some services (temporary/permanent) will have to be installed the excavations for the proposed services will cause some areas to be exposed due to the loss of some of the existing vegetation coverage.	Medium	Areas where services are installed must be leveled, re-vegetated and rehabilitated as soon as possible to prevent any soil loss.	Low
Uncontrolled veld fires may cause damage or loss to vegetation and fauna in the area.	Medium	If fires are required for cooking and heating purposes, these fires will only be permitted in designated areas on the site. The fire area should be an exposed area (no natural veld grass should be in close proximity of the fire area). Construction workers should only be allowed to smoke in the fire area and fires should preferably be prevented while strong winds are blowing.	None
Uncontrolled activities and access to sensitive areas in the vicinity.	Medium	<ul style="list-style-type: none"> ▪ Dumping of building rubble and other waste on surrounding properties, vacant land or Open Space systems is strictly prohibited; and ▪ No vehicles must be allowed to move in or across the sensitive areas within the surrounding area. This leaves visible scars and destroys habitat. 	Low
Snaring and hunting of fauna species during the construction phase and the destruction of habitats can have a detrimental effect on some species.	Medium	<ul style="list-style-type: none"> ▪ Strict measures to prevent the hunting /snaring /scaring of fauna species should be implemented; ▪ The gathering of wood should not be allowed on site or on any adjacent properties; ▪ Any person that is caught hunting, snaring or damaging 	Low

		<p>existing vegetation or fauna (earmarked to be retained) should be fined. The responsible contractor will also be fined and will have to replace the fauna or flora species as specified by the ECO at the time;</p> <ul style="list-style-type: none"> ▪ The involved authorities should be informed of the activity, the fine and the replacement specifications; ▪ Caught animals should be relocated to conservation areas in the vicinity; ▪ During the construction phase, noise should be kept to a minimum to reduce the impact of the development on the fauna and the development should be done in phases to allow faunal species to temporarily migrate; and ▪ Where possible, work should be restricted to one area at a time. This will give the smaller fauna species a chance to weather the disturbance in an undisturbed zone close to their natural territories. 	
Possible spreading of invaders into the surrounding natural areas.	Medium	No plants, not indigenous to the area, or exotic plant species, especially lawn grasses and other ground-covering plants should be introduced in the landscaping of the proposed development.	Low
Less area will be available to retain existing and plant more indigenous, endemic vegetation to attract wildlife to the gardens of the development.	Low	Retain as much existing indigenous, endemic vegetation as possible on site and plant new indigenous, endemic trees and vegetation	Low
Cultural/Archaeology			
Occurrence of cultural historical assets on the proposed site.	Low	The proposed development site has no significant heritage resources. However, if archaeological sites are exposed during construction work, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be	None

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		made.	
Localised Vibration			
The noise created by earthmoving machinery will result in the greatest increase in ambient levels. This will be short term, being generated only during the day.	Medium	All construction activities must be restricted to between 7:00 and 17:00 weekdays and 8:00 and 13:00 on Saturdays. No construction may take place on Sundays and public holidays.	Low
Air Pollution			
Nuisance to neighbours in terms of dust generation due to construction during the dry and windy season.	Medium	The application site must be damped at a regular basis with sprinkling of water (more or less 3 to 4 times on a dry day). A water tanker should be used if possible.	Low
Roads & Traffic			
Heavy vehicle traffic increase could disrupt the surrounding landowners' daily routines.	Medium	Heavy vehicles must be instructed to only use the main roads during off-peak hours.	Low
Restrictions of access to surrounding properties and the study area during construction phases.	Medium	<ul style="list-style-type: none"> ▪ To minimize this impacts or risks, heavy construction vehicles should avoid using the local road network during peak traffic times; ▪ These vehicles should use only specific roads and strictly keep within the speed limits and abide to all traffic laws. No speeding or reckless driving should be allowed. Access to the site for construction vehicles should be planned to minimize the impact on the surrounding network; and ▪ Warning signs should be erected on the roads that these vehicles will use, at big crossings/access roads and on the site if needed. 	Low
Damage to roads	Medium	Specific roads must be allocated for the use by construction vehicles and photos must be taken prior to construction in order to determine if any damage has been done.	Low
Safety & Security			
During the construction phase safety and security problems (especially for the surrounding residents) are likely to occur.	Medium	Construction must be completed in as short a time as possible. No construction worker or relative may reside on the application site during the construction phase. All construction workers must leave the site at the end of a days work. A security guard should be appointed on site to prevent	Low

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<p>Any proposed development offers the potential for unplanned informal settlement (squatting) before construction commences or after construction. In addition, the likelihood of informal vending settlements and prostitution establishing is real in the presence of the construction force.</p>	<p align="center">Medium</p>	<p>any security problems. No construction worker, friend or relative may settle/reside on site. Only security may be present on site after construction hours.</p>	<p align="center">None</p>
<p>Construction activities could cause danger to children and animals of the surrounding residents.</p>	<p align="center">Medium</p>	<ul style="list-style-type: none"> ▪ Although regarded as a normal practice, it is important to erect proper signs indicating the operations of heavy vehicles in the vicinity of dangerous crossings and access roads or even on the development site if necessary; ▪ It is also important to indicate all areas where excavations took place/are taking place and warning signs that clearly indicate areas with excavations must be placed immediately adjacent to excavations; ▪ A barrier should be established around dangerous excavation areas; ▪ With the exception of the appointed security personnel, no other workers, friend or relatives will be allowed to sleep on the construction site (weekends included), in the public open space or on adjacent properties; and ▪ No workers should be allowed to enter adjacent private properties without written consent of the legal owners to the contractor. 	<p align="center">Low</p>
Visual Impact			
<p>Dumping of builder's rubble on neighbouring properties.</p>	<p align="center">Medium</p>	<p>A specific location for building rubble must be allocated on site, to concentrate and collect the building rubble and cart it to a certified landfill site. The allocated area must be out of sight of neighbouring properties to have a less visual impact.</p>	<p align="center">Low</p>
<p>Stockpile areas for construction materials.</p>	<p align="center">Medium</p>	<p>An area on the site must be allocated for the stockpile of construction materials. The area</p>	<p align="center">Low</p>

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		must be situated on the application site, and must be situated to have a minimal visual impact on the neighbouring area.	
Veld fires may cause damage to infrastructure, vegetation and neighbouring properties.	Medium	A specific area on site must be allocated, which will have the least impact on the environment and surrounding landowners, for fires of construction workers. This allocated area must be far from any structures and no fires may be lit except in the designated location.	None
The construction vehicles, the site camp and other construction related facilities will have a negative visual impact during the construction phase.	Medium	Before any construction commence on site, an area on site must be demarcated for a site camp.	Low
Waste Management			
Site office, camp and associated waste (visual, air and soil pollution)	Medium	<ul style="list-style-type: none"> ▪ Temporary waste storage points on site shall be determined. These storage points shall be accessible by waste removal trucks; ▪ These points should not be located in areas highly visible from the properties of the surrounding landowners/tenants/in areas where the wind direction will carry bad odours across the properties of adjacent tenants or landowners; ▪ The site camp and the rest of the study area should appear neat at all times; ▪ Waste materials should be removed from the site on a regular basis, to a registered dumping site; and ▪ The site camp should not be located in a highly visual area on the study area, or a screen or barrier should be erected to minimize the negative impact on the sense of place. 	Low
Disposal of building waste & liquids.	Medium	<ul style="list-style-type: none"> ▪ All waste generated by the development must be dumped at a pre-selected area on site to be carted to a registered landfill site. These areas shall be predetermined and located in areas that are already disturbed; 	Low

		<ul style="list-style-type: none"> ▪ Small lightweight waste items should be contained in skips with lids to prevent wind littering; ▪ All waste must be removed to a recognized waste disposal site on a weekly basis. No waste materials may be disposed of on or adjacent to the site; ▪ The storage of solid waste on site, until such time that it may be disposed of, must be in the manner acceptable to the Local Authority; and ▪ Keep records of waste reuse, recycling and disposal for future reference. 	
OPERATIONAL PHASE			
Hydrology			
An increase in surface water runoff to storm water management systems (because of an increase of hard surfaces such as roofs and paved areas), may have an impact on surface and groundwater quality and quantities.	Medium	<ul style="list-style-type: none"> ▪ Storm water throughout the site should be managed to accommodate the higher quantities of runoff; ▪ Sheet flow should be encouraged as far as possible, and channels should be designed sufficiently to address the problem of erosion; and ▪ Bio-swale system could be implemented to filter water from paved areas and especially from roads and parking areas to sufficiently clean water of heavy metals and other hazardous materials in storm water in a natural manner. This will further provide an opportunity for water to infiltrate the soil, break the energy of storm water and keep the water on site for longer. ▪ Permeable paving should also be used if possible. 	Low
Leaking pipes could cause ground water pollution risks.	Medium	<ul style="list-style-type: none"> ▪ Pipes should be inspected on a regular basis; and ▪ Ground water must be monitored once every six months a sample should be taken and tested. 	Low
Fauna & Flora			
If kikuyu lawns are not controlled it may spread into the natural areas.	Medium	Kikuyu lawns on site should be eradicated and the use of kikuyu lawns in the landscaping	None

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		of the new development should be restricted and not be allowed to spread into the surrounding area, by constructing a brick kerb or edging of at least 250mm deep. Kerbing can be used between Kikuyu and natural areas.	
Loss of agricultural land.	Low	The agricultural potential of the study area is very low and the impact will, therefore, not be significant. The study area is also too small to farm economically.	None
Loss of habitat.	Low	Some habitat will be lost as a result of the proposed development. However, due to increasing development pressure and the security threat it will not be sensible/viable to leave the proposed development site vacant/undeveloped.	None
Visual Impact			
The proposed development will have some visual impact on the surrounding areas.	Medium	<ul style="list-style-type: none"> ▪ The proposed development will be seen from a distance and, therefore, the roofs should not reflect the sun or be covered with roofing materials that have bright colours; ▪ The colour scheme should be taken from the palette of colours in the natural surroundings; ▪ It is proposed that as many additional indigenous (preferably endemic) trees are planted in the early stages of the development to ensure a quick and established feeling; trees should be used in the landscaping around the structures to soften the hard structures. 	Low
Light Pollution			
Light pollution during the night, caused by unsympathetic lighting design.	Low	Lights that direct light beams downwards with low glaring qualities should be used for landscaping and streetlights. The lights should not be directed to glare in ongoing traffic or into the properties of surrounding residents.	None
Institutional			
Compatibility with surrounding land uses.	Low	The proposed development area is surrounded by residential	None

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		and commercial developments. The proposed development can therefore be accommodated and seen as an extension of the Centurion CBD. The proposed development could therefore be seen as in line with the surrounding land uses.	
Roads & Traffic			
Impact of additional vehicle traffic on already busy roads due to traffic associated with development.	Medium	The involved traffic Engineer indicated that the proposed development could be accommodated within the surrounding network, and that if certain road upgrading be completed, would have an insignificant impact on the surrounding road network and traffic.	None

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

- Fauna and Flora Habitat Assessment (Appendix G2)**
- Wetland Report (Appendix G1)**

3. IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING AND CLOSURE PHASE

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the decommissioning and closure phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

Alternative 1 (Proposal) – Mixed use development.

Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
Geology & Soils			
Soil erosion, siltation and gully formation.	Medium	Demolition works must be kept to a minimum on site and only be done one section at a time to prevent excessive open soil areas that could lead to soil erosion, siltation and excessive compaction.	Low
If not planned and managed correctly, topsoil will be lost.	Medium	<ul style="list-style-type: none"> ▪ A shake down area at the exit of the site should be established where the excessive soil on the tires of vehicles can be brushed off and kept aside for later use during rehabilitation works; ▪ The site should be planned before any decommissioning 	Low

		<p>activities take place on site. The areas where soil will be compacted, heavy vehicle movement (on site construction routes), site camp, material storage areas and stockpiling areas should be marked out and the topsoil should be removed;</p> <ul style="list-style-type: none"> ▪ The areas where topsoil will not be removed and that will be conserved should be marked with barrier tape to ensure vehicles do not move across these areas and decommissioning activities do not damage the in situ topsoil; ▪ The removed topsoil should be stored separately from all stockpiled materials and subsoil, according to the stockpiling methods as described below. The stockpiled topsoil should be used for rehabilitation purposes after decommissioning has been completed; and ▪ Rehabilitation works must be done immediately after the involved works in an area is completed to prevent erosion. 	
<p>Water seepage at shallow depth could cause instability of soil or water pollution.</p>	<p>Medium</p>	<p>Geotechnical and civil engineers must supply mitigation measures and guidelines to prevent problems.</p>	<p>Low</p>
<p>Incorrect construction could increase the possibility of doline and sinkhole formation due to the underlying dolomitic conditions in the area.</p>	<p>High</p>	<ul style="list-style-type: none"> ▪ Due to the underlying dolomitic conditions it is important that the following be adhered to: ▪ Surface water should be routed away from buildings and soils should be kept dry around buildings. Damming or ponding of water should be prevented, ▪ No irrigation system should be implemented as part of the Formal Landscaping, as this could increase the risk of doline and sinkhole formation. ▪ All dolomite prevention measures should be adhered to as indicated within the Dolomite Stability Report. ▪ Buildings and structures should 	<p>None</p>

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		<p>adhere to the NHBC standards and norms.</p> <ul style="list-style-type: none"> ▪ All wet services should be regularly inspected to prevent leaking pipes. ▪ Trees should not be situated in close proximity of any wet services. This will prevent the roots to penetrate the wet service lines and cause water leakage. 	
Hydrology & Groundwater			
Vehicle maintenance.	Medium	Vehicle maintenance may not be done on the application site. Whenever a vehicle needs maintenance it must be taken to a certified workshop for the maintenance.	None
Excavated materials that are stockpiled in the wrong areas can interfere with the natural drainage.	Medium	An area must be allocated for stockpiling of topsoil before any demolishing of buildings take place on the site and must be situated from any water source or drainage channels. A sediment fence or barrier must be constructed around the stockpile to prevent soil from washing away by rain or any water.	Low
Surface water flows will be altered during the decommissioning phase.	Medium	Due to the demolishing that will take place (there will be trenches, topsoil and subsoil mounds in and around the area), the topography of the site will temporarily be altered.	Low
The possibility of ground water pollution.	Medium	<ul style="list-style-type: none"> ▪ Develop a central waste temporary holding site to be used during decommissioning (near the access entrance). This site should comply with the following: <ul style="list-style-type: none"> ○ Skips for the containment and disposal of all waste that could cause soil and water pollution, i.e. paint, lubricants, etc.; ○ Workers will only be allowed to use temporary chemical toilets on the site; ○ No french drain systems may be installed on site at any time; ▪ No leaking vehicle shall be allowed on site. Before entering the area, all vehicles and equipment shall be 	Low

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		<p>inspected for leaks by a qualified mechanic/other suitably qualified person and the environmental officer. The mechanic/ the mechanic of the appointed contractor must supply the environmental officer with a letter of confirmation that the vehicles and equipment are leak proof; and</p> <ul style="list-style-type: none"> ▪ If maintenance on site is absolutely necessary, it should be conducted on a concrete surface in the site camp. Spilled oil should be cleaned up and disposed off appropriately (not dumped on site). This area may not be washed with soaps and dissolvent and allowed to enter the drainage system. 	
Climate			
Demolition works during the rainy season can cause unnecessary delays and damage to the environment, especially damage to existing roads in the area.	Medium	Should decommissioning take place in the wetter months, frequent rain could cause very wet conditions, which makes it extremely difficult to do the necessary rehabilitation works of disturbed areas. Wet soils are vulnerable to compaction. Wet conditions often causes delays and the draining of water away from the works (in the case of high water tables) into the water bodies of the adjacent properties, could (if not planned and managed correctly) have an impact on the water quality of these water bodies.	Low
Demolition works during the dry and windy season.	Low	Regular and effective damping down of working areas (especially during the dry and windy periods) must be carried out to avoid dust pollution that will have a negative impact on the surrounding environment. When necessary, these working areas should be damped down at least twice daily.	None
Fauna & Flora			
The clearing of the site and the demolishing of buildings will result in the eradication of the existing vegetation.	Medium	It is proposed that only sections to be constructed be cleared at a time to ensure that unnecessary bare soil areas are exposed.	Low

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Uncontrolled fires may cause damage or loss to vegetation and fauna in the area.	Medium	If fires are required for cooking and heating purposes, these fires will only be permitted in designated areas on the site. The fire area should be an exposed area (no natural veld grass should be in close proximity of the fire area). Workers should only be allowed to smoke in the fire area and fires should preferably be prevented while strong winds are blowing.	None
Uncontrolled activities and access to sensitive areas in the vicinity.	Medium	<ul style="list-style-type: none"> ▪ Dumping of building rubble and other waste on these areas is strictly prohibited; and ▪ No vehicles must be allowed to move in or across the sensitive areas. This leaves visible scars and destroys habitat. 	Low
Visual Impact			
Remnants of building structures.	High	All building structures must be taken down and dispatched of accordingly.	Medium
Aesthetically unpleasing.	High	The decommissioning of the buildings will be aesthetically unpleasing. Building rubble must be stockpiled where it will have the least visual impact.	Medium
Dumping of builder's rubble on neighbouring properties.	Medium	A specific location for building rubble must be allocated on site, to concentrate and collect the building rubble and cart it to a certified landfill site. The allocated area must be out of sight of neighbouring properties to have a less visual impact.	None
Veld fires may cause damage to infrastructure, vegetation and neighbouring properties.	Medium	A specific area on site must be allocated, which will have the least impact on the environment and surrounding landowners, for fires of workers. This allocated area must be far from any structures and no fires may be lit except in the designated location.	None
The vehicles, the site camp and other decommissioning related facilities will have a negative visual impact during the decommissioning phase.	Medium	Before any construction work commence on site, an area on site must be demarcated for a site camp.	None
Localised Vibrations			
Noise pollution.	Medium	The activities related with the	Low

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		decommissioning phase will generate noise. Therefore, it must be restricted during working hours.	
Air Pollution			
Nuisance to neighbours in terms of dust generation due to demolishing of buildings.	High	The application site must be damped at a regular basis with water (more or less 3 to 4 times on a dry day). A water tanker should be used if possible.	Low
Roads & Traffic			
Heavy vehicle traffic increase could disrupt the surrounding landowners' daily routines.	Medium	Heavy vehicles must be instructed to only use the main roads during off-peak hours.	Low
Restrictions of access to surrounding properties.	Medium	<ul style="list-style-type: none"> ▪ To minimize this impacts or risks, heavy vehicles (trucks, bulldozers, etc.) should avoid using the local road network during peak traffic times; ▪ These vehicles should use only specific roads and strictly keep within the speed limits and abide to all traffic laws. No speeding or reckless driving should be allowed. Access to the site for heavy vehicles should be planned to minimize the impact on the surrounding network; and ▪ Warning signs should be erected on the roads that these vehicles will use, at big crossings/access roads and on the site if needed. 	Low
Damage to roads.	Medium	Specific roads must be allocated for the use by heavy vehicles and photos must be taken prior to decommissioning in order to determine if any damage has been done.	None
Safety & Security			
During the decommissioning phase safety and security problems (especially for the surrounding residents) are likely to occur.	Medium	Demolition works must be completed in as short time as possible. No worker or relative may reside on the site. All workers must leave the site at the end of a days work. A security guard should be appointed on site to prevent any security problems.	Low
Decommissioning activities could cause danger to children and animals of the surrounding residents.	Medium	<ul style="list-style-type: none"> ▪ Although regarded as a normal practice, it is important to erect proper signs indicating the operations of heavy vehicles in the vicinity of 	Low

		<p>dangerous crossings and access roads or even on the site if necessary;</p> <ul style="list-style-type: none"> ▪ It is also important to indicate all areas where excavations took place/are taking place and warning signs that clearly indicate areas with excavations must be placed immediately adjacent to excavations; ▪ A barrier should be established around dangerous excavation areas; ▪ With the exception of the appointed security personnel, no other workers, friend or relatives will be allowed to sleep on the site (weekends included), in the public open space or on adjacent properties; and ▪ No workers should be allowed to enter adjacent private properties without written consent of the legal owners to the contractor. 	
Waste Management			
<p>Site office, camp and associated waste (visual, air and soil pollution)</p>	Medium	<ul style="list-style-type: none"> ▪ Temporary waste storage points on site shall be determined. These storage points shall be accessible by waste removal trucks; ▪ These points should not be located in areas highly visible from the properties of the surrounding land-owners/tenants/in areas where the wind direction will carry bad odours across the properties of adjacent tenants or landowners; ▪ The site camp and the rest of the area should appear neat at all times; ▪ Waste materials should be removed from the site on a regular basis, to a registered dumping site; and ▪ The site camp should not be located in a highly visual area on the site, or a screen or barrier should be erected as not have a negative impact on the sense of place. 	Low
<p>Disposal of building waste &</p>	Medium	<ul style="list-style-type: none"> ▪ All waste generated must be 	Low

liquids.		<p>dumped at a pre-selected area on site to be carted to a registered landfill site. THESE AREAS SHALL BE PREDETERMINED;</p> <ul style="list-style-type: none"> ▪ Small lightweight waste items should be contained in skips with lids to prevent wind littering; ▪ All waste must be removed to a recognized waste disposal site on a weekly basis. No waste materials may be disposed of on or adjacent to the site; ▪ The storage of solid waste on site, until such time that it may be disposed of, must be in the manner acceptable to the Local Authority; and ▪ Keep records of waste reuse, recycling and disposal for future reference. 	
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Alternative 2 – Light Industrial.

Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
Geology & Soils			
Soil erosion, siltation and gully formation.	Medium	Demolition works must be kept to a minimum on site and only be done one section at a time to prevent excessive open soil areas that could lead to soil erosion, siltation and excessive compaction.	Low
If not planned and managed correctly, topsoil will be lost.	Medium	<ul style="list-style-type: none"> ▪ A shake down area at the exit of the site should be established where the excessive soil on the tires of vehicles can be brushed off and kept aside for later use during rehabilitation works; ▪ The site should be planned before any decommissioning activities take place on site. The areas where soil will be compacted, heavy vehicle movement (on site construction routes), site camp, material storage areas and stockpiling areas should be marked out and 	Low

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		<p>the topsoil should be removed;</p> <ul style="list-style-type: none"> ▪ The areas where topsoil will not be removed and that will be conserved should be marked with barrier tape to ensure vehicles do not move across these areas and decommissioning activities do not damage the in situ topsoil; ▪ The removed topsoil should be stored separately from all stockpiled materials and subsoil, according to the stockpiling methods as described below. The stockpiled topsoil should be used for rehabilitation purposes after decommissioning has been completed; and ▪ Rehabilitation works must be done immediately after the involved works in an area is completed to prevent erosion. 	
<p>Water seepage at shallow depth could cause instability of soil or water pollution.</p>	Medium	<p>Geotechnical and civil engineers must supply mitigation measures and guidelines to prevent problems.</p>	Low
<p>Incorrect construction could increase the possibility of doline and sinkhole formation due to the underlying dolomitic conditions in the area.</p>	High	<ul style="list-style-type: none"> ▪ Due to the underlying dolomitic conditions it is important that the following be adhered to: ▪ Surface water should be routed away from buildings and soils should be kept dry around buildings. Damming or ponding of water should be prevented, ▪ No irrigation system should be implemented as part of the Formal Landscaping, as this could increase the risk of doline and sinkhole formation. ▪ All dolomite prevention measures should be adhered to as indicated within the Dolomite Stability Report. ▪ Buildings and structures should adhere to the NHBRC standards and norms. ▪ All wet services should be regularly inspected to 	None

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		<p>prevent leaking pipes.</p> <ul style="list-style-type: none"> ▪ Trees should not be situated in close proximity of any wet services. This will prevent the roots to penetrate the wet service lines and cause water leakage. 	
Hydrology & Groundwater			
Vehicle maintenance.	Medium	Vehicle maintenance may not be done on the application site. Whenever a vehicle needs maintenance it must be taken to a certified workshop for the maintenance.	None
Excavated materials that are stockpiled in the wrong areas can interfere with the natural drainage.	Medium	An area must be allocated for stockpiling of topsoil before any demolishing of buildings take place on the site and must be situated from any water source or drainage channels. A sediment fence or barrier must be constructed around the stockpile to prevent soil from washing away by rain or any water.	Low
Surface water flows will be altered during the decommissioning phase.	Medium	Due to the demolishing that will take place (there will be trenches, topsoil and subsoil mounds in and around the area), the topography of the site will temporarily be altered.	Low
The possibility of ground water pollution.	Medium	<ul style="list-style-type: none"> ▪ Develop a central waste temporary holding site to be used during decommissioning (near the access entrance). This site should comply with the following: <ul style="list-style-type: none"> ○ Skips for the containment and disposal of all waste that could cause soil and water pollution, i.e. paint, lubricants, etc.; ○ Workers will only be allowed to use temporary chemical toilets on the site; ○ No french drain systems may be installed on site at any time; ▪ No leaking vehicle shall be allowed on site. Before entering the area, all vehicles and equipment shall be inspected for leaks by a qualified mechanic/other suitably qualified person and the environmental officer. 	Low

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		<p>The mechanic/ the mechanic of the appointed contractor must supply the environmental officer with a letter of confirmation that the vehicles and equipment are leak proof; and</p> <ul style="list-style-type: none"> ▪ If maintenance on site is absolutely necessary, it should be conducted on a concrete surface in the site camp. Spilled oil should be cleaned up and disposed off appropriately (not dumped on site). This area may not be washed with soaps and dissolvent and allowed to enter the drainage system. 	
Climate			
Demolition works during the rainy season can cause unnecessary delays and damage to the environment, especially damage to existing roads in the area.	Medium	Should decommissioning take place in the wetter months, frequent rain could cause very wet conditions, which makes it extremely difficult to do the necessary rehabilitation works of disturbed areas. Wet soils are vulnerable to compaction. Wet conditions often causes delays and the draining of water away from the works (in the case of high water tables) into the water bodies of the adjacent properties, could (if not planned and managed correctly) have an impact on the water quality of these water bodies.	Low
Demolition works during the dry and windy season.	Low	Regular and effective damping down of working areas (especially during the dry and windy periods) must be carried out to avoid dust pollution that will have a negative impact on the surrounding environment. When necessary, these working areas should be damped down at least twice daily.	None
Fauna & Flora			
The clearing of the site and the demolishing of buildings will result in the eradication of the existing vegetation.	Medium	It is proposed that only sections to be constructed be cleared at a time to ensure that unnecessary bare soil areas are exposed.	Low
Uncontrolled fires may cause damage or loss to vegetation and fauna in the	Medium	If fires are required for cooking and heating purposes, these fires will only be permitted in	None

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area.		designated areas on the site. The fire area should be an exposed area (no natural veld grass should be in close proximity of the fire area). Workers should only be allowed to smoke in the fire area and fires should preferably be prevented while strong winds are blowing.	
Uncontrolled activities and access to sensitive areas in the vicinity.	Medium	<ul style="list-style-type: none"> ▪ Dumping of building rubble and other waste on these areas is strictly prohibited; and ▪ No vehicles must be allowed to move in or across the sensitive areas. This leaves visible scars and destroys habitat. 	Low
Visual Impact			
Remnants of building structures.	High	All building structures must be taken down and dispatched of accordingly.	Medium
Aesthetically unpleasing.	High	The decommissioning of the buildings will be aesthetically unpleasing. Building rubble must be stockpiled where it will have the least visual impact.	Medium
Dumping of builder's rubble on neighbouring properties.	Medium	A specific location for building rubble must be allocated on site, to concentrate and collect the building rubble and cart it to a certified landfill site. The allocated area must be out of sight of neighbouring properties to have a less visual impact.	None
Veld fires may cause damage to infrastructure, vegetation and neighbouring properties.	Medium	A specific area on site must be allocated, which will have the least impact on the environment and surrounding landowners, for fires of workers. This allocated area must be far from any structures and no fires may be lit except in the designated location.	None
The vehicles, the site camp and other decommissioning related facilities will have a negative visual impact during the decommissioning phase.	Medium	Before any construction work commence on site, an area on site must be demarcated for a site camp.	None
Localised Vibrations			
Noise pollution.	Medium	The activities related with the decommissioning phase will generate noise. Therefore, it	Low

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		must be restricted during working hours.	
Air Pollution			
Nuisance to neighbours in terms of dust generation due to demolishing of buildings.	High	The application site must be damped at a regular basis with water (more or less 3 to 4 times on a dry day). A water tanker should be used if possible.	Low
Roads & Traffic			
Heavy vehicle traffic increase could disrupt the surrounding landowners' daily routines.	Medium	Heavy vehicles must be instructed to only use the main roads during off-peak hours.	Low
Restrictions of access to surrounding properties.	Medium	<ul style="list-style-type: none"> ▪ To minimize this impacts or risks, heavy vehicles (trucks, bull dowsers, etc.) should avoid using the local road network during peak traffic times; ▪ These vehicles should use only specific roads and strictly keep within the speed limits and abide to all traffic laws. No speeding or reckless driving should be allowed. Access to the site for heavy vehicles should be planned to minimize the impact on the surrounding network; and ▪ Warning signs should be erected on the roads that these vehicles will use, at big crossings/access roads and on the site if needed. 	Low
Damage to roads.	Medium	Specific roads must be allocated for the use by heavy vehicles and photos must be taken prior to decommissioning in order to determine if any damage has been done.	None
Safety & Security			
During the decommissioning phase safety and security problems (especially for the surrounding residents) are likely to occur.	Medium	Demolition works must be completed in as short time as possible. No worker or relative may reside on the site. All workers must leave the site at the end of a days work. A security guard should be appointed on site to prevent any security problems.	Low
Decommissioning activities could cause danger to children and animals of the surrounding residents.	Medium	<ul style="list-style-type: none"> ▪ Although regarded as a normal practice, it is important to erect proper signs indicating the operations of heavy vehicles in the vicinity of dangerous 	Low

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		<p>crossings and access roads or even on the site if necessary;</p> <ul style="list-style-type: none"> ▪ It is also important to indicate all areas where excavations took place/are taking place and warning signs that clearly indicate areas with excavations must be placed immediately adjacent to excavations; ▪ A barrier should be established around dangerous excavation areas; ▪ With the exception of the appointed security personnel, no other workers, friend or relatives will be allowed to sleep on the site (weekends included), in the public open space or on adjacent properties; and ▪ No workers should be allowed to enter adjacent private properties without written consent of the legal owners to the contractor. 	
Waste Management			
<p>Site office, camp and associated waste (visual, air and soil pollution)</p>	Medium	<ul style="list-style-type: none"> ▪ Temporary waste storage points on site shall be determined. These storage points shall be accessible by waste removal trucks; ▪ These points should not be located in areas highly visible from the properties of the surrounding land-owners/tenants/in areas where the wind direction will carry bad odours across the properties of adjacent tenants or landowners; ▪ The site camp and the rest of the area should appear neat at all times; ▪ Waste materials should be removed from the site on a regular basis, to a registered dumping site; and ▪ The site camp should not be located in a highly visual area on the site, or a screen or barrier should be erected as not have a negative impact on the sense of place. 	Low
<p>Disposal of building waste &</p>	Medium	<ul style="list-style-type: none"> ▪ All waste generated must be 	Low

liquids.		<p>dumped at a pre-selected area on site to be carted to a registered landfill site. THESE AREAS SHALL BE PREDETERMINED;</p> <ul style="list-style-type: none"> ▪ Small lightweight waste items should be contained in skips with lids to prevent wind littering; ▪ All waste must be removed to a recognized waste disposal site on a weekly basis. No waste materials may be disposed of on or adjacent to the site; ▪ The storage of solid waste on site, until such time that it may be disposed of, must be in the manner acceptable to the Local Authority; and ▪ Keep records of waste reuse, recycling and disposal for future reference. 	
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List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

- Wetland Verification Assessment (G1)**
- Cultural and Historical Assessment (G2)**
- Geotechnical and Dolomite Stability Report (G3)**

4. CUMULATIVE IMPACTS

Describe potential impacts that, on their own may not be significant, but is significant when added to the impact of other activities or existing impacts in the environment. Substantiate response:

Should the proposed development be approved, the majority of cumulative impacts will be related to the construction phase.

- Noise pollution may upset residents in the area – to prevent this, construction activities may only take place during the daytime;
- Surface water flows will be altered during the construction phase of the proposed development – a storm water management plan must therefore be implemented;
- The construction vehicles and facilities will have a negative impact on the study area and surrounding views – this impact may be minimized by locating the site camp in an area with low visibility from surrounding developments and road networks;
- Dust pollution could cause nuisance to surrounding residents – dust can be effectively controlled through the wetting of exposed surfaces; especially in the Winter Months;
- During the construction phase some safety problems (especially for the surrounding residents) are likely to occur – in order to minimise this, site workers are not allowed to sleep on the construction site at night and

provision for adequate security/ site supervision must be made during the day.

Subsequently, the above mentioned cumulative impacts can be mitigated if activities are correctly planned and measures are implemented to manage activities which could cause any negative cumulative impacts.

One has to note, that the greatest cumulative impacts on the site would be if no development takes place.

5. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that sums up the impact that the proposal and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative 1 (Proposal) – Mixed uses:

The major impacts that are likely to occur during the construction and operational phases are set out as follows:

Natural Environment:

The natural environment will be affected by the movement of large construction vehicles. The removal of large areas of vegetation will also affect the natural environment, but due to the fact that most of the study area is already disturbed, the effects can be seen as less significant. Some topsoil will be lost and the loss of topsoil must be minimised through the re-using of the excavated topsoil in the landscape development. According to the geotechnical and stability investigation, and the notes made in the Wetland Assessment, the site consists of vertic soils, which retain moisture for extended periods of time.

Therefore the plant selection, as well as the building foundations should adhere to the required and recommended guidelines. No Red Listed Species were observed during the Wetland Assessment. The proposed development site must ensure that alien vegetation be kept within acceptable levels.

Physical Environment:

Excavations will occur on the site which can cause injury to people in the community during the construction phase. Therefore the construction site should be fenced off and a register should be kept for anyone entering and leaving the site. Crime usually increases during the construction phase which can have a negative impact on the community.

The increase in human activity in the area can have a positive impact on the community. These activities can improve the general safety in the community, improve the social standing of the area in the greater city and

can encourage the interaction between members of the community, and the community with the environment.

Economic Environment:

Economically, the proposed development will create several new work opportunities during both the construction and operational phases. The proposed development will allow for local residents to work close to home, minimising activities associated the travelling and housing. The development can also encourage new tenants and homeowners to establish in the area, due to the wide range of facilities available in the surrounding area.

Noise Impact:

During the construction phase of the proposed development, some noise will be generated which will cause some noise pollution. This could negatively impact the receiving community, but can be mitigated with limiting the construction hours to between 08:00 and 18:00. This impact is only temporary.

Visual Impact:

The construction phase can negatively impact on the visual impact of the proposed development. Construction vehicles, materials and equipment must be placed in such a way as to not negatively impact on the visual aesthetic of the surrounding environment. This impact is only temporary.

Alternative 2 – Light Industrial uses

The establishment of an Industrial development will be less feasible than a mixed use (Landscaping, Social Facilities; Private Open Space; Places of Education; Shops; Recreational Facilities; Office; Places of Refreshment & Public Transportation Facilities) development.

In terms of the Town Planning process the proposed application for a change in the zoning from "Public Open Space" to "Special" was approved by Tshwane Metropolitan Municipality in 2010. **(Refer to Appendix G4)**

Noise pollution will increase considerably over time due to the industrial activities.

Economically it will also be less viable to have such a small area being developed and used for Industrial purposes.

From a visual point of view the Industrial uses will not be able to be mitigated sufficiently.

In the light of the above mentioned it is clear that Mixed uses will be more acceptable and feasible in the area than Industrial uses.

No-go (compulsory)

The no-go option entails that the development area stay in the current state.

The current state of the application site has been subjected to high levels of soil disturbances and topographical alteration due to previous and current construction activities on and in the vicinity of the site. Dumping of construction materials is also visible on the site.

In terms of the wetland verification system the study area is not regarded as a wetland however, the construction of drainage canals in the area has led to concentrated flow in certain areas and therefore sufficient wetness persists to support facultative wetland vegetation species within these features. It is said that those features can be considered to be artificial drainage lines and will cease to function if the conditions which led to their origin are altered.

It is also believed that should the site remain in the current state it will only be degraded further due to no storm water mitigation measures implemented and human disturbances on the site taking place.

If the proposed development would not continue and the no-go option is pursued it will prevent positive socio-economic activities in terms of job creation and investment opportunities from occurring. This is important, as the proposed development will promote significant social and physical land upliftment in the area.

In the instance, it is however not recommended that the No-Go option be followed as the current state of the application site, and the impact of the on-going degrading activities on site would have a much more detrimental effect on the study than the preferred development proposal. The construction of the proposed development would provide for some short-term impacts on the Bio-physical and Socio-economic environments of the study area as well as the immediate surrounding urban environment, but can however in this instance be mitigated to an acceptable level. In the long term, the proposed development would have a positive impact on the Physical and Socio-economic environment of the study area as well as its surroundings, due to that it will promote and contribute towards positive economic growth and provide for clean and safe controlled environments.

6. IMPACT SUMMARY OF PREFERRED PROPOSAL

Identify preferred proposal

Alternative 1 (proposal) – Mixed uses

Having assessed the significance of impacts of the proposal and alternative(s), please provide an overall summary and reasons for selecting the proposal or preferred alternative.

Based on the gathered information and specialist inputs, it's evident that the biophysical and sociological characteristics of the site allows

for the proposed development to be undertaken, in accordance with an approved Environmental Management Plan (EMP). The development will ideally fit into the surrounding environment and create numerous work opportunities, not to mention the positive, social upliftment created by the contribution to green open space in the area.

As indicated, most construction related activities could be mitigated to acceptable levels, and although no detrimental ecological impacts are anticipated, the proposed development can lead to an improvement of the ecological conditions on the site. It has also been confirmed that the proposed development will have access to all necessary services and that sufficient capacity does exist within the existing surrounding systems and infrastructure to support the proposed development.

The study site had cultural and/or historical features, but it was considered that the documentation thereof was sufficient. Therefore, no areas of cultural and/or historical significance will be affected by the proposed development. If during the construction phase items and/or features of cultural and/or historical significance are encountered, the nearest museum, preferably one with an archeologist of staff, must be informed and the status thereof be assessed. Construction may not, in this case, continue.

Future impacts of the proposed development can be considered to be more positive than negative. The reason for this is the following:

- Exotic invader and weed plant species will be removed from the study area and regular maintenance will continue on a continuous basis;
- Local residents will enjoy the improved safety and tranquil atmosphere created by the proposed development;
- New habitats will be created and can be designed to attract fauna and avifauna species who are able to adapt to the surrounding human activities; and
- Indigenous plant species can be introduced which are endemic to the area improving the sustainability of the local eco-system.

In terms of the above mentioned information, Bokamoso is of the opinion that the proposed development will in the long term have a significant positive impact on the larger regional system to which it is linked. It furthermore will have a positive impact on the social and economical environments.

Therefore it is requested that the development be allowed to proceed, so long as the mitigation measures contained in this report and in the

EMP are implemented.

7. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the Environmental Assessment Practitioner).

YES	NO
X	

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment):

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

Bokamoso is in favor of the proposed development and requests that the proposed development be approved subjected to the following conditions:

- All mitigation measures and recommendations by specialists must be adhered to;
- The Environmental Management Plan (EMP) must be adhered to at all times; and
- During the construction phase an Environmental Control Officer (ECO) must be appointed to enforce the content of the Environmental Management Plan (EMP).

8. ENVIRONMENTAL MANAGEMENT PLAN (EMP)

If the EAP answers yes to Point 7 above then an EMP is to be attached to this report as an Appendix

EMP attached

YES
X

SECTION F: APPENDIXES

The following appendixes must be attached as appropriate:

It is required that if more than one item is enclosed that a table of contents is included in the appendix

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Route position information

Appendix E: Public participation information

Appendix F: Water use license(s), SAHRA information, service letters from municipalities, water supply information

Appendix G: Specialist reports

Appendix H: Environmental Management Plan (EMP)

Appendix I: Other information

SITE PLAN(s)



ECO PARK ESTATE : LAND-USE & AREA FRAMEWORK

All dimensions and measurements are approximate and subject to final survey.



- OPEN SPACE
- BUSINESS, COMMERCIAL, SHOWROOMS
- RESIDENTIAL
- SPECIAL FOR OFFICES
- SPECIAL FOR STORAGE
- SPECIAL FOR PARKING
- SPECIAL FOR SHOWROOMS, OFFICES, MOTOR SHOWROOMS
- SPECIAL FOR OFFICES, INDUSTRY, LIGHT INDUSTRY, WAREHOUSES, DISTRIBUTION CNTR.
- SPECIAL FOR PLACE OF INSTRUCTION, OFFICES, INSTITUTION
- SPECIAL FOR SHOWROOMS, OFFICES, MOTOR DEALERSHIPS, SHOP, PLACE OF REFRESHMENT
- SPECIAL FOR PLACE OF REFRESHMENT



Eco Park Framework	Scale: 1 : 10 000 (A3)
Date: 2022-11-12	Drawn by: L. Combrink
Amendments: Light amendment 2022-08-23 2022-08-24 Parking	

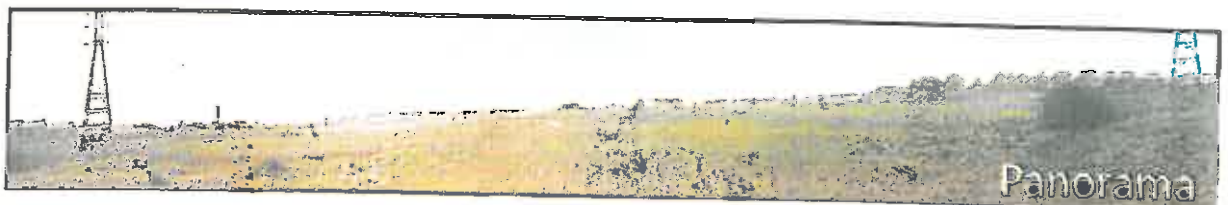
www.mandtd.com
021 506 000 1033 71 006

PHOTOGRAPHS





Site Photographs 1-8 and 360° Panorama of the site



FACILITY ILLUSTRATION (s)



Not available

ROUTE POSITION INFORMATION



Legend

-  Study Area
-  TPC_Road_network



Scale 1:10000



Proof of Site Notice



NOTICE OF BASIC ASSESSMENT PROCESS

Notice is given of an application for a **Basic Assessment Process** that was submitted to the Gauteng Department of Agriculture and Rural Development, in terms of Regulation No. R543 published in the Government Notice No. 33306 of 18 June 2010 of the National Environment Management Act, 1998 (Act No. 107 of 1998) governing **Basic Assessment Procedures (Listing Notice: 1 – Governing Notice R544)** for the following activity:

Reference No: Gaut: 002/13-14/E0026

Project Name: Highveld Extension 55

Property Description: Erf 2979 Highveld X55, previously known as Portion 157 of the Farm Brakfontein 390 JR

Proposed Zoning Information: "Landscaping"; "Social Facilities"; "Private Open Space"; "Places of Education"; "Shops"; "Recreational Facilities"; "Office"; "Places of Refreshment" & "Public Transportation Facilities".

Listing Activities Applied for:

GNR 544 (Listing Notice 1), 18 June 2010	Activity 24
GNR 544 (Listing Notice 1), 18 June 2010	Activity 56

Proponent Name: JR 209 Investments (Pty) Ltd

Location: Highveld Extension 55 is situated within the suburb of the existing Eco Park residential development. The site is located in the south-eastern quadrant of the N1-N14 interchange in the southern part of Centurion. Erf 2979 Highveld Extension 55 is situated on a strategically located enclave north of Olievenhoutbosch Road enclosed by Tamarillo Street and access to the proposed development will only be obtained from Tamarillo Street.

Date of Notice: 20 August – 30 September 2013

Queries regarding this matter should be referred to:

Bokamoso Landscape Architects and Environmental Consultants CC

Public Participation registration and inquiries: **Juanita De Beer**

Project Inquiries: **Anè Agenbacht**

P.O. Box 11375

Maroelana 0161

www.bokamoso.biz

Tel: (012) 346 3810

Fax: (086) 570 5659

E-mail: lizelleg@mweb.co.za

In order to ensure that you are identified as an Interested and/or Affected Party (I&AP) please submit your name, contact information and interest in the matter, in writing, to the contact person given above **within 40 days of this Notice**.









NOTICE OF PUBLIC ASSISTANCE
PROCEDURES

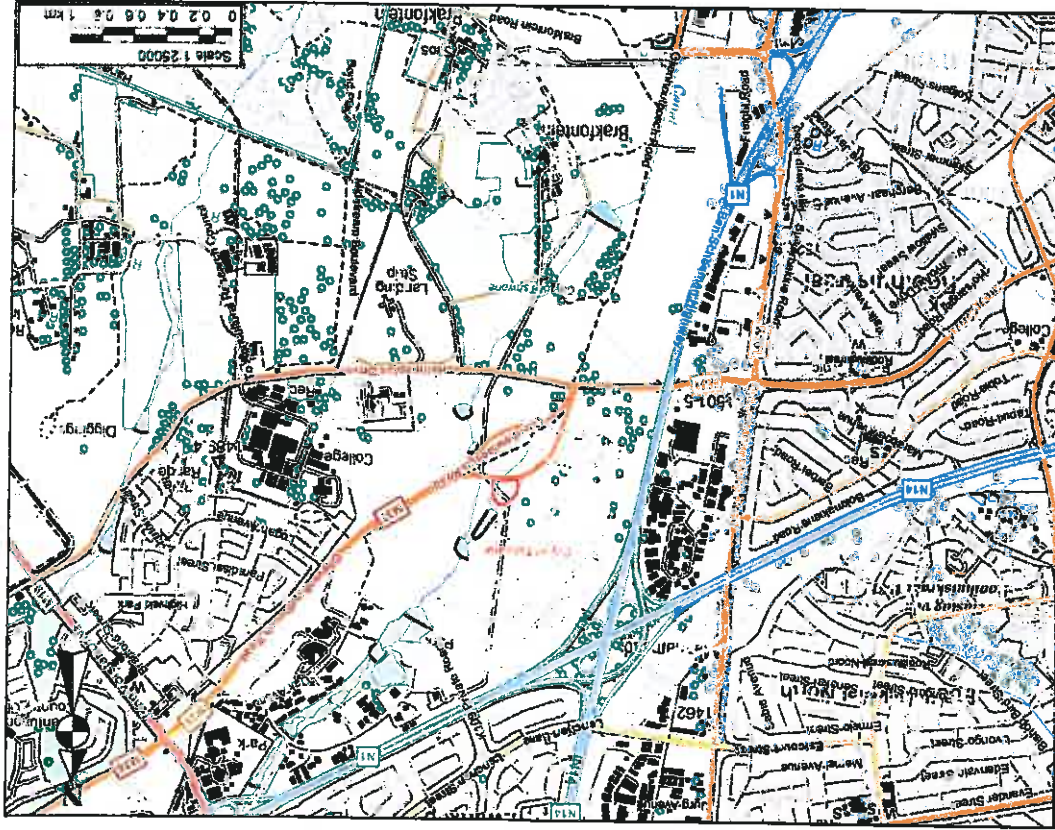
Public assistance is available to eligible individuals and families who are unable to meet their basic needs. To qualify for public assistance, you must be a resident of the State of Florida and meet certain income and asset requirements. For more information, please contact the Department of Public Safety, Office of Public Assistance, at (888) 368-7287.

20 08 2013 08 54

**Written Notices issued to those persons
detailed in 1(b) to 1(f) above**



Highveld X55



Locality Map

NOTICE OF BASIC ASSESSMENT PROCESS

Notice is given of an application for a **Basic Assessment Process** that was submitted to the Gauteng Department of Agriculture and Rural Development, in terms of Regulation No. R543 published in the Government Notice No. 33306 of 18 June 2010 of the National Environment Management Act, 1998 (Act No. 107 of 1998) governing **Basic Assessment Procedures (Notice 1 – Governing Notice R544)** for the following activity:

Reference No: Gauf: 002/13-14/E0026

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Proposed Zoning Information: "Landscaping"; "Social Facilities"; "Private Open Space"; "Places of Education"; "Shops"; "Recreational Facilities"; "Office"; "Places of Refreshment" & "Public Transportation Facilities".

Proponent Name: JR 209 Investments (Pty) Ltd

Listing Activities Applied: GNR 544 (Listing Notice 1), 18 June 2010 – Activity 24 & 56

Location: Highveld Extension 55 is situated within the suburb of the existing Eco Park residential development. The site is located in the south-eastern quadrant of the N1-N14 interchange in the southern part of Centurion. Erf 2979 Highveld Extension 55 is situated on a strategically located enclave north of Olievenhoutbosch Road enclosed by Tamarillo Street and access to the proposed development will only be obtained from Tamarillo Street.

Date of Notice: 20 August – 30 September 2013

Queries regarding this matter should be referred to:

Bokamoso Landscape Architects and Environmental Consultants CC

Public Participation registration and inquiries: **Juanita De Beer**

Project inquiries: **Anè Agenbach**

P.O. Box 11375

Maroelana 0161

www.bokamoso.biz

Tel: (012) 346 3810

Fax: (086) 570 5659

E-mail: lizelle@imweb.co.za

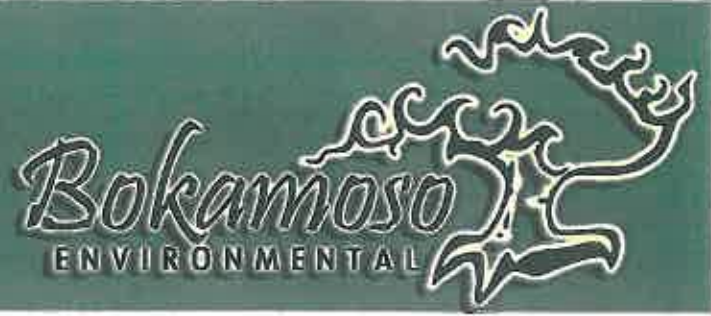


In order to ensure that you are identified as an interested and/or Affected Party (I&AP) please submit your name, contact information and interest in the matter, in writing, to the contact person given above **within 40 days of this Notice.**

LEBOMBO GARDEN BUILDING
36 LEBOMBO ROAD
ASHLEA GARDENS
0081

P.O. BOX 11375
MARDELANA
0161

Tel: (012) 346-3810
Fax: 086 570 5659
E-mail: lizelle@inweb.co.za
Website: www.bokamoso.biz



Dear Landowner/Tenant

20 August 2013

You are hereby informed that Bokamoso Environmental Consultants were appointed (as EAP) by JR 209 Investments (Pty) Ltd to conduct the Basic Assessment Process in terms of the amended 2010 NEMA EIA Regulations for the proposed Erf 2979 Highveld X55, previously known as Portion 157 of the Farm Brakfontein 390 JR.

The proposed Land-uses for the study area are as follows:

"Landscaping"; "Social Facilities"; "Private Open Space"; "Places of Education"; "Shops";
"Recreational Facilities"; "Office"; "Places of Refreshment" & "Public Transportation Facilities".

In terms of Regulation No. R543 published in the Government Notice No. 33306 of 18 June 2010 of the National Environment Management Act, 1998 (Act No. 107 of 1998) governing Basic Assessment Procedures (Notice 1 and 3 – Governing Notice R544 & R546) of the 2010 amended NEMA Regulations, the EAP must inform all landowners and tenants within 100m from the study area of the proposed development.

Bokamoso already supplied you (landowner/Tenant) of the property within 100m with Notification Letter and request that you supply the contact details of any tenants or other interested and affected parties that reside or work on the property to Bokamoso. Bokamoso will then also supply these parties with the necessary Notification Letters.

Alternatively, you are also welcome to distribute copies of your Notification to these parties. We will however require proof that you supplied the Notices to the Tenants, Landowners, workers etc. Another option is to act as representative on behalf of these parties.


Please confirm (via email/Fax) that you received the Landowners/Tenant Notification and this Letter. Also indicate in this Confirmation Letter whether you have tenants on your property and you're preferred method of tenant/worker notification.

Regards

.....
Lizelle Gregory/Juanita De Beer

Highveld X55 Land owner Notification

Acknowledgement of Receipt of land owner notification concerning the proposed Highveld X55 project.

	Name	Address	Contact Details	Signature
1	Zelda Walmorans	Eco Park Estate	Email: Fax: Tel:	
2			Email: Fax: Tel:	
3			Email: Fax: Tel:	
4			Email: Fax: Tel:	
5			Email: Fax: Tel:	
6			Email: Fax: Tel:	
7			Email: Fax: Tel:	
8			Email: Fax: Tel:	
9			Email: Fax: Tel:	
10			Email: Fax: Tel:	
11			Email: Fax: Tel:	
12			Email: Fax: Tel:	
13			Email: Fax: Tel:	
14			Email: Fax: Tel:	
15			Email: Fax: Tel:	

Proof of Newspaper Advertisement (Beeld)



**Communication to and from persons detailed
in Point 2 and 3 above**



Juanita

From: Juanita <user3@bokamoso.net>
Sent: 20 August 2013 09:50 AM
To: cobus@mtdevelopment.co.za
Subject: Highveld X55
Attachments: Public Notice BA.pdf; Landowner & Tenants Letter.pdf

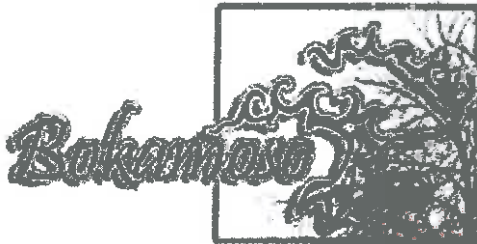
Dear Interested and/or Affected Party Member,

Please refer to the attached Public Notice regarding the proposed Highveld X55 Project.

Hope this finds you well.

Kind Regards/Vriendelike Groete

Juanita De Beer



**Landscape Architects &
Environmental Consultants cc.**

T: (+27)12 346 3810 | F: (+27) 86 570 5659 | E: lizelle@mweb.co.za | www.bokamoso.biz
36 Lebombo Street, Ashlea Gardens, Pretoria | P.O. Box 11375 Maroelana 0161

Please consider the environment before printing this email

Juanita

From: Juanita <user3@bokamoso.net>
Sent: 20 August 2013 09:48 AM
To: 'admin@eco-parkhoa.co.za'
Subject: Highveld X55
Attachments: Public Notice BA.pdf; Landowner & Tenants Letter.pdf

Dear Interested and/or Affected Party Member,

Please refer to the attached Public Notice regarding the proposed Highveld X55 Project.

Hope this finds you well.

Kind Regards/Vriendelike Groete

Juanita De Boer



**Landscape Architects &
Environmental Consultants cc.**

T: (+27)12 346 3810 | F: (+27) 86 570 5359 | E: lizelle@mweb.co.za | www.bokamoso.biz
36 Lebombo Street, Ashlea Gardens, Pretoria | P.O. Box 11375 Maroelana 0161

Please consider the environment before printing this email

Juanita

From: Bokamoso <lizelle@mweb.co.za>
Sent: 23 September 2013 11:18 AM
To: pragason@gmail.com
Subject: Highveld x 55
Attachments: Public Notice BA.pdf; Locality map & Aerial map.pdf

Flag Status: Flagged

Dear Pragason

Our telephonic conversation this morning regarding the above mentioned project refers.

Attached please find the Notice, a locality map and an aerial map as requested.

Please do not hesitate to contact our office should you have any other questions in this regard.

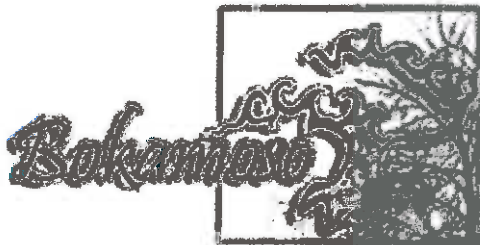
Kind regards,

Ainè Agenbacht

Tel: 012-346 3810

Cell: 083 533 0420

Email: lizelle@mweb.co.za (Attention: Ainè)



**Landscape Architects &
Environmental Consultants**

T: (+27)12 346 3810 | F: (+27) 86 570 5659 | E: lizelle@mweb.co.za | www.bokamoso.biz
36 Lebombo Street, Ashlea Gardens, Pretoria | P.O. Box 11375 Maroelana 0161

Juanita

From: Juanita <user3@bokamoso.net>
Sent: 20 August 2013 10:10 AM
To: jgrobler@geoscience.org.za; asalomon@sahra.org.za; nndobochani@sahra.org.za; maphata.ramphele@gauteng.gov.za; justicem@dwaf.gov.za; keetm@dwaf.gov.za; siwelanel@dwa.gov.za; tshifaror@dwa.gov.za; Centrai@eskom.co.za; paia@eskom.co.za; schmidk@nra.co.za; kumen.govender@gauteng.gov.za; mmmpshe@randwater.co.za; nkoneigh@randwater.co.za; rudzanim@tshwane.gov.za; daniel.ramokone@transnet.net; casperm@tshwane.gov.za; mwcspoel@mweb.co.za
Subject: Highveld X55
Attachments: Public Notice BA.pdf; Landowner & Tenants Letter.pdf

Dear Interested and/or Affected Party Member,

Please refer to the attached Public Notice regarding the proposed Highveld X55 Project.

Hope this finds you well.

Kind Regards/Vriendelike Groete

Juanita De Beer



**Landscape Architects &
Environmental Consultants cc.**

T: (+27)12 346 3810 | F: (+27) 86 570 5659 | E: lizelleg@mweb.co.za | www.bokamoso.biz
36 Lebombo Street, Ashlea Gardens, Pretoria | P.O. Box 11375 Maroelana 0161

Please consider the environment before printing this email

Juanita

From: Bokamoso <lizelle@mweb.co.za>
Sent: 20 August 2013 10:53 AM
To: user3@bokamoso.net
Cc: user1@bokamoso.net
Subject: FW: Highveld X55
Attachments: Public Notice BA.pdf; Landowner & Tenants Letter.pdf

Importance: High

From: Admin [<mailto:admin@eco-parkhoa.co.za>]

Sent: 20 August 2013 10:45 AM

To: B/C Amberhill; B/C Clearwater; B/C Crystal Rest / Moonstone; B/C Emerandclose; B/C Glenwood; B/C Millstream; B/C Onyx; B/C River Edge; B/C Ruby Court; B/C Silver Creek; B/C Woodpecker; CARETAKER CRYSTALSPRINGS; Claire Murfin - Business Connexion; jan.kruger@dekra.co.za; AMBERHILL; CARETAKER CLEARWATER; CARETAKER CRYSTAL REST; CARETAKER EMERALD CLOSE; CARETAKER MAPLE; CARETAKER MOONSTONE; CARETAKER ONYX / HOA Dir; CARETAKER RIVER EDGE; CARETAKER RUBY COURT; CARETAKER SAPPHIRE; CARETAKER WOODPECKER; ADEQUIN PROPERTIES; AGNT Jean; AIDA - Marthie; AIDA - Wilma; AIDA- Susan; ASAP; 'ASAP Principal'; AULA VERHUURINGS; CALEB PROPERTIES; CENT REAL ESTATE RENTALS; CENTURIONREALESTATE SALES; EXCELLENCE RENTALS; FAR PROPERTIES; HUIZEMARK - Kobus; HUIZEMARK - Runjay; INCREDIBLE HOMES; 'JUST LETTING'; LEAPFROG; M & T; PROPERTY COZA; RAWSON - Arno; RAWSON Maritsa; REAL ONE; REALTY 1; REALTY 1 CHANTELE; Realty 1 Lulu; REALTY 1 TRACY; RIVENDELL; SEEFF; WATERFRONT; Wendy Hurworth Prop

Cc: Henry Pretor; wernerz@pretor.co.za; lizelle@mweb.co.za

Subject: Highveld X55

Importance: High

Good morning,

Attached is the Public Notice and covering letter received from Bokomo Environmental concerning the development of open land outside gate 2.

Please note that all interested parties must register within 40 days

Kind regards

Zelda Wolmarans
Eco Park Estate Administrator
Tel: (012) 6611715
Fax: 0865176256
admin@eco-parkhoa.co.za



From: Bokamoso [<mailto:lizelle@mweb.co.za>]
Sent: 20 August 2013 09:48 AM
To: admin@eco-parkhoa.co.za
Subject: Highveld X55

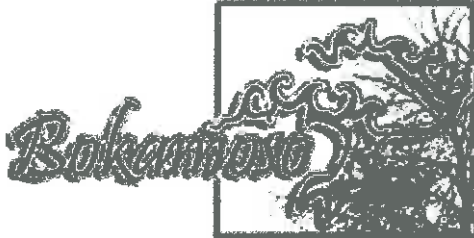
Dear Interested and/or Affected Party Member,

Please refer to the attached Public Notice regarding the proposed Highveld X55 Project.

Hope this finds you well.

Kind Regards/Vriendelike Groete

Juanita De Beer



**Landscape Architects &
Environmental Consultants cc.**

T: (+27)12 346 3810 | F: (+27) 06 570 5659 | E: lizelleg@mweb.co.za | www.bokamoso.biz
36 Lebombo Street, Ashlea Gardens, Pretoria | P.O. Box 11375 Maroelana 0161

Please consider the environment before printing this email

Juanita

From: Bokamoso <lizelle@mweb.co.za>
Sent: 21 August 2013 09:08 AM
To: user3@bokamoso.net
Cc: user1@bokamoso.net
Subject: FW: Highveld X55

From: Siwelane Lilian (PTA) [<mailto:SiwelaneL@dwa.gov.za>]
Sent: 21 August 2013 09:00 AM
To: Bokamoso
Subject: RE: Highveld X55

Good Morning Lizelle

Please send us a basic assessment report once it is ready.

Regards

Lillian

From: Bokamoso [<mailto:lizelle@mweb.co.za>]
Sent: Tuesday, August 20, 2013 10:10 AM
To: jgrobler@geoscience.org.za; asalomon@sahra.org.za; nndobochani@sahra.org.za; maphata.ramphele@gauteng.gov.za; Maluleke Justice; Keet Marius (PTA); Siwelane Lilian (PTA); Tshifaro Rabelani; Central@eskom.co.za; paia@eskom.co.za; schmidk@nra.co.za; kumen.govender@gauteng.gov.za; mmpshe@randwater.co.za; nkoneigh@randwater.co.za; rudzanim@tshwane.gov.za; daniel.ramokone@transnet.net; casperm@tshwane.gov.za; mwespoel@mweb.co.za
Subject: Highveld X55

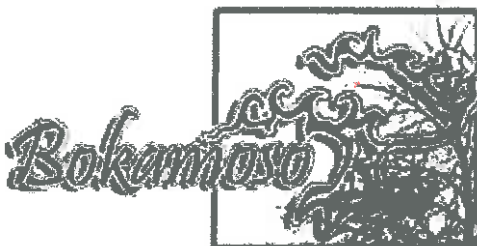
Dear Interested and/or Affected Party Member,

Please refer to the attached Public Notice regarding the proposed Highveld X55 Project.

Hope this finds you well.

Kind Regards/Vriendelike Groete

Juanita De Beer



Landscape Architects &
Environmental Consultants cc.

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Juanita

From: Bokamoso <lizelle@mweb.co.za>
Sent: 20 August 2013 10:46 AM
To: user3@bokamoso.net
Cc: user1@bokamoso.net
Subject: FW: Highveld X55

From: Ramphele, Maphata (GPSports) [<mailto:Maphata.Ramphele@gauteng.gov.za>]
Sent: 20 August 2013 10:25 AM
To: Bokamoso
Cc: Tebogo Molokomme
Subject: RE: Highveld X55

Dear Juanita

Email Acknowledged.

kindest regards

Maphata Ramphele

Statutory Bodies: Provincial Heritage Resources Authority - Gauteng (PHRA-G)

Department of Sport, Arts, Culture and Recreation

38 Rissik Street corner Market and Rissik Streets

Tel: 011 355 2572 Fax: 011 355 2505

Cell: 083 554 1975

Email: maphata.ramphele@gauteng.gov.za

From: Bokamoso [<mailto:lizelle@mweb.co.za>]
Sent: Tuesday, August 20, 2013 10:10 AM
To: jgrobler@geoscience.org.za; asalomon@sahra.org.za; nndobochani@sahra.org.za; Ramphele, Maphata (GPSports); justicem@dwaf.gov.za; keetm@dwaf.gov.za; siwelanel@dwa.gov.za; tshifaror@dwa.gov.za; ESKOM; paia@eskom.co.za; schmidk@nra.co.za; Govender, Kumen (GPDRT); mmpshe@randwater.co.za; nkoneigh@randwater.co.za; rudzanim@tshwane.gov.za; daniel.ramokone@transnet.net; casperm@tshwane.gov.za; mwcspoel@mweb.co.za
Subject: Highveld X55

Dear Interested and/or Affected Party Member,

Please refer to the attached Public Notice regarding the proposed Highveld X55 Project.

Hope this finds you well.

Kind Regards/Vriendelike Groete

Juanita De Beer



Landscape Architects &
Environmental Consultants cc.

T: (+27)12 346 3810 | F: (+27) 86 570 5659 | E: lizelleg@mweb.co.za | www.bokamoso.biz
36 Lebombo Street, Ashlea Gardens, Pretoria | P.O. Box 11375 Maroelana 0161

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Minutes of any Public and/or Stakeholder Meetings



Not Applicable.

Comments and Response Report



Appendix E6

Comments from I&AP's on Basic Assessment Report (BAR)



Appendix E7

Not Applicable.

**Comments from I&AP's on
Ammendments to the Basic
Assessment Report (BAR)**



Not Applicable.

**Copy of the Registered Interested and
Affected Parties (I&AP's)**



Comments from I&AP's on the Application



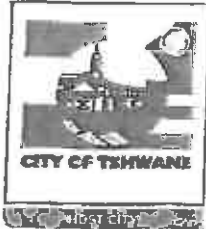
Not Applicable.

Other



WATER USE LICENSE (s)





**City Planning, Development and Regional Services
Department**

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My ref: CPD9/1/1/1-HVD X 55 298
Your ref:
Contact person: Linda Zeelle / Ben Coetzee
Section: Regional Spatial Planning
Date: 27 January 2010

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Email: LindaZ@tshwane.gov.za

The Surveyor General
Private Bag X291
PRETORIA
0001

Sir

PROPOSED TOWNSHIP: HIGHVELD EXTENSION 55: AMENDEMENT OF CONDITIONS OF ESTABLISHMENT

The township was approved by the Municipality on 29 January 2009.

) The Conditions of Establishment were amended on 15 and 18 January 2010

) Kindly substitute the above-mentioned conditions with the attached amended conditions of establishment dated 27 January 2010.

Yours faithfully,

f STRATEGIC EXECUTIVE DIRECTOR: CITY PLANNING, DEVELOPMENT AND REGIONAL SERVICES

SPECIALISTS REPORTS



Wetland Verification Assessment (Scientific Aquatic Services)





Scientific Aquatic Services

Applying science to the real world

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Name: Stephen van Staden
Date: Friday, 14 October 2011
Ref: SAS/MT 131012

M & T Development
P.O. Box 39727
Faerie Glen
0043

Tel: 012 991 9703
Fax: 012 991 3038

Attention: Mr Barry Hertzog
Dear Sir,

RE: CONSIDERATION OF THE DRAINAGE OF HIGHVELD EXTENSION 55 AND POTENTIAL WETLAND FEATURES

Scientific Aquatic Services was requested to assess the proposed Highveld X55 development site to determine if any wetland resources occur on the subject property. A site investigation was undertaken in order determine whether any wetland features were present on the site. If wetland features were present, they were to be delineated. The assessment was undertaken by looking for features which are indicative of wetland conditions based on "DWAF, 2005: A practical Guideline Procedure for the Identification and Delineation of Wetlands and Riparian Zones" as advocated by GDARD. The points below briefly present the findings and the conclusions drawn, as well as recommendations made:

1. The subject property has been subjected to high levels soil disturbance and topographical alteration due to previous and current construction activities on and in the vicinity of the site respectively.
 2. The soils on the subject property consist of vertic clays which will retain moisture for extended periods and as such allow for facultative wetland vegetation species to become established on the subject property even if no true wetland conditions occur.
-

3. Species such as *Imperata cylindrical* (Figure 1) and *Phragmites australis* (Figure 2) occurring in groupings throughout the subject property, are facultative wetland species, but are also known to colonise disturbed areas.

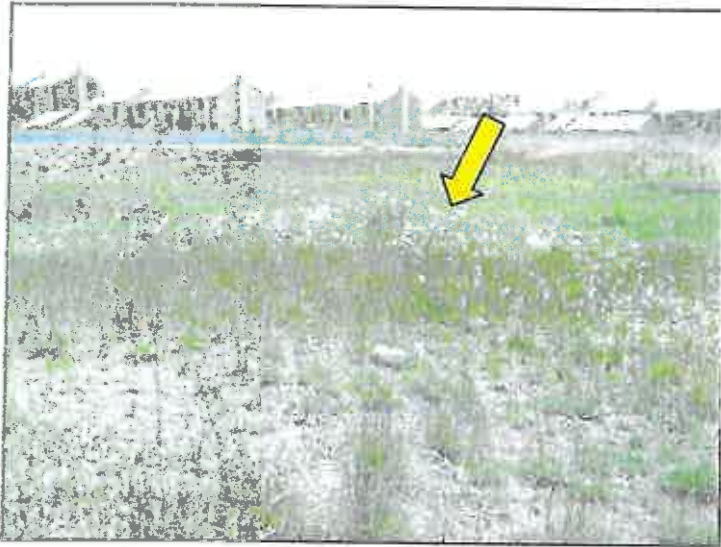


Figure 1: *Imperata cylindrical* occurring on the subject property.

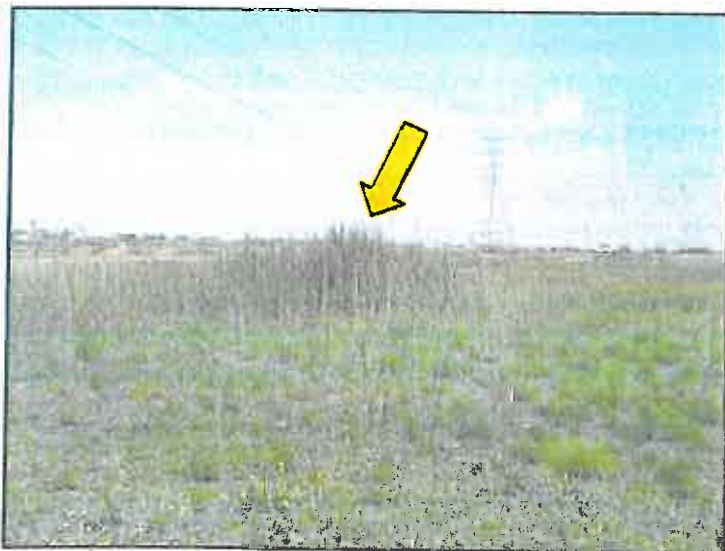


Figure 2: *Phragmites australis* occurring on the subject property.

4. The construction of drainage canals (Figure 3) has led to concentrated flow in certain areas and therefore sufficient wetness persists to support facultative wetland vegetation species within these features. These features can be considered to be artificial drainage lines and will cease to function if the conditions which led to their origin are altered. For this reason these systems are not considered to be true wetlands.
5. The canalised drainage lines are considered to have very limited ecological function, integrity and service provision.





Figure 3: Constructed drainage canals and topographic alteration.

6. Due to past disturbances on the subject property (Figures 4 and 5) the natural runoff patterns have been impacted upon, leading to localised ponding. In the areas where water collects water logged soil conditions persist for long enough periods to support the establishment facultative wetland vegetation species. These features can be defined as areas of anthropogenic disturbance where pioneering species which can occur in saturated soil conditions occur. Based on the observations on site these areas cannot be defined as true wetland areas and will cease to function if normal drainage on the site was re-instated.

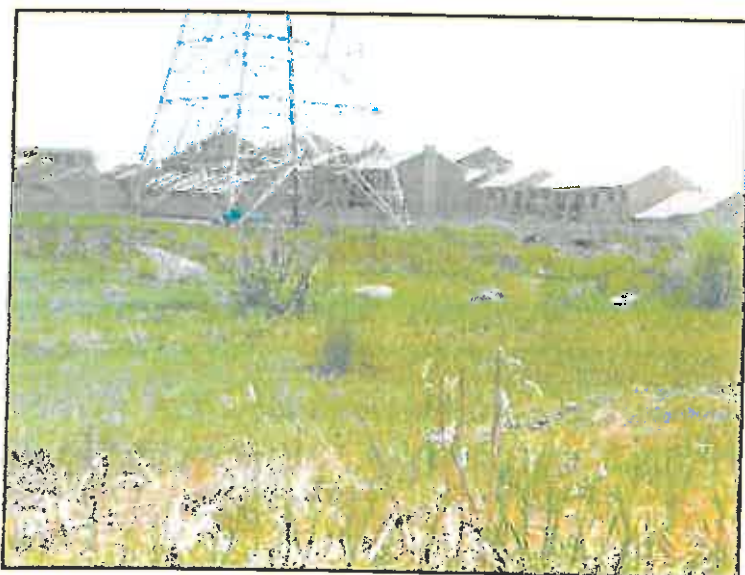


Figure 4: Topographic alteration.





Figure 5: Dumping of construction materials.

7. The areas where localised ponding has occurred are considered to have very limited ecological function, integrity and service provision.

Based on the above discussions it can be concluded that the observed features on site have been created by anthropogenic activities in the area which have augmented the natural capacity of soils in the area to retain moisture leading to the growth of facultative wetland vegetation. These features are however not considered to be wetlands but rather moist areas and no formal conservation of these features as designated areas of open space is deemed necessary.

Yours Faithfully,
Digital Documentation Not Signed For Security Purposes
Stephen van Staden
Pr. Sci. Nat.



Cultural and Historical Assessment (National Cultural History Museum)



A SURVEY OF CULTURAL RESOURCES IN THE
PROPOSED CENTURION ECO PARK,
PRETORIA DISTRICT, GAUTENG PROVINCE

For;

LIZELLE GREGORY LANDSCAPE ARCHITECTS AND
ENVIRONMENTAL CONSULTANTS
P O Box 11375
MAROELANA
0161

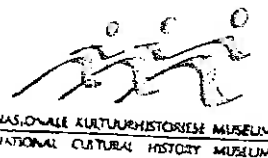
Survey conducted and report prepared by the:

NATIONAL CULTURAL HISTORY MUSEUM
PO Box 28088
SUNNYSIDE
0132

Telephone - (012) 324 6082
Telefax - (012) 328 5173

REPORT: 2001KH21

Date of survey: November 2001 Date of report: November 2001



SUMMARY

A survey of cultural resources in the proposed Centurion Eco Park, Pretoria District, Gauteng Province

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural importance found within the boundaries of the area in which it is proposed to develop the 'Centurion Eco Park.'

Based on what was found and its evaluation, it is recommended that the proposed development can continue in the area, on condition of acceptance of the following recommendations:

- The site identified as a possible grave (Appendix 2, no.3) should be investigated before development takes place.
- The developer should also be notified that archaeological sites might be exposed during the construction work. If anything is noticed, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made.

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**A SURVEY OF CULTURAL RESOURCES IN THE
PROPOSED CENTURION ECO PARK,
PRETORIA DISTRICT, GAUTENG PROVINCE**

1. AIMS OF THE SURVEY

The National Cultural History Museum was requested by Lizelle Gregory Landscape Architects and Environmental Consultants to survey a small area in which it is proposed to develop the 'Centurion Eco Park.' The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural importance found within the boundaries of the areas that is to be impacted by the proposed developed.

2. TERMS OF REFERENCE

The Terms of Reference for the study were to:

- 2.1 Identify all objects, sites, occurrences and structures of an archaeological or historical nature located in the area of the proposed development.
- 2.2 Assess the significance of the cultural resources in terms of their historical, social, religious, aesthetic and scientific value.
- 2.3 Determine the possible impacts on the known and potential cultural resources in the area of interest.
- 2.4 Develop mitigation or control measures for impact minimization and cultural resources preservation.
- 2.5 Develop procedures to be implemented if previously unidentified cultural resources are uncovered during the construction.

3. DEFINITIONS AND ASSUMPTIONS

The following aspects have a direct bearing on the survey and the resulting report:

- Cultural resources are all nonphysical and physical human-made occurrences, as well as natural occurrences that are associated with human activity. These include all sites, structures and artifacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development.

The significance of the sites and artifacts are determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

Sites regarded as having low significance have already been recorded in full and require no further mitigation. Sites with medium to high significance require further mitigation.

The latitude and longitude of archaeological sites are to be treated as sensitive information by the developer and should not be disclosed to members of the public.

4. LEGISLATIVE REQUIREMENTS

Aspects concerning the conservation of cultural resources are mainly dealt within two acts. These are the South Africa Heritage Resources Act (Act 25 of 1999) and the Environmental Conservation Act (Act 73 of 1989).

4.1 South African Heritage Resources Act

4.1.1 Archaeology, palaeontology and meteorites

Section 35(4) of this act states that no person may, without a permit issued by the responsible heritage resources authority:

- (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
- (b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
- (c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite;
- (d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency.

4.1.2 Human remains:

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:

- (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- (b) destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal

cemetery administered by a local authority; or
(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation, or any equipment which assists in the detection or recovery of metals.

Human remains that are less than 60 years old are subject to provisions of the Human Tissue Act (Act 65 of 1983) and to local regulations.

Exhumation of graves must conform to the standards set out in the Ordinance on Excavations (Ordinance no. 12 of 1980) (replacing the old Transvaal Ordinance no. 7 of 1925). Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (ie where the graves are located and where they are to be relocated) before exhumation can take place.

Human remains can only be handled by a registered undertaker or an institution declared under the Human Tissues Act (Act 65 of 1983 as amended).

4.2 Environmental Conservation Act

This act states that a survey and an evaluation of cultural resources should be undertaken in areas where development, which will change the face of the environment, is to be made. The impact of the development on the cultural resources should also be determined and proposals to mitigate this impact is to be formulated.

5. METHODOLOGY

5.1 Preliminary investigation

5.1.1 Survey of the literature

A survey of the relevant literature was conducted with the aim of reviewing the previous research done and determining the potential of the area. In this regard, various anthropological, archaeological and historical sources were consulted - see the list of references below.

5.1.2 Data bases

The Archaeological Data Recording Centre (ADRC), housed at the National Cultural History Museum, Pretoria, was consulted. The Environmental Potential Atlas was also consulted.

5.1.3 Other sources

The topocadastral and other maps were also studied - see the list of references below.

5.2 Field survey

The field survey was done according to generally accepted archaeological practices, and was aimed at locating all possible sites, objects and structures. As the area that had to be investigated is rather small, it was easy to survey by walking across it in a grid pattern. Special attention was given to unnatural topographical occurrences such as trenches and holes and stream beds and

clusters of trees were investigated.

As no information regarding access roads, borrow pits or other potential infra-structural development was supplied, these this aspect should be addressed as soon as possible.

5.3 Documentation

All sites, objects and structures identified were documented according to the general minimum standards accepted by the archaeological profession. Coordinates of individual localities were determined by means of the Global Positioning System (GPS)¹ and confirmed by plotting on a map. This information was added to the description in order to facilitate the identification of each locality (Appendix 2).

6. DESCRIPTION OF THE AREA

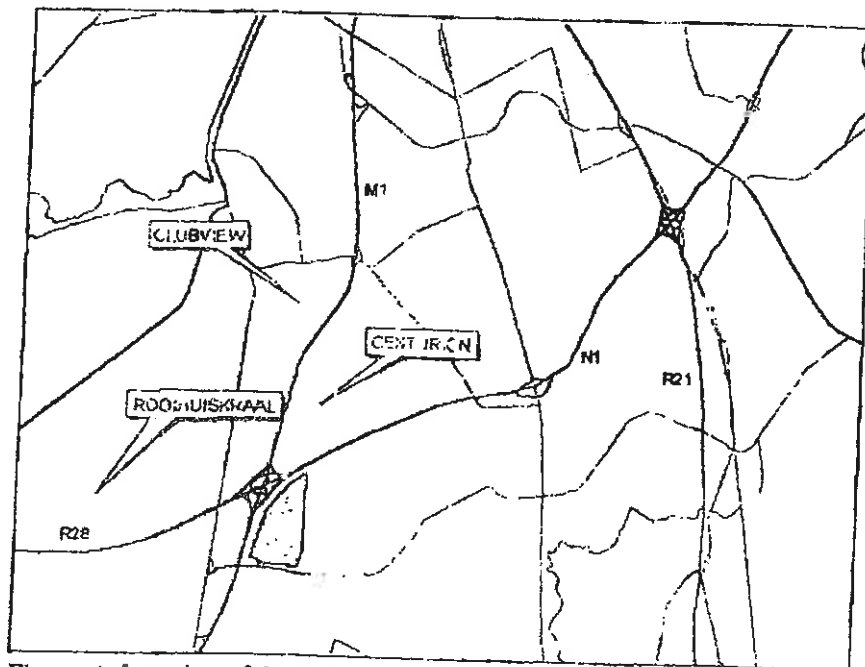


Figure 1. Location of the study area - shaded area.

¹ According to the manufacturer a certain deviation may be expected for each reading. Care was, however, taken to obtain as accurate a reading as possible, and then correlate it with reference to the physical environment before plotting it on the map.

The area that was investigated is located on the farm Brakfontein 390JR, in the Pretoria district of Gauteng Province (see Fig. 1). As such it is bordered by the R28/N1 on the northern side and the N1/M1 on the western side. Large sections of the study area have been subjected to agricultural activities in the past. Much of the area is also quite wet, as it forms part of a vleis area.

7. DISCUSSION

Although stone tools, especially Middle Stone Age, are known to occur in a number of places in the larger geographical area, none were noticed in the study area. No Iron Age sites were identified.

A few sites dating to historical times were identified - see Appendix 2. However, none of these are judged to be of significance. Their documentation as part of this project can be taken as sufficient.

8. RECOMMENDATIONS

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural importance found within the boundaries of the area in which it is proposed to develop the 'Centurion Eco Park.'

Based on what was found and its evaluation, it is recommended that the proposed development can continue in the area, on condition of acceptance of the following recommendations:

- The site identified as a possible grave (Appendix 2, no. 3) should be investigated before development takes place.
- The developer should also be notified that archaeological sites might be exposed during the construction work. If anything is noticed, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made.

9. REFERENCES

9.1 Unpublished sources

9.1.1 Data base

Archaeological Data Recording Centre, National Cultural History Museum, Pretoria.

Environmental Potential Atlas, Department of Environmental Affairs and Tourism.

9.2 Published sources

9.2.1 Books and journals

Holm, S.E. 1966. *Bibliography of South African Pre- and Protohistoric archaeology*. Pretoria: J.L. van Schaik.

Mason, R.J. 1962. *Prehistory of the Transvaal*. Johannesburg: Witwatersrand University Press.

Van Riet Lowe, C. n.d. *The distribution of Prehistoric rock engravings and paintings in South Africa*. Archaeological Survey, Archaeological Series No. 7.

10. PROJECT TEAM

J van Schalkwyk

Geotechnical and Dolomite Stability Report (Soilkraft cc)



Soilkraft cc

Reg no CK 96/08031/23

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REPORT ON GEOTECHNICAL AND DOLOMITE STABILITY CONDITIONS ON ERF 2979, HIGHVELD EXTENSION 55

1 APPOINTMENT

Soilkraft cc was appointed by M&T Development to investigate the prevailing geotechnical conditions on Erf 2979 at Highveld Extension 55 (the remainder of portion 60 of the farm Brakfontein 390JR). The purpose of the investigation was to assess the existing dolomite stability of the site and soil characteristics on the site.

2 SITE CONDITIONS

2.1 Site Location

The area of investigation is located south east of the existing Eco Park residential development and is some 1,9ha in size. The site investigated is enclosed by Tamarillo Street and a canal running parallel to Olievenhoutbosch East Road. Access can be obtained from Tamarillo Street only. The location of the site of investigation is indicated on the attached Figure 1 : Locality Plan.

2.2 Services

At the time of the investigation the site was bisected by overhead power lines which was supported by a pylon based on the grounds investigated. Apart from this, an existing underground servitude also spans the site, in addition to a set of storm water or sewage pipes not previously indicated. Existing services in the immediate area includes electricity, sewerage and water reticulation networks. Such bulk services are available in the surrounding area, though. Site conditions are illustrated in Photo 1.

2.3 Future Development

The study area was under consideration for the construction of restaurants, but at present no specific

layout has been finalised. As such, drilling and test pitting was done at random and may not be considered as a foot-print investigation. Should the development materialise in the near future, the existing data may be considered as complementary information.

2.4 Climate

The site is located in an area with an approximate Weinert N-value of 2,4 and a Thornthwaite Moisture Index between 0 and -20. Climatically the area may thus be described as sub-humid. This signifies that chemical weathering will dominate over mechanical weathering. This holds particular consequences for a dolomitic environment as the mobilising agent (water) is readily available in the given climate.

3 AVAILABLE INFORMATION

The following sources of information were consulted for the compilation of this report:

- 1 : 50 000 geological map: 2528CC Lyttelton, published in 1973
- The document *Dolomite Stability Investigation for Township Establishment of Highveld Extension 56 situated on a part of Portion 60 of the Farm Brakfontein 390-JR, Centurion (report no K0063S-02)*, issued by Dolomite Technology (Pty) Ltd in July 2007, revised September 2007
- The document *Detail Design of Road K109: Geotechnical Conditions Between km 15,180 and km 15,320 in a Wetland Area: A Report for the Construction of a New Bridge*, issued by Soilkraft cc on 21 December 2006 on behalf of M&T Development (Pty) Ltd.
- The document *Report on dolomite stability conditions with special reference to the foundation design for the proposed construction of multiple storey units on Erf 1, Highveld Extension 56*, issued by Soilkraft cc on 16 March 2009 on behalf of M&T Developments (Pty) Ltd.

4 METHOD OF INVESTIGATION

4.1 Dolomite Investigation

In an effort to verify the prevailing dolomitic conditions the existing reports on dolomitic conditions in the immediate vicinity (compiled by Dolomite Technology and Soilkraft cc) were consulted. The reports also included a gravity survey, which was utilised.

The gravity survey included was for the larger area of development. This survey was compiled by Engineering and Exploration Geophysical Services CC from work conducted over a number of years. The combined gravity survey provides a comprehensive overview of the area under consideration, as well as the immediate surroundings. According to the information supplied, the survey was done with a Scintrex CG3, relative station elevations were determined using a dumpy level and station co-

ordinates were measured with a Leica GS20 GPS. The grid spacing used varied slightly as it was not identical for each of the combined portions surveyed.

In conjunction with the above mentioned information, six boreholes were drilled across the site. These boreholes were distributed so as to be representative of the entire site. Figure 2 : Site Layout illustrates the location of all test positions (boreholes and test pits) used.

The supplied gravity survey is included in Addendum A, whilst the borehole logs described for this investigation are included in Addendum B.

4.2 Test Pitting and Material Testing

A total of six test pits were excavated across the study area. This was done to verify in situ soil conditions (i.e. conditions of heave and consolidation).

Material testing included foundation indicator and corrosivity testing. The former was done to assess the in situ materials' potential to heave (as based on grading and Atterberg Limits) whilst the latter was done to determine the in situ materials' tendency to corrode metal objects.

- The samples were delivered to Matrolab in Pretoria for material testing. Soillab is a SANAS accredited laboratory. Test pit logs and material testing results for this investigation are included in Addendum C and Addendum D, respectively.

5 DISCUSSION

5.1 Regional Geology

The regional geological map indicates that the site is located mainly on dolomitic land, with the presence of chert materials. Syenite intrusions and diabase intrusions are also indicated in the immediate vicinity. A number of contacts are *inferred* on the map and this can be ascribed to very little outcrop in the area.

Considering the materials encountered and the proximity to other geological features, it is deduced from the work of Kent^{Reference 9.1} that the site is located on the Oaktree Formation of the Chuniespoort Group (Transvaal Supergroup). Syenite was encountered on a micro-scale in the dolomite, but competent bedrock was not encountered.

Figure 3 illustrates the regional geology.

5.2 Structural Geology

It is anticipated that structural geological features in the vicinity have largely been altered or intruded syenite. Considering this, it must be borne in mind that weaknesses in the geology (e.g. faults, joints, karst features, etc) form preferential routes to intruding magma as these features present less resistance to infiltration than strong, intact rock. No structural features could be derived from either test pitting or percussion drilling.

5.3 Groundwater

5.3.1 Generalised Groundwater Scenario

Vegter^{Reference 9.2} indicates the probability for drilling successfully for water in the area to be more than 60% and the probability that such a borehole will yield more than 2l/s to be between 40% and 50%. Groundwater is expected to occur at depths between 20m and 30m in openings varying in size from fissures to extensively developed caves and also in pores in dissolution residuum and collapsed unconsolidated deposits.

5.3.2 Detailed Groundwater Scenario

A detailed groundwater investigation was conducted by Viviers and included in the Dolomite Technology report. It will not be repeated here. Considering the information above, groundwater was encountered in all six boreholes and was encountered between depths of 5m and 11m. Groundwater occurred in dolomite bedrock. Table 1 : Water Strikes illustrates a short summary of the water strikes.

In addition to the water table level, conditions of perched water were encountered in three test pits. Seepage was encountered in test pits two, three and six at depths of 1800mm, 1800mm and 2500mm from surface, respectively. Alluvium was also commonly unearthed, which suggests that at least portions of the site formed part of a flow-channel.

TABLE 1 : WATER STRIKES

Borehole	Depth (m)
1	11
2	5
3	7
4	9
5	6
6	11

5.4 Soil Profiles

A number of soil materials were encountered during test pitting. A short discussion of the soil materials encountered is given below:

- *Alluvium*: Alluvium was encountered in test pits one, two, five and six. The material was generally described as light grey clay with a soft consistency (in a moist state) and slickensided structure. Hydrometer testing revealed active clay contents between 39% and 51%, whilst plasticity indices between 28% and 46% were derived using the Casagrande device. The grading moduli calculated ranged from 0,49 to 0,81 and PRA classifications included A-7-5(13), A-7-5(16) and A-7-5(20). As such, the material has a medium to very high potential to expand. A minimum vertical thickness of 900mm was recorded.
- *Colluvium*: A surface colluvial horizon was encountered in test pits three and four and appeared as dark brown, loose, intact, clayey sand. The material spanned from surface to depths between 200mm and 600mm. Considering a conventional founding depth of 600mm, the material was not sampled.
- *Colluvium*: Test pits one, two, five and six revealed dark grey clay with a soft consistency and slickensided structure between surface and depths of 600mm to 1000mm. The material is moderately expansive, with an active clay content of 49% and an associated plasticity index of 29%. A grading modulus of 0,54 was calculated and a PRA classification of A-7-5(17) awarded. The material often contained traces of wad material which was most likely mobilised from adjacent areas.
- *Dolomite Residuum*: This black mottled grey brown silty sand was encountered in test pits three and four. The material had a firm consistency and intact structure and also contained cobbles of dolomite in some instances. Laboratory analysis revealed that the material has a low affinity to heave, with active clay contents between 7% and 8%, whilst recorded plasticity indices ranged from 13% to 14%. The calculated grading moduli ranged from 1,09 to 1,35, whilst PRA classifications included A-7-5(1) and A-7-5(3). Vertically the material spanned at least 500mm, but was not always fully penetrated.
- *Fill Materials*: Test pit two revealed a 400mm thick horizon of fill material which comprised bricks, steel, plastic and other foreign materials in a matrix of dark brown clayey sand. Such materials are not suitable for construction and as such, were not sampled.

Table 2 : Testing Summary conveys a condensation of the material testing results.

5.5 Soil Corrossivity

When discussing soil corrossivity, it is applicable to consider the guidelines as proposed by Evans^{Reference 9.3}. The corrossivity of a soil towards buried, exposed, metallic surfaces is dependent on the following properties of the soil:

- Electrical conductivity.
- Chemical properties of the soil.
- Ability of the soil to support sulphate reducing bacteria.
- Heterogeneity of the soil.

The pH of a soil gives an indication of potential acid related problems. Should the soil pH be less than 6,0, corrosion may take place ; and should the pH be less than 4,5 the problem of corrosion may be serious. If the conductivity of the soil is less than 0,1mS/cm, corrosivity is generally not a problem. However, the corrosion potential of the soil increases with an increase in conductivity. Should the conductivity of the soil exceed 0,5mS/cm, the soil can be regarded as very corrosive. Should exposed metal pipes pass from argillaceous soils to arenaceous soils or vice versa, electrochemical cells are set up due to the different rates of oxygen diffusion of the soils. Sulphate reducing bacteria is usually present under anaerobic conditions, that is, typically saturated or waterlogged clays.

Materials likely to host services were sampled for corrosivity testing. The results of soil chemistry tests done for compilation of this report indicate the following:

- *Alluvium*: Alluvial materials had pH values between 6,9 and 7,2 and may therefore be considered as neutral with regard to pH. Conductivities between 0,009S/m and 0,038S/m were also recorded, making the material very corrosive with regard to the latter conductivity.
- *Dolomite Residuuum*: Testing revealed that the dolomite residuum is neutral with regard to both the pH (6,9) and conductivity (0,009S/m).
- *Waterlogged Conditions*: Waterlogged conditions have prevailed on the site in the recent, geological past and still prevail from depths of at least 1800mm. As such, corrosive conditions must be anticipated.

5.6 Geotechnical Zoning

The references contained in this section 6.4 are applicable to the proposed residential areas only. When discussing the geotechnical conditions of the area, it is important to bear the following issues in mind:

- *Properties of Heave*: Test results indicate that the majority of materials encountered on site were found to be of an expansive nature. Such heave was calculated for individual test pits using the method proposed by van der Merwe^{Reference 9.4}, as per RAFT software, developed by the CSIR. Calculations show that a maximum unrestrained heave of 65mm must be anticipated in a profile where moderately expansive colluvium is underlain by very highly expansive alluvium. The large amounts of unrestrained heave are absent from test pits three and four, where unrestrained heave of up to 7,5mm is anticipated.

- **Properties of Settlement:** Conditions of settlement are expected to be overshadowed by conditions of heave in test pits one, two, five and six, but this does not discount settlement. Consolidation settlement is expected in test pits three and four and up to 20mm time-related settlement must be anticipated.

The geotechnical classification of the property is in accordance with the guidelines of the NHBRC^{Reference 9.5}. Within the limitations of the scope of the investigation and based on the principles as explained above the property is split into two zones:

- **Zone I: H3/P_{Dolomite}:** This zone includes test pits one, two, five and six and entails unrestrained heave exceeding 30mm. In addition, dolomitic stability must be considered.
- **Zone II: H/S2/P_{Dolomite}:** This zone includes test pits three and four and is characterised by up to 7,5mm unrestrained heave, and up to 20mm settlement. Dolomitic stability must be considered.

The attached Figure 4 : Site Zoning indicates the relative location of test pits excavated for the survey as well as the extrapolated zoning. This zoning must not be accepted as set. In addition, numerous patches of fill material and marshy conditions were noted across the site. Though the entire site is not considered to be a marsh, cognisance must be taken of prevailing conditions.

5.7 Conditions of Excavation

The following conditions prevail on site:

- **Fill Materials:** Widely scattered deposits of surface fill (no deeper than 400mm) were encountered. These materials were found to be excavatable by backhoe with little resistance.
- **Colluvium:** All colluvial materials proved excavatable by backhoe, though some materials make for conditions of clayey excavation in a moist state.
- **Alluvium:** As with colluvial materials, alluvium proved excavatable by backhoe, but made for conditions of very clayey excavation. The material is expected to offer considerable resistance to excavation when in a dry state.
- **Dolomite Residuum:** The residuum proved to be of firm consistency, but was also excavatable by TLB. The inclusion of dolomite cobbles, however, was an impediment to excavation.
- **Dolomite Bedrock:** It is anticipated that dolomite bedrock was encountered in test pit three, but this may have been a cobble or boulder of dolomite too. Nevertheless, the rock proved to be hard and may require blasting, if it is indeed bedrock.
- **Excavatable Depth:** A minimum excavatable depth by backhoe was established at 1200mm.

Other considerations are:

- **Slope Stabilities:** No natural slope instabilities were observed during the survey.

- *Presence of Cobbles:* The occurrence of dolomite cobbles and possibly boulders must be anticipated.
- *Excavation Stability:* Excavations proved stable during the survey; however the clayey materials may become unstable in excavation, particularly when excess moisture is introduced. One sure sign of instability in clayey excavations is the bulging of sidewalls.

5.8 Seismicity

Kijko^{Reference 9.6} indicates the annual probability for an earthquake with intensity of 4,2 on the Modified Mercalli Scale to occur in the area to be less than 10^0 ; and with an intensity of 7,1 to occur the probability is 10^{-3} . A 10% probability exists that an earthquake with Peak Ground Acceleration of 0,12g to 0,16g may take place once in 50 years.

To put the above information into perspective, Table 3 : Earthquake and Magnitude and Intensity, is attached to this report.

5.9 Other Considerations

- *Historic Monuments:* There are no historic monuments on the site.
- *Undermining:* The property is not subject to undermining.
- *Cemetery Sites:* No graves were observed during the investigation. Considering the proposals of Fischer^{Reference 9.7} the property is not suitable for cemetery site development.
- *Surface Conditions:* The site contained a number of small depressions, most likely associated with past earthworks or services installation. Some of these areas were found to accumulate surface water.

6 DOLOMITE STABILITY

The approach and discussion below are based on the principles as set out by Buttrick^{Reference 9.8}. The risk for the formation of sinkholes is based on the latest proposals^{Reference 9.9} put forward by the Council for Geoscience. The principles of these guidelines are summarised in the attached Table 4 : Borehole Classification Summary. For purposes of evaluating the information obtained from the drilling, such data is summarised in the attached Table 5 : Borehole Evaluation and related to conditions of dolomite stability in Table 6 : Dolomite Stability Characterisation. The dolomitic zoning is illustrated in Figure 5 : Dolomitic Risk Zonation.

6.1 Dolomite Risk Class 4(a)

This classification was awarded to all boreholes drilled on site.

6.1.1 Condition and Nature of Materials

These boreholes are characterised by dolomite residuum spanning from surface to depths between two meters and six meters, occasionally with other materials (e.g. alluvium or residual syenite) included. Bedrock was encountered at depths between two meters and six meters, but *hard* bedrock was only encountered starting from depths of fourteen meters, ruling out Class 5. After interception of dolomite bedrock, drill times increased notably until hard bedrock was encountered for five successive meters in all boreholes. As such, the dolomite material had drill times between 34 seconds and three minutes and fifty three seconds. The bedrock is therefore considered to be competent.

6.1.2 Mobilising Potential of the Blanketing Material

- *Surface Deposits:* The surface materials encountered on site proved to be cohesive and as such, is likely to offer significant resistance to mobilisation. The materials are by no means immune to mobilisation, though.
- *Dolomite Residuum:* Wad materials are notorious for easy mobilisation, should a cavity be present below the material. In this instance, no cavity, sample loss or air loss was encountered.
- *Residual Syenite:* The residual syenite material is expected to behave in a similar fashion to cohesive surface deposits.
- *Dolomite Bedrock:* The material was proven to be competent bedrock by drilling and will only be subject to mobilisation by dissolution.

6.1.3 Receptacle Development

Though no air loss, sample loss or cavities were recorded, sizeable thicknesses of dolomite residuum (in boreholes one, two and five) present a favourable environment for receptacle development, should a cavity form below it. The dolomitic bedrock is only susceptible to receptacle development by dissolution.

6.1.4 Potential Development Space

As mentioned in the section above, dolomite residuum (wad) leaves some potential for receptacle development. Considering the fact that between two meters and six meters of the material lies between bedrock and surface, significant development space is available, should a cavity form below or within the material.

6.1.5 Mobilising Agent

As discussed previously, at least a portion of the site is characterised by alluvium, signifying that sub-surface flow channels may still prevail on site. This was confirmed by perched water encountered in test pits. In addition, groundwater was encountered in all boreholes between depths of five meters and eleven meters. Considering the above, neither a dewatering nor a non-dewatering scenario is likely to have a significant impact on stability conditions as far as dolomitic zoning is concerned.

6.1.6 Risk of Sinkhole and Doline Formation

Considering the notable thickness of overlying dolomite residuum above the bedrock, a moderate risk of doline formation is anticipated. Similarly a medium risk of small sinkhole formation is anticipated, whilst a low risk is anticipated for medium and large diameter sinkholes. The area is thus zoned as **Inherent Risk Class 4(a)**.

7 CONCLUSION

The following conclusions can be made based on the investigation:

- *Geology:* The site is underlain predominantly by Oaktree Formation dolomite. Very localised evidence of syenite intrusion was found.
- *Groundwater:* Groundwater was encountered in all six boreholes drilled, between depths of five meters and eleven meters. Seepage was also encountered in three test pits which suggests – along with alluvium exposed in excavation – that a sub-surface flow channel may still be present despite the lack of surface flow.
- *Soil Profiles:* In general colluvium was found to overlie alluvium and/or dolomite residuum.
- *Geotechnical Zoning:* The site is divided into two zones, namely **H3/P_{Dolomite}** and **H/S2/P_{Dolomite}**. The former is associated with unrestrained heave in the excess of 30mm and dolomitic bedrock, whilst the latter is associated with a combination of up to 7,5m unrestrained heave, up to 20mm consolidation settlement and the presence of dolomitic bedrock.
- *Soil Corrossivity:* Alluvial soils were found to be corrosive with regard to conductivity. In addition, waterlogged soils in the subsurface may also result in corrosive conditions.
- *Conditions of Excavation:* Conditions of clayey excavation must be anticipated. Clayey materials may result in conditions of difficult excavation in a dry state. The inclusion of cobbles in the profile also impedes excavation.
- *Seismicity:* The indicated risks related to seismicity are within bounds.
- *Dolomitic Zoning:* The entire site is considered to be of Risk **Class 4(a)**.

8 RECOMMENDATIONS

8.1 General Suitability for Development

Considering the fact that the purpose of the site has not yet been finalised (or approved by the Council for Geoscience), the recommendations are of limited use.

As the client has indicated that the site is considered for the construction of restaurants, the implementation of basement levels may be considered in the structural design. Including basement levels will result in the removal of much of the problematic materials (i.e. expansive alluvium, expansive colluvium and dolomite residuum). This in turn is likely to result in a decreased risk, especially as far as karst features and potential development space is concerned.

8.2 Groundwater

It is recommended that provision be made to address conditions of perched water. Such conditions may result in treacherous excavations and may ultimately hamper construction.

8.3 Soil Corrossivity

Measures must be emplaced to protect exposed metal objects (e.g. metallic piping) from corrosive soils. The use of PVC piping or protective coating may be considered.

8.4 Conditions of Excavation

Provision must be made to address conditions of clayey, wet excavation but it must also be considered that in situ material may prove hard to excavate in a dry state. In addition, the inclusion of dolomite cobbles (and likely boulders) in the profile will most probably require an excavator to remove, rather than a backhoe.

8.5 Dolomitic Stability

As no purpose was indicated, adequate recommendations can not be supplied regarding development on dolomitic land. The client must take note that strict requirements exist, particularly concerning wet services, for dolomitic areas. Such measures ultimately form part of a risk management plan that must be proposed for each development. The latter, however, depends on the proposed development.

Generally, a site of Risk Class 4(a) is suitable for selected residential developments including Gentlemen's estates, residential type one, residential type two and residential type three development.

8.6 Other

This report does not constitute a purpose-specific investigation on the study area. The information conveyed in this report may be considered for such a report, but the site must be reconsidered and assessed for such specific purposes and investigated on a so-called footprint basis.

The final recommendations concerning founding conditions will be determined by a combination of the proposed structure(s), the surface soil conditions and prevailing dolomitic conditions. Such recommendations will take into accounts possible receptacle development space (e.g. if basement levels are included in the proposed plan) and the size and risk of sinkholes and dolines that must be addressed. A comprehensive and effective site risk management plan can also only be produced once the specific layout has been finalised and will be required, should the proposed development be approved eventually.

This report was revised by the Council for Geoscience and certain suggestions were made. These suggestions and recommendations must be implemented.

9 SOURCES OF REFERENCE

9.1 Kent LE et al: *Stratigraphy of South Africa : Handbook 8 : Part 1 : Lithostratigraphy of the Republic of South Africa, South West Africa/Namibia and the Republics of Bophuthatswana, Transkei and Venda*, page 204 figure 4.14, published in 1980.

9.2 Vegter JR: *An Explanation of a Set of National Groundwater Maps*, published in 1995 by the Water Research Commission.

9.3 Evans UR: *The Corrosion and Oxidation of Metals*, published by Edward Arnold in 1971.

9.4 Van der Merwe D: *The Prediction of Heave from the Plasticity Index and Percentage Clay Fraction of Soils*, published in the Civil Engineer in South Africa, June 1964, pages 103 to 107.

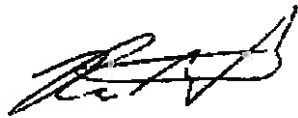
9.5 NHBRC: *Home Building Manual Part 1 & 2*, Revision 1, page 18, published in February 1999.

9.6 Kijko A et al: *Probabilistic Peak Ground Acceleration and Spectral Seismic Hazard Maps for South Africa*, Report 2003-0053 by the Council for Geoscience.

9.7 Fischer GJ: The Selection of Cemetery Sites in South Africa, published by the Council of Geoscience.

9.8 Buttrick DB et al: *Proposed Method for Dolomite Land Hazard and Risk Assessment in South Africa*, published in the Journal of the South African Institute for Civil Engineers, Volume 43(2) 2001, pages 27 to 36.

9.9 Council for Geoscience : *Consultants Guide : Approach to Sites on Dolomite Land*, November 2007.



IJ Breytenbach (Cand. Sci. Nat)



FJ Breytenbach (Pr. Eng.)

1 July 2009
For Soilkraft cc

**REPORT ON GEOTECHNICAL AND DOLOMITE
STABILITY CONDITIONS ON ERF 2979, HIGHVELD
EXTENSION 55**

2009/J055/M&T

ON BEHALF OF : M&T DEVELOPMENT (PTY) LTD

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**REPORT ON GEOTECHNICAL AND DOLOMITE
STABILITY CONDITIONS ON ERF 2979, HIGHVELD
EXTENSION 55**

2009/J055/M&T

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**REPORT ON GEOTECHNICAL AND DOLOMITE
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10 **ADDENDUM A : GRAVITY SURVEY**

**REPORT ON GEOTECHNICAL AND DOLOMITE
STABILITY CONDITIONS ON ERF 2979, HIGHVELD
EXTENSION 55**

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11 **ADDENDUM B : BOREHOLE PROFILES**

**REPORT ON GEOTECHNICAL AND DOLOMITE
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12 **ADDENDUM C : TEST PIT PROFILES**

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STABILITY CONDITIONS ON ERF 2979, HIGHVELD
EXTENSION 55**

2009/J055/M&T

13 **ADDENDUM D : RESULTS OF SOIL TESTING**

TRIAL HOLE: 1

PROJECT: GEOTECHNICAL INVESTIGATION

LOGGED BY: IJB

SITE NAME: HIGHVELD EXTENSION 55

DATE LOGGED: 10/3/2009

CLIENT: MNT DEVELOPMENTS (PTY) LTD

LOCATION: Y=2 982 610 X=2 864 436

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 Cell: 082 570 2767
 Email: soilkraft01@iburst.co.za
 or soilkraft02@iburst.co.za
 or soilkraf@iafrica.com (Frans)

Depth (m)	Legend	PROFILE	SAMPLE			Remarks
			Number	Sample Depth (m)	Symbol	
0.00	[Hatched pattern]	Ground Surface				NOTES: 1 No seepage water encountered. 2 No refusal of excavation encountered. 3 Disturbed sample taken at 0 - 700 mm for a foundation indicator. 4 Disturbed sample taken at 700 - 2100 mm for a foundation indicator and corrossivity test.
0.20		Slightly moist to moist, dark grey, soft, shattered and slickensided, CLAY with traces of wad. Roots are present in the horizon. Colluvium.	A90737	0 - 0,7	[Disturbed sample symbol]	
0.40						
0.60						
0.80	[Hatched pattern]	Slightly moist to moist, light grey, soft, slickensided, CLAY. Alluvium.				
1.00						
1.20						
1.40						
1.60			A90738	0,7 - 2,1	[Disturbed sample symbol]	
1.80						
2.00						
2.20						
2.40						
2.60						

- ∇ Water encountered
- ∇ Water level
- Bottom of hole
- - - Approximate material change
- Disturbed sample
- Undisturbed sample

Contractor: Abzan Earthworx
Date Drilled: 10/3/2009
Machine: Komatsu WB93R

Hole Diameter: 700 mm
Water Depth:
Sheet: 1 of 1

SOIL PROFILE: TEST PIT 1

FIGURE: C1

TRIAL HOLE: 2

PROJECT: GEOTECHNICAL INVESTIGATION

LOGGED BY: IJB

SITE NAME: HIGHVELD EXTENSION 55

DATE LOGGED: 10/3/2009

CLIENT: MNT DEVELOPMENTS (PTY) LTD

LOCATION: Y=2 982 634 X=2 864 397

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or soilkraft02@iburst.co.za

or soilkraf@iafrica.com (Frans)

Depth (m)	Legend	PROFILE	SAMPLE			Remarks
			Number	Sample Depth (m)	Symbol	
0.00		Ground Surface				NOTES: 1 Seepage water encountered at 1800 mm. 2 Refusal of excavation encountered at 1900 mm on SYENITE(?)
0.20		<i>FILL</i> : consisting of dark brown, clayey sand containing bricks, steel, plastic etcetera. Made ground.				
0.40		Slightly moist to moist, dark grey, soft, shattered and slickensided, <i>CLAY</i> with traces of wad. Roots are present in the horizon. Colluvium.				
0.60		Slightly moist to moist, light grey, soft, slickensided, <i>CLAY</i> . Alluvium.				
1.00						
1.20						
1.40						
1.60						
1.80						▽
2.00						
2.20						▽
2.40						
2.60						

- ▽ Water encountered
- ▽ Water level
- Bottom of hole
- - - Approximate material change
- Disturbed sample
- Undisturbed sample

Contractor: Abzan Earthworx
Date Drilled: 10/3/2009
Machine: Komatsu WB93R

Hole Diameter: 700 mm
Water Depth:
Sheet: 1 of 1

SOIL PROFILE: TEST PIT 2

FIGURE: C2

TRIAL HOLE: 3

PROJECT: GEOTECHNICAL INVESTIGATION

LOGGED BY: IJB

SITE NAME: HIGHVELD EXTENSION 55

DATE LOGGED: 10/3/2009

CLIENT: MNT DEVELOPMENTS (PTY) LTD

LOCATION: Y=2 982 700 X=2 864 444

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Depth (m)	Legend	PROFILE	SAMPLE			Remarks
			Number	Sample Depth (m)	Symbol	
0.00		Ground Surface				NOTES: 1 Seepage water encountered at 1800 mm. 2 Refusal of excavation encountered at 1200 mm on hard rock, DOLOMITE. 3 Disturbed sample taken at 600 - 1100 mm for a foundation indicator.
0.20		Slightly moist, dark brown, loose, intact, <i>silty clayey SAND</i> . Colluvium.				
0.40		Slightly moist, dark brown, loose, intact, <i>clayey SAND</i> . Colluvium.				
0.60		Slightly moist, black mottled grey brown, firm, intact, silty sand: <i>WAD</i> . Dolomite residuum.				
0.80			A90739	0,6 - 1,1	●	
1.00						
1.20		Green grey, very fine grained, massive, slightly weathered to moderately weathered, hard rock, <i>DOLOMITE</i> .				
1.40						
1.60						
1.80						
2.00						
2.20						
2.40						
2.60						

- Water encountered
- Water level
- Bottom of hole
- Approximate material change
- Disturbed sample
- Undisturbed sample

Contractor: Abzan Earthworx

Date Drilled: 10/3/2009

Machine: Komatsu WB93R

Hole Diameter: 700 mm

Water Depth:

Sheet: 1 of 1

SOIL PROFILE: TEST PIT 3

FIGURE: C3

TRIAL HOLE: 4

PROJECT: GEOTECHNICAL INVESTIGATION

LOGGED BY: IJB

SITE NAME: HIGHVELD EXTENSION 55

DATE LOGGED: 10/3/2009

CLIENT: MNT DEVELOPMENTS (PTY) LTD

LOCATION: Y=2 982 710 X=2 864 503

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or soilkraft@iafrica.com (Frans)

Depth (m)	Legend	PROFILE	SAMPLE			Remarks
			Number	Sample Depth (m)	Symbol	
0.00		Ground Surface				NOTES: 1 No seepage water encountered. 2 Refusal of excavation encountered at 1200 mm on COBBLES. 3 Disturbed sample taken at 200 - 1200 mm for a foundation indicator and corrossivity test.
0.20		Slightly moist, dark brown, loose, intact, clayey SAND. Colluvium.				
0.40		Slightly moist, dark brown, loose, intact, silty sand: WAD containing dolomite cobbles. Dolomite residuum.				
0.80			A90740	0,6 - 1,1	●	
1.00						
1.20						
1.40						
1.60						
1.80						
2.00						
2.20						
2.40						
2.60						

- ∇ Water encountered
- ∇ Water level
- Bottom of hole
- Approximate material change
- Disturbed sample
- Undisturbed sample

Contractor: Abzan Earthworx
Date Drilled: 10/3/2009
Machine: Komatsu WB93R

Hole Diameter: 700 mm
Water Depth:
Sheet: 1 of 1

SOIL PROFILE: TEST PIT 4

FIGURE: C4

TRIAL HOLE: 5

PROJECT: GEOTECHNICAL INVESTIGATION

LOGGED BY: IJB

SITE NAME: HIGHVELD EXTENSION 55

DATE LOGGED: 10/3/2009

CLIENT: MNT DEVELOPMENTS (PTY) LTD

LOCATION: Y=2 982 665 X=2 864 497

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 or soilkraft02@iburst.co.za
 or soilkraft@iafrica.com (Frans)

Depth (m)	Legend	PROFILE	SAMPLE			Remarks
			Number	Sample Depth (m)	Symbol	
0.00		Ground Surface				NOTES: 1 No seepage water encountered. 2 No refusal of excavation encountered. 3 Disturbed sample taken at 800 - 2400 mm for a foundation indicator.
0.20		Slightly moist to moist, dark grey, soft, shattered and slickensided, sandy CLAY with traces of wad. Roots are present in the horizon. Colluvium.				
0.40						
0.60						
0.80		Slightly moist to moist, light grey, soft, slickensided, sandy CLAY. Alluvium.				
1.00						
1.20						
1.40						
1.60			A90741	0,8 - 2,4		∇ Water encountered ∇ Water level — Bottom of hole — Approximate material change ○ Disturbed sample □ Undisturbed sample
1.80						
2.00						
2.20						
2.40		Slightly moist, black mottled grey brown, firm, intact, silt: WAD. Dolomite residuum.				∇
2.60						

Contractor: Abzan Earthworx
Date Drilled: 10/3/2009
Machine: Komatsu WB93R

Hole Diameter: 700 mm
Water Depth:
Sheet: 1 of 1

SOIL PROFILE: TEST PIT 5

FIGURE: C5

TRIAL HOLE: 6

PROJECT: GEOTECHNICAL INVESTIGATION

LOGGED BY: IJB

SITE NAME: HIGHVELD EXTENSION 55

DATE LOGGED: 10/3/2009

CLIENT: MNT DEVELOPMENTS (PTY) LTD

LOCATION: Y=2 982 629 X=2 864 500

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 or soilkraf@iafrica.com (Frans)

Depth (m)	Legend	PROFILE	SAMPLE			Remarks
			Number	Sample Depth (m)	Symbol	
0.00		Ground Surface				NOTES: 1 Seepage water encountered at 2500 mm. 2 No refusal of excavation encountered. 3 Disturbed sample taken at 1000 - 2600 mm for a foundation indicator and corrossivity test.
0.20		Slightly moist to moist, dark grey, soft, shattered and slickensided, sandy CLAY with traces of wad. Roots are present in the horizon. Colluvium.				
0.40						
0.60						
0.80						
1.00						
1.20		Slightly moist to moist, light grey, soft, slickensided, sandy CLAY. Pebbles at the bottom of test pit. Alluvium.				
1.40						
1.60						
1.80			A90742	1,0 - 2,6		∇ Water encountered ∇ Water level — Bottom of hole - - - Approximate material change ● Disturbed sample ■ Undisturbed sample
2.00						
2.20						
2.40						
2.60						∇

Contractor: Abzan Earthworx

Date Drilled: 10/3/2009

Machine: Komatsu WB93R

Hole Diameter: 700 mm

Water Depth:

Sheet: 1 of 1

SOIL PROFILE: TEST PIT 6

FIGURE: C6

FIGURE 4

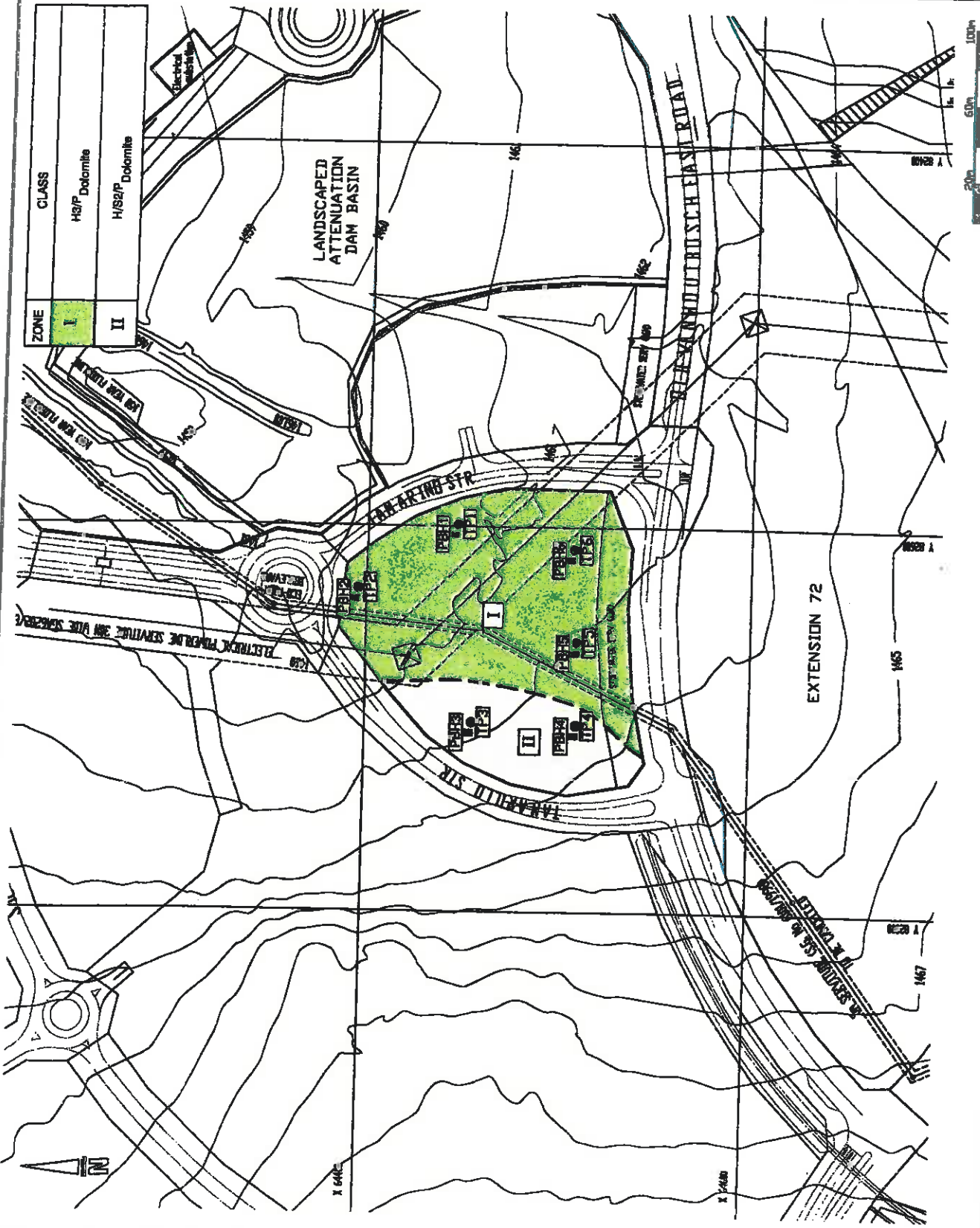
- LEGEND**
- LIMIT OF INVESTIGATION
 - TEST PITS
 - PERCUSSION BOREHOLE
 - EXTRAPOLATED BOUNDARY

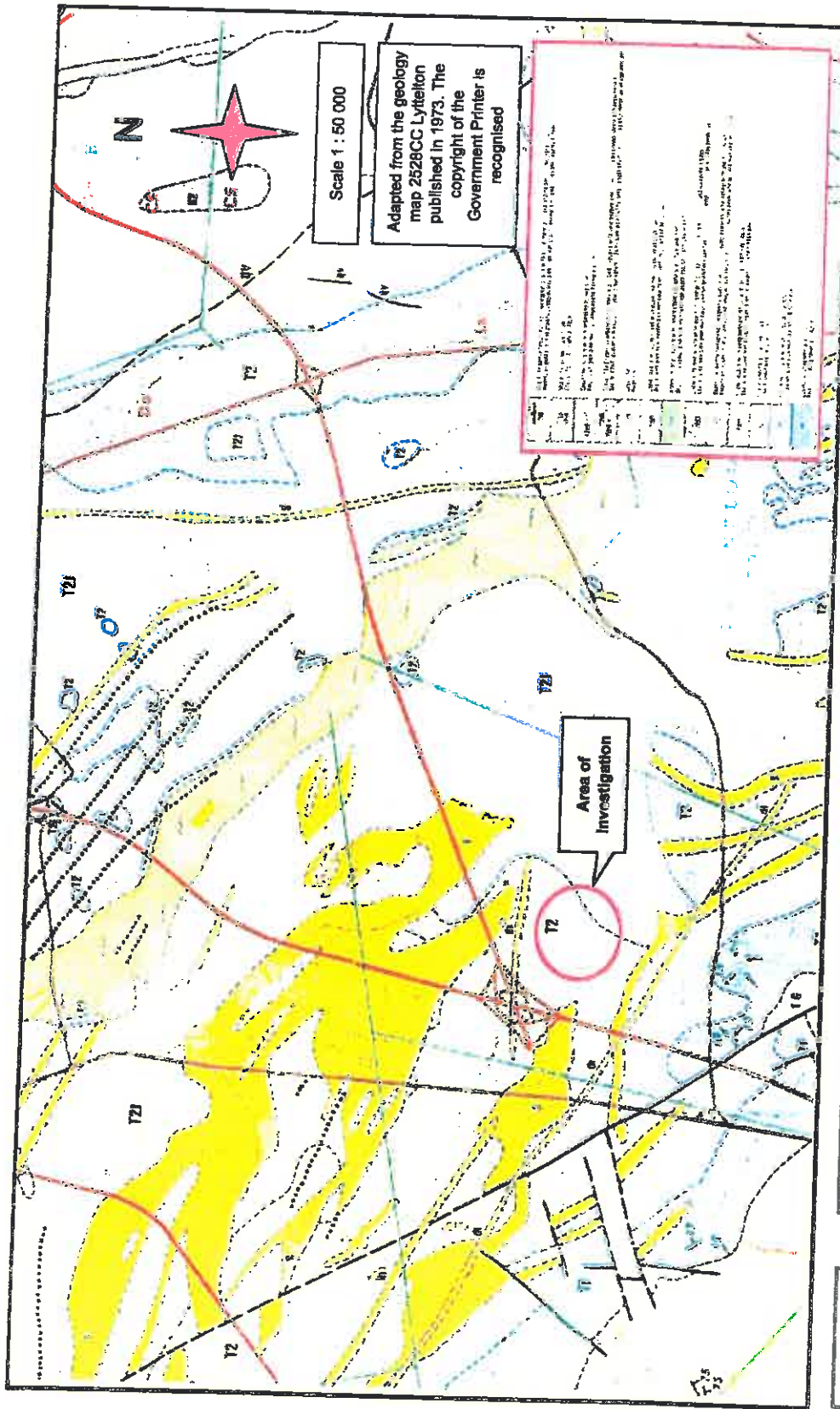
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 Website: www.soilkraft.com

JOB NO: HIGHVELD EXTENSION 65
 CLIENT: MET DEVELOPMENT (PTY) LTD
 DRAWING NO: SITE ZONING
 DATE: 3 JULY 2009

ZONE	CLASS
I	H3/P Dolomite
II	H32/P Dolomite





SOIL
KRAFT

REGIONAL GEOLOGY

FIGURE 3

TABLE 6 : DOLOMITE STABILITY CHARACTERISATION

BORE HOLE	STABILITY ZONE	MATERIALS PROFILE	RISK OF INSTABILITY FORMATION (DIAMETERS)				PROPOSED FOUNDATION DESIGN	ASSOCIATED PROBLEMS
			SINKHOLES					
			<2m	2m-5m	5m-15m	>15m		
1	4(a)	Dolomite residuum overlying Oaktree dolomite	Medium	Medium	Low	Low	Medium	Soft wad in profile Expansive surface soils
2	4(a)	Dolomite residuum overlying Oaktree dolomite	Medium	Medium	Low	Low	Medium	Soft wad in profile Expansive surface soils
3	4(a)	Dolomite residuum overlying Oaktree dolomite	Medium	Low	Low	Low	Medium	Soft wad in profile Expansive surface soils
4	4(a)	Colluvium overlying wad, residual syenite and Oaktree dolomite	Medium	Medium	Low	Low	Medium	Soft wad in profile Expansive surface soils
5	4(a)	Dolomite residuum overlying Oaktree dolomite	Medium	Medium	Low	Low	Medium	Soft wad in profile Expansive surface soils

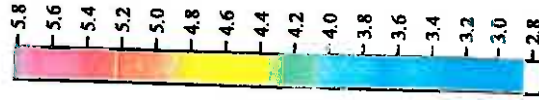
TABLE 6 : STABILITY CHARACTERISATION (CONTINUED)

BORE HOLE	STABILITY ZONE	MATERIALS PROFILE	RISK OF INSTABILITY FORMATION (DIAMETER)				ASSOCIATED PROBLEMS	PROPOSED FOUNDATION DESIGN	
			SINKHOLES						
			DOLINE	<2m	2m-5m	5m-15m			>15m
6	4(a)	Alluvium and dolomite residuum overlying Oaktree dolomite	Medium	Medium	Low	Low	Medium	Soft wad in profile Expansive surface soils	Soil mattress or reinforced raft

Eco Park

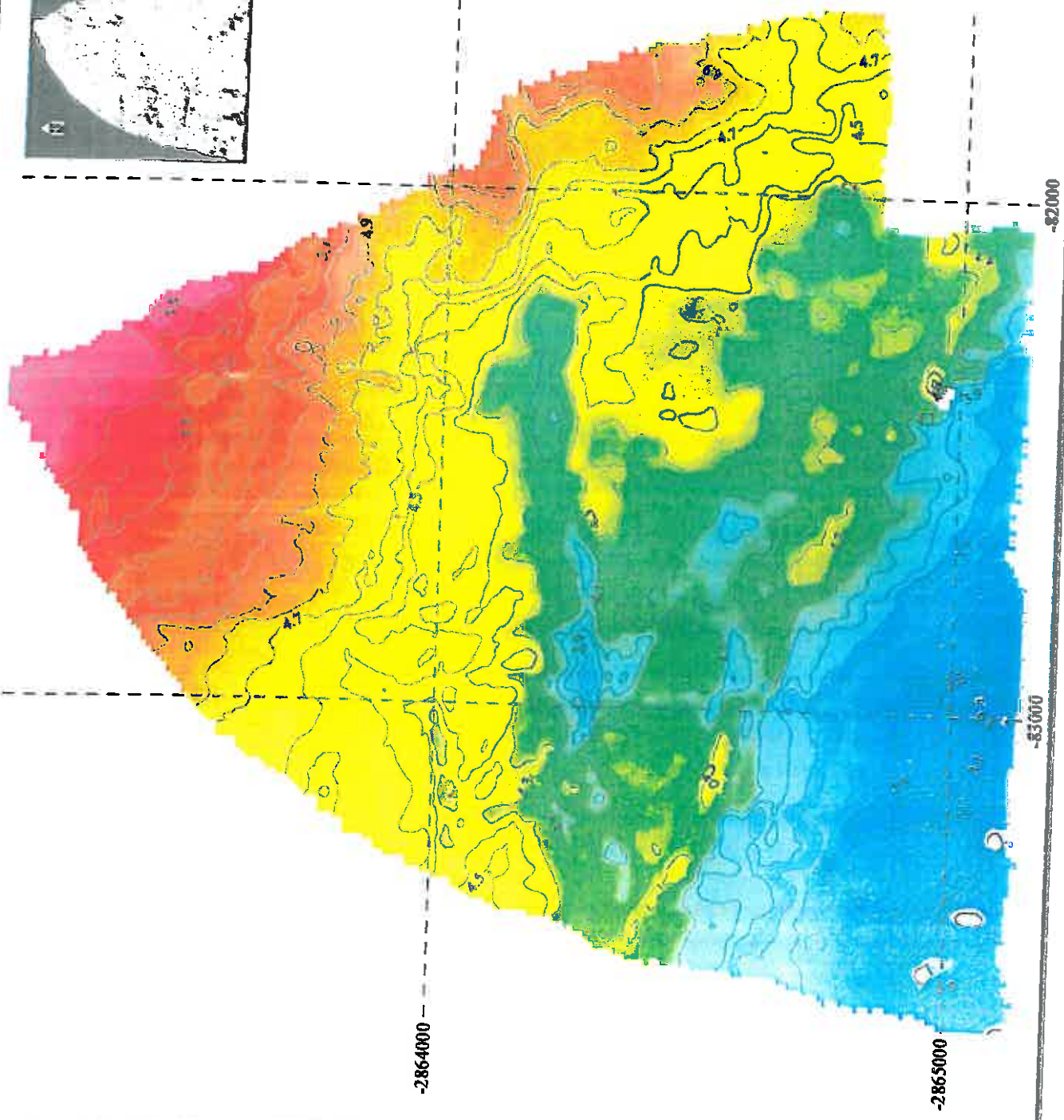
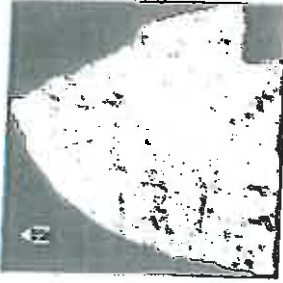
Brakfontein
399 JR

Figure 2: Relative
Bouguer map



Contour Interval 0,1 mGal
WGS84 Lo 29

E&EGS cc
March 2003



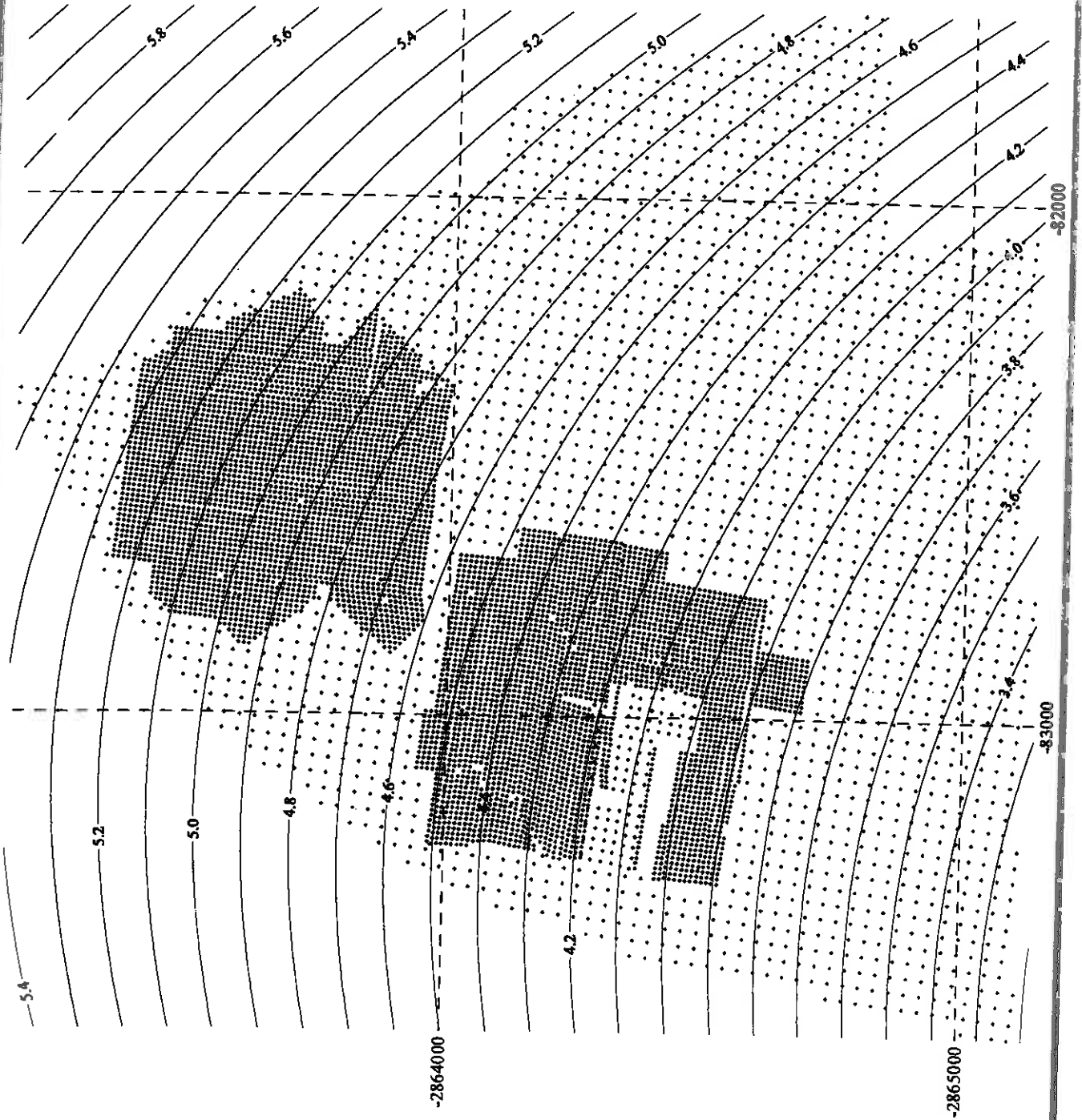
Eco Park

Brakfontein
399 JR

Figure 3: Regional
gravity map

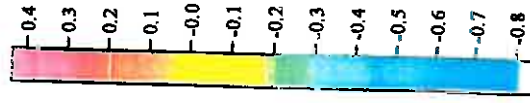
Contour Interval
0,1 mGals
Wgs84 Lo 29

E&EGS cc
March 2003



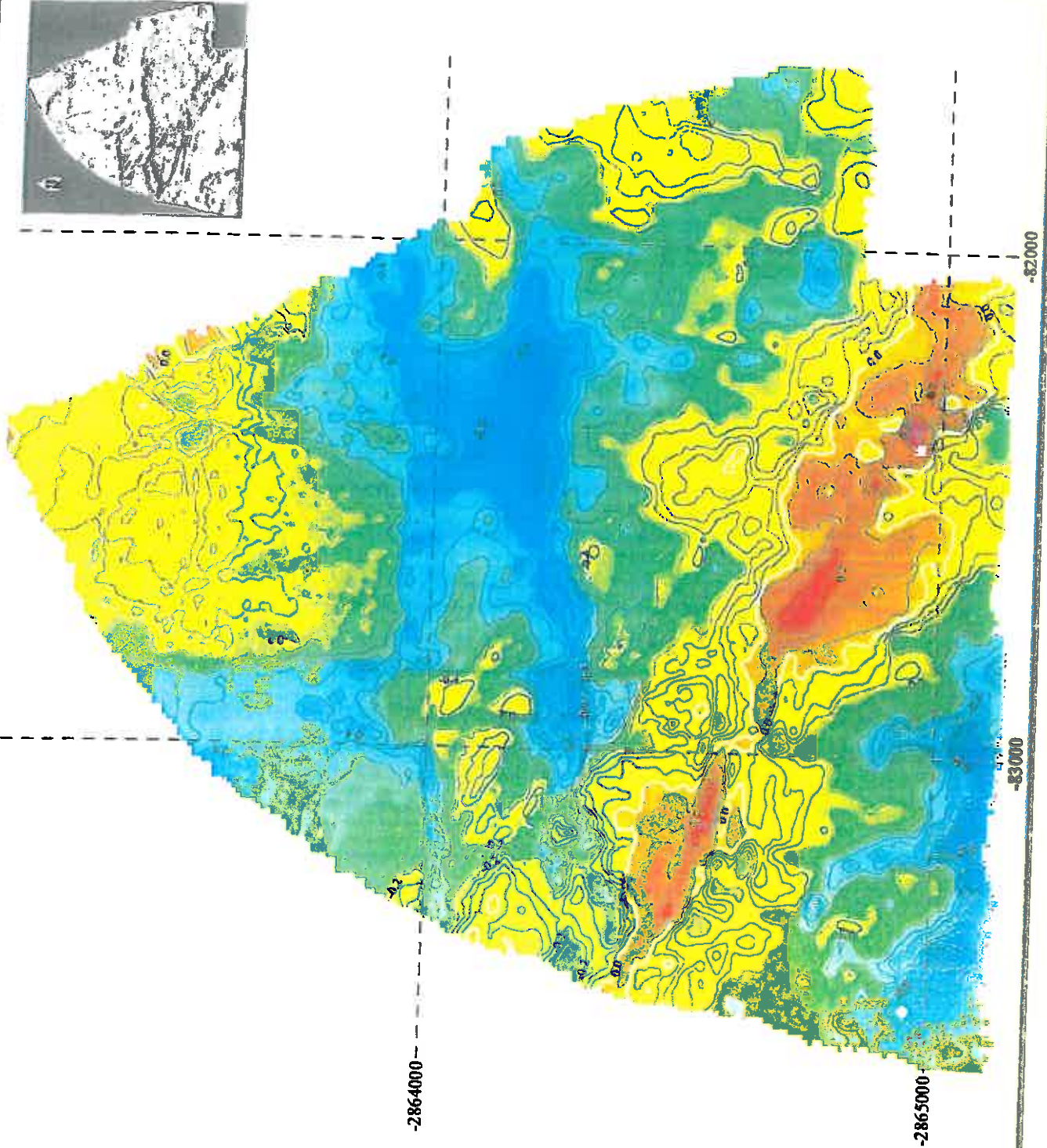
**Eco Park
Brakfontein
399 JR**

**Figure 4: Residual
gravity map**



Contour interval 0,05 mGals
WGS84 Lo 29

E4EGS cc
March 2003



HOLE NO: 1

CLIENT: M&T DEVELOPMENTS (PTY) LTD

Depth: 18 m

Contractor: JK Geotechnical Drilling

Driller: Frans

Drill Date: 30/3/2009

SITE: PROPOSED NEW BUILDINGS, HIGHVELD EXTENSION 55

Machine: Thor 5000

Air Pressure: 15 Bar

Air Capacity:

Profiler: FJB

Borehole Diameter: 600 mm

Location: Y2982610 X2864436

Date: 30/3/2009

SUBSURFACE PROFILE			FORMATION					HAMMER RATE				AIR LOSS				PENETRATION							
Depth (m)	Profile	Materials description	Cavity	Very soft	Soft	Fairly hard	Solid	Very irregular	Irregular	Regular	None	Slightly	Medium	Total	Sample	Water found	Rate of Penetration						
																	Time (m:s)	Minutes per metre					
																	0	1	2	3	4	5	
0		Ground Surface															0:00						
1		Dark black brown, clayey silt: WAD with subordinate, dark brown to dark grey, fine grained, dolomite. Diameter of chips < 10 mm. Dolomite residuum.		1						x	x						0:17						
2				1							x	x					0:14						
3				1							x	x					0:12						
4				1							x	x					0:15						
5				1							x	x					0:51						
6				1							x	x					0:17						
7		Dark grey brown, fine grained, highly weathered, very soft rock, DOLOMITE with subordinate, dark brown, clayey silt, wad. Diameter of chips < 10 mm.															0:34						
8		Dark grey, fine grained, moderately weathered, soft rock to medium hard rock, DOLOMITE. Diameter of chips < 10 mm.	0,1	0,9				x			x						1:52						
9						0,4	0,6		x			x					2:40						
10		Dark grey brown, fine grained, highly weathered, medium hard rock, DOLOMITE with subordinate, dark brown, clayey silt, wad. Diameter of chips < 10 mm.					1			x	x						3:14						
11				0,1	0,9				x			x					1:34						
12		Dark grey, very fine grained, slightly weathered, hard rock, DOLOMITE with traces of black, sandy silt: wad. Diameter of chips < 10 mm.		1						x	x						1:49						
13						0,9	0,1		x			x					2:51						
14							1			x	x						3:24						
15								1			x	x					3:30						
16							1			x	x						3:36						
17								1			x	x					3:48						
18							1			x	x					3:40							

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BOREHOLE: 1

FIGURE: B1

Sheet: 1 of 1

HOLE NO: 2

CLIENT: M&T DEVELOPMENTS (PTY) LTD

Depth: 19 m

Contractor: JK Geotechnical Drilling

Driller: Frans

Drill Date: 30/3/2009

SITE: PROPOSED NEW BUILDINGS, HIGHVELD EXTENSION 55

Machine: Thor 5000

Air Pressure: 15 Bar

Air Capacity:

Profiler: FJB

Borehole Diameter: 600 mm

Location: Y2982634 X2864397

Date: 30/3/2009

SUBSURFACE PROFILE			FORMATION				HAMMER RATE				AIR LOSS			PENETRATION									
Depth (m)	Profile	Materials description	Cavity	Very soft	Soft	Fairly hard	Solid	Very Irregular	Irregular	Regular	None	Slightly	Medium	Total	Sample	Water found	Rate of Penetration						
																	Time (m:s)	Minutes per metre					
																	0	1	2	3	4	5	
0		Ground Surface															0:00						
1		Black, clayey silt: WAD with subordinate, dark grey brown, very fine grained, highly weathered, very soft rock, dolomite. Diameter of chips < 10 mm. Dolomite residuum.		1						x		x					0:54						
2				1							x		x				0:51						
3				1							x		x				0:40						
4		Light grey to dark grey, fine grained, slightly weathered, medium hard rock to hard rock, DOLOMITE with subordinate traces of dark brown, silty sand. Diameter of chips < 5 mm.	0,1	0,9				x				x					1:41						
5					1						x		x				1:57						
6							0,3	0,7	x				x				2:58						
7		Light grey, very fine grained, moderately weathered, soft rock, DOLOMITE. Diameter of chips < 5 mm.					1			x		x					3:16						
8				0,1	0,9				x			x					1:09						
9					1						x		x				1:26						
10		Light grey, very fine frained, unweathered, hard rock, DOLOMITE. Diameter of chips < 5 mm.								x		x					1:49						
11					1						x		x				1:51						
12					1						x		x				1:58						
13					1						x		x				1:23						
14						0,5	0,5		x				x				2:47						
15								1			x		x				3:08						
16							1			x		x				3:32							
17								1			x		x				3:14						
18								1			x		x				3:21						
19							1			x		x				3:37							

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BOREHOLE: 2

FIGURE: B2

Sheet: 1 of 1

HOLE NO: 3 CLIENT: M&T DEVELOPMENTS (PTY) LTD Depth: 18 m Contractor: JK Geotechnical Drilling Driller: Frans Drill Date: 30/3/2009	SITE: PROPOSED NEW BUILDINGS, HIGHVELD EXTENSION 55 Machine: Thor 5000 Air Pressure: 15 Bar Air Capacity: Profiler: FJB Borehole Diameter: 600 mm	Location: Y2982700 X2864444 Date: 30/3/2009
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SUBSURFACE PROFILE			FORMATION					HAMMER RATE				AIR LOSS			Sample	Water found	PENETRATION					
Depth (m)	Profile	Materials description	Cavity	Very soft	Soft	Fairly hard	Solid	Very irregular	Irregular	Regular	None	Slightly	Medium	Total			Time (m:s)	Rate of Penetration				
																		Minutes per metre				
0		Ground Surface													0:00							
1		Black, clayey silt: WAD with subordinate, dark grey brown, very fine grained, highly weathered, very soft rock, dolomite. Diameter of chips < 10 mm.	1							x	x				0:25							
2			Dolomite residuum.	1							x	x				0:21						
3		Light grey to dark grey, fine grained, slightly weathered, medium hard rock to hard rock, DOLOMITE with subordinate traces of dark brown, silty sand. Diameter of chips < 5 mm.	1							x	x				0:56							
4			Dolomite residuum.	1							x	x				0:43						
5		Dark grey, very fine grained, slightly weathered, soft rock, DOLOMITE. Diameter of chips < 10 mm.	0,1	0,9					x		x				1:12							
6			Dolomite residuum.		1						x	x				1:33						
7				1						x	x				1:36							
8			Dolomite residuum.		1						x	x				1:57						
9				1						x	x				1:59							
10			Dolomite residuum.		1						x	x				1:44						
11				1						x	x				1:53							
12			Dolomite residuum.		1						x	x				1:49						
13		Dark grey, very fine grained, unweathered, hard rock, DOLOMITE. Diameter of chips < 10 mm.			0,4	0,8			x		x				2:30							
14			Dolomite residuum.			1					x	x				3:27						
15					1					x	x				3:45							
16			Dolomite residuum.			1					x	x				3:38						
17					1					x	x				3:19							
18			Dolomite residuum.			1					x	x				3:40						

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HOLE NO: 4
CLIENT: M&T DEVELOPMENTS (PTY) LTD
Depth: 18 m
Contractor: JK Geotechnical Drilling
Driller: Frans
Drill Date: 30/3/2009

SITE: PROPOSED NEW BUILDINGS, HIGHVELD EXTENSION 55
Machine: Thor 5000
Air Pressure: 15 Bar
Air Capacity:
Profiler: FJB
Borehole Diameter: 600 mm

Location: Y2982710 X2864503
Date: 30/3/2009

SUBSURFACE PROFILE			FORMATION					HAMMER RATE			AIR LOSS			PENETRATION								
Depth (m)	Profile	Materials description	Cavity	Very soft	Soft	Fairly hard	Solid	Very irregular	Irregular	Regular	None	Slightly	Medium	Total	Sample	Water found	Rate of Penetration					
																	Time (m.s)	Minutes per metre				
0		Ground Surface															0	1	2	3	4	5
1		Dark brown, sandy silt: WAD and dense manganese concretions. Diameter of chips < 5 mm. Dolomite residuum.		1						x	x						0:00					
2		Dark grey, very fine grained, moderately weathered, very soft rock, DOLOMITE. Diameter of chips < 10 mm.		1						x	x						0:35					
3		Dark brown, sandy silt: WAD and dense manganese concretions. Diameter of chips < 5 mm. Dolomite residuum.		1						x	x						0:33					
4		Light brown, silty SAND with subordinate, dark brown, dense, manganese concretions. Residual syenite.		1						x	x						0:27					
5		Light grey to dark grey, fine grained, slightly weathered, soft rock, DOLOMITE with subordinate, light brown, highly weathered, soft rock, syenite. Diameter of chips < 10 mm. Overall hardness is that of soft rock. Dolomite intruded on micro scale by syenite.		1						x	x						0:17					
6				1						x	x						0:24					
7				1						x	x						0:14					
8			0,1	0,9				x		x							0:20					
9				1						x	x						1:50					
10				1						x	x						1:38					
11				1						x	x						1:57					
12				1						x	x						1:59					
13					0,4	0,6		x		x							1:48					
14						1				x	x						2:40					
15						1				x	x						3:31					
16						1				x	x						3:48					
17						1				x	x						3:43					
18						1				x	x						3:51					
																	3:40					

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BOREHOLE: 4

FIGURE: B4

Sheet: 1 of 1

HOLE NO: 5
CLIENT: M&T DEVELOPMENTS (PTY) LTD
Depth: 20 m
Contractor: JK Geotechnical Drilling
Driller: Frans
Drill Date: 30/3/2009

SITE: PROPOSED NEW BUILDINGS, HIGHVELD EXTENSION 55

Machine: Thor 5000
Air Pressure: 15 Bar
Air Capacity:
Profiler: FJB
Borehole Diameter: 600 mm

Location: Y2982665 X2864497

Date: 30/3/2009

SUBSURFACE PROFILE			FORMATION					HAMMER RATE			AIR LOSS			Sample	Water found	PENETRATION						
Depth (m)	Profile	Materials description	Cavity	Very soft	Soft	Fairly hard	Solid	Very irregular	Irregular	Regular	None	Slightly	Medium			Total	Time (m:s)	Rate of Penetration				
																		Minutes per metre	0	1	2	3
0		Ground Surface													0:00							
1		Black, clayey silt: WAD with subordinate, light grey, silty clay. Dolomite residuum.		1						x	x					0:47						
2				1						x	x				0:33							
3				1						x	x				0:39							
4				1						x	x				0:32							
5		Dark brown to black, clayey silt: WAD with subordinate, light grey, fine grained, moderately weathered, dolomite.		1						x	x				0:57							
6		Diameter of chips < 5 mm. Dolomite residuum.		0,1	0,9				x		x				1:22							
7		Dark grey, fine grained, moderately weathered, soft rock, DOLOMITE with subordinate, dark brown, silty sand. Diameter of chips < 15 mm.			1					x	x				1:39							
8					1					x	x				1:53							
9					1					x	x				1:58							
10					1					x	x				1:56							
11		Dark grey, fine grained, moderately weathered, soft rock, DOLOMITE with subordinate, dark grey, very fine grained, soft rock, shale and traces of white quartzite. Diameter of chips < 15 mm.			1					x	x				1:33							
12					1					x	x				1:10							
13					1					x	x				1:29							
14					1					x	x				1:48							
15		Dark grey speckled white, fine grained, unweathered, hard rock, DOLOMITE. Diameter of chips < 5 mm.				0,5	0,5		x		x				3:10							
16							1			x	x				3:38							
17							1			x	x				3:27							
18							1			x	x				4:13							
19							1			x	x				4:34							
20							1			x	x				3:53							

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BOREHOLE: 5

FIGURE: B5

Sheet: 1 of 1

HOLE NO: 6
CLIENT: M&T DEVELOPMENTS (PTY) LTD
Depth: 20 m
Contractor: JK Geotechnical Drilling
Driller: Frans
Drill Date: 30/3/2009

SITE: PROPOSED NEW BUILDINGS, HIGHVELD EXTENSION 55
Machine: Thor 5000
Air Pressure: 15 Bar
Air Capacity:
Profiler: FJB
Borehole Diameter: 600 mm

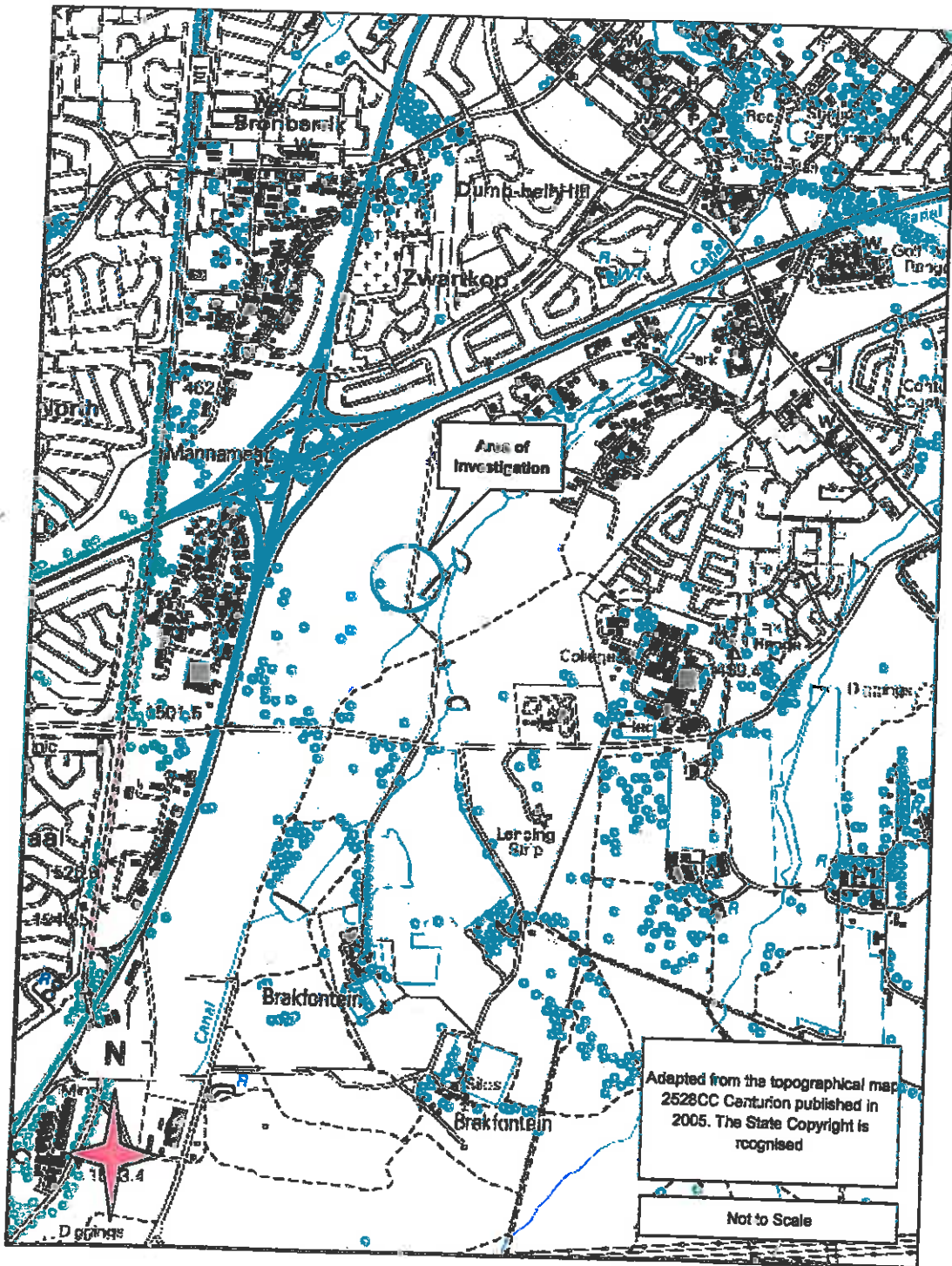
Location: Y2982629 X2864500
Date: 31/3/2009

SUBSURFACE PROFILE			FORMATION					HAMMER RATE				AIR LOSS			Sample	Water found	PENETRATION					
Depth (m)	Profile	Materials description	Cavity	Very soft	Soft	Fairly hard	Solid	Very irregular	Irregular	Regular	None	Slightly	Medium	Total			Time (m:s)	Rate of Penetration				
																		Minutes per metre				
0		Ground Surface														0:00						
1		Dark grey, clayey SAND. Alluvium?		1						x	x					0:32						
2		Dark grey brown, manganocretic clayey SAND with subordinate, light grey, fine grained, moderately weathered, dolomite. Diameter of chips < 5 mm. Dolomite residuum.		1						x	x					0:41						
3				1							x	x				0:22						
4				1							x	x				0:33						
5		Dark grey, fine grained, slightly weathered, soft rock, DOLOMITE. Diameter of chips < 15 mm.	0,1	0,9				x			x					1:30						
6				1						x	x					1:36						
7				1						x	x					1:29						
8				1						x	x					1:08						
9				1						x	x					1:51						
10		Dark grey, fine grained, slightly weathered, hard rock, DOLOMITE with traces of dark grey brown, silty sand. Diameter of chips < 15 mm.			0,5	0,5		x			x					3:00						
11							1			x	x					3:20						
12		Dark grey, very fine grained, slightly weathered, soft rock, DOLOMITE. Diameter of chips < 15 mm.	0,1	0,9				x			x					1:14						
13				1						x	x					1:57						
14				1						x	x					1:59						
15		Dark grey speckled white, fine grained, unweathered, hard rock, DOLOMITE. Diameter of chips < 10 mm.			0,4	0,6		x			x					2:36						
16							1			x	x					3:16						
17							1			x	x					3:32						
18							1			x	x					3:44						
19							1			x	x					3:40						
20						1			x	x					3:53							

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BOREHOLE: 6

FIGURE: B6
Sheet: 1 of 1



**SOIL
KRAFT**

LOCALITY PLAN

FIGURE 1

Town Planning Motivation



Erf 2979 Highveld Extension 55

Rezoning in terms of Section 56 of the Town-Planning and Townships Ordinance, 1986 (Ordinance 15 of 1986) from "Public Open Space" to "Special" for a variety of land uses as set out in a development schedule viz. Annexure T

1. MOTIVATION FOR REZONING

1.1. Background

The Eco-Park development was approved in principle in 2003 and has subsequently become a landmark development within the Centurion spatial context. It was the township developer's intention to create an urban setting which allows for the dynamic interaction between residential units, offices, commercial and social facilities. Great care has been taken to ensure the development of an aesthetically pleasing environment which is both safe and functional. Furthermore, the intention of the developer was to create an environment, which is not only aesthetically pleasing but also provides alternative facilities in order to accommodate the vast extent of differing needs that exists among the residents. The developer acknowledges the challenge that lies not only at building these complimentary land uses but also incorporating them into the larger area.

Erf 2979 Highveld Extension 55 measures 1.9035 ha in extent and is zoned "Private Open Space" in terms of the Tshwane Town Planning Scheme, 2008. The property is currently vacant and it is the developer's submission that the said vacant portion of land can be utilized to better realize the area's visual and interactive potential.

The purpose of this application is to rezone Erf 2979 Highveld Extension 55 from "Private Open Space" to "Special" for a variety of land uses as set out in a development schedule in order to optimally utilize the development potential of the site.

1.2. Area Perspective

Highveld Extension 55, is situated within the suburb of Eco-Park which in turn is located in the south-eastern quadrant of the N1-N14 interchange in the southern parts of Centurion.

Erf 2979 Highveld Extension 55 is situated on a strategically located enclave north of Olievenhoutbosch Road enclosed by Tamarino Street and Tamarillo Street. The subject property is located directly adjacent to the southern entrance to the Eco-Park residential estate.

The area has a vibrant and eclectic character due to the interaction of different land-uses including residential, offices, retail and open space. The Eco-Park residential estate is a middle-income residential area that consists of 16 residential estates that utilise Eco-Park Boulevard exclusively for access. The estate houses approximately 2200 sectional title units over approximately 240 ha within the greater Eco-Park region. Eco-park Boulevard together with the green belt forms an open-air atrium that flows onto the subject property which creates the perfect opportunity for a visual stimulating focal point for purposes of 'place making'.

1.3. Proposed Development

It is the township developer's intention to create a landscaped garden that will serve as both a focal point for Eco-Park Boulevard as well as a landmark for the greater Eco-Park precinct. The envisioned landscaped garden will be accompanied by one or more low intensity social facility.

1.4. Need and Desirability

The *need* for the rezoning application can be motivated under three spheres viz. the *need* for landscaped open spaces, the *need* for social facilities, and the *need* for placemaking in densely populated areas.

Erf 2979 bisects the green belt formed by the Eco-Park Boulevard road reserve, Erf 11 Highveld Extension 114, Erf 2978 Highveld Extension 55, and Erf 3079 Highveld Extension 75. This placement of the subject property stresses its importance in the spatial context of Eco-Park. It is important to note that the proposed rezoning will not influence the cohesion of the public open spaces due to the fact that the primary land use viz. 'Open Space' will remain unchanged with only the addition of a social facility that will be integrated with the landscaped surroundings.

The *need* for social facilities like libraries, crèches and recreational facilities is a well documented fact and is the focus point of several development policies in South Africa. Highveld Extension 120 offers an erf measuring approximately 2.5 ha for the development of an educational facility but does not offer any other social facilities in the direct vicinity. Housing approximately 2500 families, it can be acknowledged that there will be a *need* for facilities such as libraries or crèches in the direct vicinity. The subject property is ideally located for this purpose in close proximity to the proposed educational facility as well as on the pedestrian and vehicle route between the educational facility and the residential estate.

The mentality of providing erven for open space, only to leave it barren and let it fall to disrepair, is an outdated school of thought. As residential areas become denser the *need* for functional open spaces that add value to the surrounding properties increases.

The rezoning of Erf 2979 Highveld Extension 55 will allow 'placemaking' on the otherwise barren vacant land. It will allow the enclave to be utilized by the general public while providing them with landscaped gardens and open space for recreational purposes.

It is M&T Development's submission that the proposed rezoning will help realise the vision of the developer as set out in Paragraph 1.1. The proposed development will enhance the aesthetic value of the area and is in line with planning concepts such as infill development within the urban edge, and the higher intensity utilization of land.

Even though the property is encumbered by three servitudes, the buildable area of 1.2 ha on the application site is of sufficient size to accommodate the proposed development and will have no detrimental effect on the surrounding properties. In view of the above, the proposed rezoning can be considered *desirable*.

STATEMENT OF THE CONDITIONS UNDER WHICH THE APPLICATION MADE BY JR 209 INVESTMENTS (PTY) LTD (HEREINAFTER REFERRED TO AS THE APPLICANT) UNDER THE PROVISIONS OF CHAPTER 3 (PART 3) OF THE TOWN-PLANNING AND TOWNSHIPS ORDINANCE, 1986 (ORDINANCE 15 OF 1986), FOR PERMISSION TO ESTABLISH A TOWNSHIP ON PORTION 157 OF THE FARM BRAKFORTEIN 390 REGISTRATION DIVISION J.R., GAUTENG PROVINCE HAS BEEN GRANTED

1. CONDITIONS TO BE COMPLIED WITH PRIOR TO THE DECLARATION OF THE TOWNSHIP IN TERMS OF THE PROVISIONS OF SECTION 103 OF THE TOWN-PLANNING AND TOWNSHIPS ORDINANCE, 1986 (ORDINANCE 15 OF 1986) (HEREINAFTER REFERRED TO AS ORDINANCE 15 OF 1986)

1.1 PROVISION AND INSTALLATION OF SERVICES

The applicant shall make the necessary arrangements with the Municipality for the provision and installation of water, electricity and sanitation as well as the construction of roads and stormwater drainage in the township.

If external services are not available or the existing external services not sufficient to accommodate the township, special arrangements will have to be made after consultation with the applicable departments in the Municipality.

1.2 MINERAL RIGHTS

The consent be obtained from the Department of Mineral and Energy regarding the mineral rights in respect of the land on which the township is being established.

1.3 GENERAL

(a) The applicant shall satisfy the Local Authority that -

(i) the relevant amendment scheme is in order and can be published simultaneously with the declaration of the township as an approved township;

(ii) satisfactory access is available to the township and that a public street system is available to all erven in the township;

(iii) a satisfactory traffic impact assessment has been submitted;

(iii) a dolomitic stability- and foundation investigation must be carried out and a report, compiled from the results, indicating areas suitable for development and specifying conditions under which development may take place, must be submitted to the Council for Geoscience and the Municipality for approval;

(iv) the name of the township as well as the street names have been approved by the Council and it is indicated on the lay-out plan or General Plan in accordance with regulation 18.(1)(a)(iv) of Ordinance 15 of 1986;



(v) a detailed Master Site and Landscape Development Plan and Environmental Management Plan, drafted by a qualified professional Landscape Architect, shall be submitted to the Environmental Planning Section for approval, including:

- all recommendations of the EIA Report, the Environmental Management Plan (EMP) and the Record of Decision (ROD);
- all existing as well as proposed natural features;
- proposed planting and other landscape features; and
- development of all "Open Spaces" areas.

(b) The applicant shall comply with the provisions of section 72, 75 and 101(2) of the Town-planning and Townships Ordinance, 1986.

2. CONDITIONS OF ESTABLISHMENT (CONDITIONS WHICH WILL BE APPLICABLE TO THE APPROVED TOWNSHIP IN TERMS OF SECTION 103 OF ORDINANCE 15 OF 1986)

2.1 NAME

The name of the township shall be Highveld Extension 55.

2.2 DESIGN

The township shall consist of erven and streets as indicated on Lay-out plan HV55TS/8 Feb 2009 and General Plan S.G. No. 2512/2005

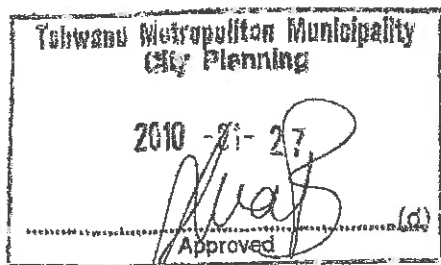
2.3 DISPOSAL OF EXISTING CONDITIONS OF TITLE

All erven shall be made subject to existing conditions and servitudes, if any, including the reservation of rights to minerals, but excluding -

(a) the following conditions in Title Deed T74351/2002, which do not affect the township:

(b) Kragtens Notariële Akte van Serwituut Nr.K91/1982S gedateer 5 November 1981 is die Resterende Gedeelte van Gedeelte 2 van die plaas Brakfontein 390, groot 565,9643 hektaar, waarvan die binnegemelde eiendom 'n deel vorm, onderhewig aan 'n ewigdurende reg om elektrisiteit te voorsien deur middel van drade en/of kables en ander toebehore ondergronds en/of bogronds langs roete aangedui deur letters ABC en EFGHJKLMNO PQ op Diagram L.G. Nr.A.5338/1978 ten gunste van die City of Tshwane Metropolitan Municipality.

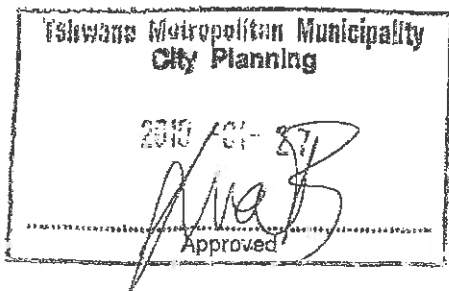
Die voormalige Resterende Gedeelte van Gedeelte 2 van die plaas Brakfontein 390, groot 331,7435 hektaar, waarvan die binnegemelde eiendom 'n deel vorm, is verder onderhewig aan 'n ewigdurende reg van serwituut ten gunste van die City of Tshwane Metropolitan Municipality vir munisipale doeleindes vir 'n kraglyn oor 'n serwituurgebied 3 meter wyd waarvan die oostelike grens aangedui word deur die lyn AB op die Serwituut Kaart L.G. Nr.



A.5069/1984, en welke reg van serwituut sal insluit die reg om 'n kraglyn bogronds of ondergronds in die serwituutgebied aan te lê, welke serwituut geregistreer is kragtens Notariële Akte van Serwituut Nr. K.214/1995-S.

- (e) Die voormalige Resterende Gedeelte van Gedeelte 2 van die plaas Brakfontein 390, groot 331,7435 hektaar, waarvan die binnegemelde eiendom 'n deel vorm, is verder onderhewig aan 'n ewigdurende reg van serwituut ten gunste van die City of Tshwane Metropolitan Municipality vir munisipale doeleindes, vir elektrisiteitsgeleiding, vir stormwaterafvoer, watertoevoer en vir die installasie en onderhoud van 'n rioolpylyn, oor 'n serwituutgebied soos aangedui deur die letters ABCDEFGHJKLM op die Serwituut Kaart L.G. Nr. A.6652/1989 en verder deur 'n aangrensende 4 meter wyd serwituutgebied soos aangedui deur die verwysingslyn NPQRSTUWX en meegaande rigtingswysers op die Serwituut Kaart L.G. Nr.A.6652/1989, welke serwituut geregistreer is kragtens Notariële Akte van Serwituut Nr. K.215/1995S.
- (f) Kragtens Notariële Akte van Serwituut Nr.K216/1995S gedateer 28 Desember 1994, is Gedeelte 60 (Gedeelte van Gedeelte 2) van die plaas Brakfontein 390, groot 290,4753 hektaar, waarvan die binnegemelde eiendom 'n deel vorm, onderhewig aan 'n ewigdurende serwituut vir munisipale doeleindes vir watergeleiding oor 'n serwituutgebied 3 meter wyd, waarvan die oostelike grens aangedui word deur die lyn ABC op Kaart L.G. Nr. A8857/1994 met bykomende regte ten gunste van die City of Tshwane Metropolitan Municipality, soos meer volledig sal blyk uit gemelde Notariële Akte en Diagram.
- (g) Kragtens Notariële Akte van Serwituut Nr.K217/1995S gedateer 28 Desember 1994, is Gedeelte 60 (Gedeelte van Gedeelte 2) van die plaas Brakfontein 390, groot 290,4753 hektaar, waarvan die binnegemelde eiendom 'n deel vorm, onderhewig aan 'n ewigdurende serwituut vir munisipale doeleindes, naamlik paddoeleindes oor 'n serwituutgebied aangedui deur die letters DEFGHJKLMNPQRS op Kaart L.G. Nr. A8857/1994, ten gunste van die City of Tshwane Metropolitan Municipality, soos meer volledig sal blyk uit gemelde Notariële Akte en Kaart.
- (h) Die Resterende Gedeelte van Gedeelte 60 (Gedeelte van Gedeelte 2) van die plaas Brakfontein 390, groot 257,6664 hektaar, waarvan die binnegemelde eiendom 'n deel vorm, is onderhewig aan die volgende voorwaardes :

- (i) 'n ewigdurige serwituut oor 'n gebied waarbinne die pylyn en werke geakkommodeer sal word, welke gebied 6 meter wyd is en waarvan die middellyn aangetoon word deur die lyn ABCDEFGHJ op Serwituut agram S.G. 5284/1996 vir die installering en oprigting van die pylyn en werke en die reg om die pylyn en werke van tyd tot tyd te patrolleer, inspekteer, in stand te hou, herstel, hernieu, verwyder en te



verlê.

- (ii) 'n serwituutgebied 1 meter wyd, waarvan die middellyn aangetoon word deur die lyn genummer KLMNLP'Q op Serwituut Diagram S.G.Nr. 5284/1996.
- (iii) 'n serwituutgebied 2 meter wyd, waarvan die middellyn aangetoon word deur die lyn gemerk NR op die Serwituut Diagram S.G.Nr. 5284/1996 vir die installing en oprigting van katodiese beskermingstoerusting en werke en die reg om katodiese beskermingstoerusting en werke van tyd tot tyd te patrolleer, inspekteer, in stand te hou, herstel, hernieu, verwyder en te verlê.

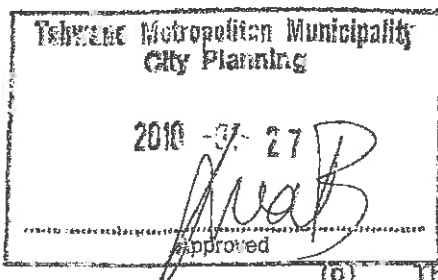
Ten gunste van die Suid-Afrikaanse Gasdistribusiekorporasie Beperk Nr. 64/06005/06 soos meer volledig sal blyk uit Notariële Serwituut Akte Nr. K.3517/1997S met aangehegte Serwituut Diagram S.G.Nr. 5284/1996.

(b) **The following servitude in Deed of Transfer T.74351/2002 which shall not be transferred to erven in the township:-**

- (a) Kragtens Notariële Akte van Serwituut K.4200/1993-S gedateer 15 Maart 1993 is die Resterende Gedeelte van Gedeelte 2 van die plaas Brakfontein 390, groot 349,2487 hektaar, waarvan die binnegemelde eiendom 'n deel vorm, onderhewig aan 'n reg om stormwater by wyse van pyplyn of op enige ander wyse uit te laat deur die veerduikweg onder die Ben Schoeman Hoofweg op die dienende eiendom ten gunste van (1) Resterende Gedeelte van Gedeelte 20 ('n gedeelte van Gedeelte 2) van die plaas Brakfontein 390, JR en (2) Gedeelte 42 van die plaas Brakfontein 390 J.R. soos meer ten volle sal blyk uit bogenoemde Notariële Akte.

(c) **The following servitude in Deed of Transfer T.74351/2002 which affects Erf 2979 and a street in the township only:-**

- (c) Kragtens Notariële Akte van Serwituut nr K.3561/1982S gedateer 29 November 1982 is die Resterende Gedeelte van Gedeelte 2 van die plaas Brakfontein 390, groot 565,9643 hektaar, waarvan die binnegemelde eiendom 'n deel vorm, onderhewig aan die ewigdurende reg ten gunste van die City of Tshwane Metropolitan Municipality om 'n substasie vir elektriese kragleiding op te rig en om elektrisiteit te gelei deur middel van drade en/of kables of ander toebehore ondergronds en/of bogronds langs roetes deur die letters ABCDE en FGHJKLM op die Diagram L.G.Nr. 6202/1981 en AB en BC op Diagram L.G. Nr 3167/1982 hierby aangeheg, soos meer volledig sal blyk uit gemelde Notariële Akte van Serwituut



(d)

The following servitude which appears as an endorsement on page 6 of Title Deed T.74351/2002 and which affects Erf 2979 and streets in the township only:-

By Notarial Deed of Servitude K.8556/2003, the Remaining Extent of Portion 60 (a Portion of Portion 2) of the farm Brakfontein 390, in extent 218,9431 (of which the within mentioned property forms a part) is subject to a servitude for laying of stormwater, pipe/sewerage pipe/ electrical cable of 5 metres wide and a right of access for inspection, maintenance, repairs in favour of the City of Tshwane Metropolitan Municipality, the centre line of which is indicated by the line *ABCDEFGHIJKLMNPQRSTUVWXYZ* on diagram S.G. No 6101/1998 and will more fully appear from the said Notarial Deed of Servitude.

- (e) The following condition which appears as an endorsement on page 9 of Title Deed T.74351/2002 and which does not affect the township :-

By Notarial Deed of Servitude K.7177/2006, the Remaining Extent of Portion 60 (a Portion of Portion 2) of the farm Brakfontein 390, in extent 188,3849 (of which the within mentioned property forms a part) is subject to a servitude, in extent 2,3765 hectares, in favour of the City of Tshwane Metropolitan Municipality for municipal purposes/ engineering services and a right of way, as indicated by the figure *ABCDEFGHIJKLMNPQRSTU* on servitude diagram S.G. No 5816/2006 and will more fully appear from said Notarial Deed of Servitude.

- (f) The following endorsement which appears on Page 10 of the Title Deed and which does not affect the township :-

In terms of Section 24(1) of Act 8/2001 Notice of Expropriation No EX61/2008 dated the 17 March 2008 a certain portion of the Remaining Extent of Portion 60 (a Portion of Portion 2) of the farm Brakfontein 390, in extent 5,8362 hectares, was expropriated by the Department of Public Transport, Roads and Works, for public purposes.

2.4 LAND FOR MUNICIPAL PURPOSES

Erf 2978 shall be transferred to the City of Tshwane Metropolitan Municipality by and at the expense of the township owner.

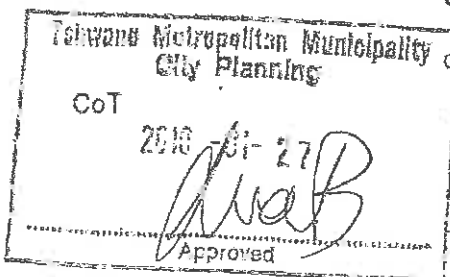
2.5 ACCEPTANCE AND DISPOSAL OF STORMWATER

The township owner shall arrange for the drainage of the township to fit in with that of Roads K54, K109, and the N1 freeway and for all stormwater running off or being diverted from the roads to be received and disposed of.

2.6 PRECAUTIONARY MEASURES

- (a) The township owner shall appoint a competent person(s) to:-

- (i) A CONSTRUCTION REPORT, which must include the mapping details of the trenches and the revised stability map, confirming the conditions on site and the positioning of structures and wet services. A table indicating the stand sizes, risk classification and D designation for each stand within the township must be included.



Certification on the method of backfilling of the boreholes must also be included.

- (ii) A DOLOMITE RISK MANAGEMENT PLAN, specific to the development. The legal transfer of the responsibility for the management of the Risk Management Plan, to a representative Body Corporate or similar as applicable must be included.
- (b) The township owner shall at its own expense, make arrangements with the Municipality, in order to ensure that-
- (i) water will not dam up, that the entire surface of the township area is drained properly and that streets are sealed effectively with tar, cement or bitumen to the satisfaction of the Municipality; and
 - (ii) trenches and excavations for foundations, pipes, cables or for any other purposes, are properly refilled with damp soil in layers not thicker than 150mm, and compacted until the same grade of compaction as that of the surrounding material is obtained, to the satisfaction of the Municipality.

2.7 REMOVAL OR REPLACEMENT OF MUNICIPAL AND/OR TELKOM SERVICES

If, by reason of the establishment of the township, it should become necessary to remove or replace any existing municipal and/or Telkom services, the cost thereof shall be borne by the township owner.

2.8 DEMOLITION OF BUILDINGS AND STRUCTURES

The township owner shall at its own expense cause all existing buildings and structures situated within the building line reserves, side spaces or over common boundaries to be demolished to the satisfaction of the Local Authority, when required by the local authority to do so.

2.9 COMPLIANCE WITH CONDITIONS IMPOSED BY GDACE

The township owner shall at his own expense comply with all the conditions imposed by or which the Gauteng Department of Agriculture, Conservation, Environment and Land Affairs has granted the applicant exemption from compliance with regulations No 1182 and 1183 promulgated in terms of section 21, 22 and 26 of the Environmental Conservation Act, for the development of this township.

2.10 CONSOLIDATION OF ERVEN

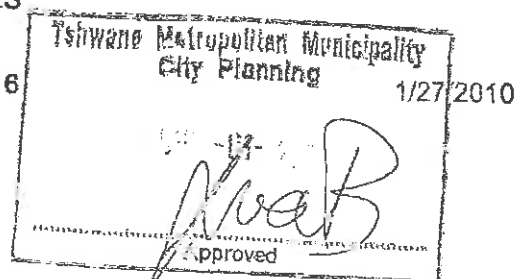
The township owner shall at his own expense have erven 2976 and 2977 in the township consolidated. The City of Tshwane Metropolitan Municipality hereby grants its consent to the consolidation in respect of Section 92(2) of Ordinance 15 of 1986.

2.12 THE DEVELOPERS OBLIGATIONS

ASSOCIATION AND STATUTES

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The owner of erven 2976 and 2977, or of any subdivision thereof, or of any sectional title unit thereon or of any interest therein, shall automatically become and shall remain members of the Eco-Park Estate Homeowners Association (Section 21 Company) and be subject to its memorandum and articles until such owners cease to be owner as aforesaid. None of the said erven, nor any unit erected thereon, nor any interest therein, shall be transferred to any person who has not bound himself/herself/itself to the satisfaction of the Section 21 Company to become a member thereof and without prior written confirmation of the Section 21 Company that all amounts due to the Section 21 Company by the owner have been paid in full.

2.13 PROVISIONS TO BE INCLUDED IN DEEDS OF SALE

The Township Owner, or its successor in title, shall due to the prevailing dolomitic conditions of the site on which the Township was established, include in all Deeds of Sale to any purchaser of any erf, or subdivision, or interest therein, or any unit as defined in terms of the Section Titles Act, 95 of 1986 ("property") the following clauses:

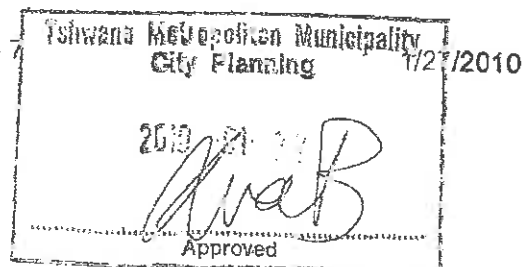
- (a) The purchaser and its successors in title shall be responsible, at all times, to contribute towards all premiums for the required insurance cover relating to dolomite related incidents; including sinkholes, subsidence, and landslip; over and above any other premiums or levies paid.
- (b) The purchaser and its successors in title, in conjunction with the Body Corporate or any other legal entity in its stead, shall be responsible at all times for the implementation of a Risk Management Plan relating to the Township, of which its property forms part.
- (c) The purchaser and its successors in title, in conjunction with the Body Corporate or any other legal entity in its stead, shall be responsible for the management of the insurance fund to be provided by the Township Owner to cover incidents over and above the insurance cover mentioned under clause (a).
- (d) Clauses (a) to (c) above shall be included in the Title Deed of any property.

2.14 COMPILATION AND IMPLEMENTATION OF A DOLOMITE RISK MANAGEMENT PLAN

- (a) The Township Owner shall prepare a Dolomite Risk Management Plan as contemplated in clause 2.6 (a) (ii), to the satisfaction of the Municipality, prior to alienation of any property, to any third party ("owner").
- (b) The township owner is responsible to facilitate the procedure to transfer the responsibility for the management of the Dolomite Risk Management plan legally to a representative Body Corporate or similar entity, as applicable.

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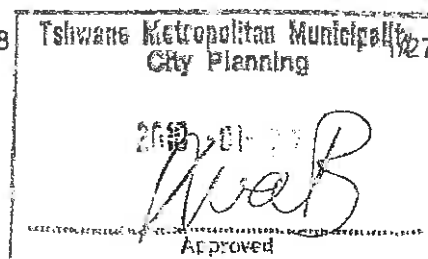
- (c) A Dolomite Risk Management Plan shall be implemented and maintained by the Body Corporate or any other legal entity in its stead in conjunction with the owner and a Dolomite Risk Manager shall be appointed for that purpose.
- (d) A Body Corporate or any other legal entity in its stead shall at its first meeting accept rules which shall *inter alia* provide that the owner, in conjunction with the Body Corporate or any other legal entity in its stead, shall at all times be responsible for the implementation of a Dolomite Risk Management Plan and the appointment of a Dolomite Risk Manager. The rules so accepted shall not be amended without the written permission of the Municipality first being obtained.
- (e) Clause (b) shall be included in the Title Deed of any owner.

2.15 INSURANCE POLICIES

- (a) The Body Corporate or any other legal entity in its stead, in conjunction with the owner of any property shall at all times have specific insurance policies in place to cover dolomite related incidents; including sinkholes, subsidence, and landslip and shall be responsible for the payment of all premiums relating to such insurance policies, as required by the Council for Geoscience, or its successor in title.
- (b) A Body Corporate or any other legal entity in its stead shall accept rules which shall *inter alia* provide that the Body Corporate or any other legal entity in its stead, in conjunction with the owner shall at all times be responsible to have specific insurance policies in place to cover dolomite related incidents; including sinkholes, subsidence, and landslip and shall be responsible for the payment of all premiums relating to such insurance policies, as required by the Council for Geoscience, or its successor in title. The rules so accepted shall not be amended without the written permission of the Municipality first being obtained.
- (c) Clause (a) shall be included in the Title Deed of any owner.

2.16 DEDICATED DOLOMITE RISK MANAGEMENT GAURANTEE

- (a) The Township owner, or its successor in title, shall prior to the alienation of any property in the Township provide a financial guarantee in the form of a lump sum , as required by the Council for Geoscience, to cover any dolomite related incidents not covered by insurance policies and/or the NHBRC warranty.
- (b) A Body Corporate or any other legal entity in its stead shall accept rules which shall *inter alia* provide that the Body Corporate or any other legal entity in its stead, in conjunction with the owners, shall at all times be responsible to keep in place the financial guarantee provided by the Township Owner, as



required by the Council for Geoscience, to cover any dolomite related incidents not covered by insurance policies and/or the NHBRC warranty.

- (c) The Body Corporate or any other legal entity in its stead shall be entitled to a financial guarantee to be provided by the Township Owner, as required by the Council for Geoscience, to be held in a financial vehicle in the name of the Body Corporate or any other legal entity in its stead, strictly for any damage caused by dolomite related sinkholes, subsidence and landslip not covered by any other insurance cover and/or the NHBRC warranty scheme, to be implemented by an owner in conjunction with and in the name of the Body Corporate or any other legal entity in its stead. The financial guarantee shall only be used should the other insurance not be sufficient.
- (d) Clause (c) shall be included in the Title Deed of any owner.

2.17 MEANING OF THE WORD OWNER

For the purposes of clauses 2.14 to 2.17 the word owner shall mean the owner of any erf, or subdivision, or interest therein or any unit as defined in terms of the Section Titles Act, 95 of 1986.

3. CONDITIONS OF TITLE

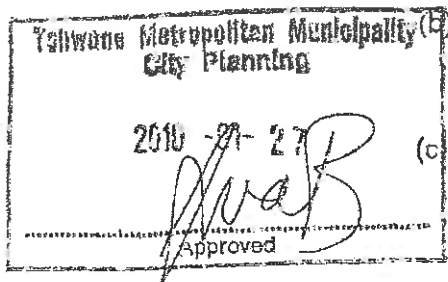
3.1 THE ERVEN MENTIONED BELOW SHALL BE SUBJECT TO THE CONDITION AS INDICATED, LAID DOWN BY THE CITY OF TSHWANE METROPOLITAN MUNICIPALITY IN TERMS OF THE PROVISIONS OF THE TOWN-PLANNING AND TOWNSHIPS ORDINANCE, 1986 (ORDINANCE 15 OF 1986)

3.1.1 ALL ERVEN WITH THE EXCEPTION OF THE ERVEN MENTIONED IN CLAUSE 2.4

- (a) The erf is subject to a servitude, 3m wide, in favour of the Local Authority, for sewerage and other municipal purposes, along any two boundaries other than a street boundary and in the case of a panhandle erf, an additional servitude for municipal purposes 2m wide across the access portion of the erf, if and when required by the Local Authority: Provided that the Local Authority may dispense with any such servitude.

No building or other structure shall be erected within the aforesaid servitude area and no large-rooted trees shall be planted within the area of such servitude or within 2m thereof.

The local authority shall be entitled to deposit temporarily on the land adjoining the aforesaid servitude such material as may be excavated by it during the course of the construction, maintenance or removal of such sewerage mains and other works as it in its discretion may deem necessary and shall further be entitled to reasonable access to the said land for the aforesaid purpose subject to any damage done



during the process of the construction, maintenance or removal of such sewerage mains and other works being made good by the local authority.

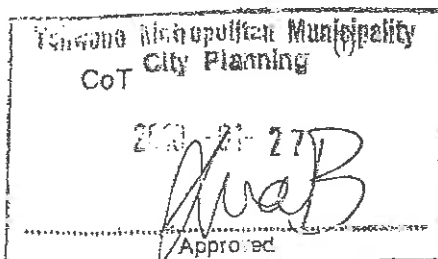
3.1.2 ERF 2979

- (a) The erf subject to a 16 metre stormwater servitude in favour of the City of Tshwane.
- (b) No buildings or other structures may be erected within the aforesaid servitude area and no trees with large roots may be planted within the area of such servitude or within a distance of 2m therefrom.
- (c) The City of Tshwane Metropolitan Municipality shall be entitled to temporarily deposit on the land adjoining the aforesaid servitude, any material it excavates during the laying, maintenance or removal of such services and other works which in its discretion it regards essential, and furthermore the City of Tshwane Metropolitan Municipality shall be entitled to reasonable access to the said property for the aforesaid purpose, subject to the provision that the City of Tshwane Metropolitan Municipality shall make good any damage caused during the laying, maintenance or removal of such services and other works.

3.2 All erven shall be subject to the following conditions which may only be removed after the written consent of the Municipality has been obtained:

- 3.2.1** A Dolomite Risk Management Plan shall be implemented and maintained by the Body Corporate or any other legal entity in its stead, in conjunction with the owner and a Dolomite Risk Manager shall be appointed for that purpose.
- 3.2.2** The Body Corporate or any other legal entity in its stead, in conjunction with the owner of any property forming part of the Township, shall at all times have proper insurance policies, as required by the Council for Geoscience, for damage caused by dolomite related incidents; including sinkholes, subsidence and landslip in place and be responsible for the payment of all premiums of such insurance policies.
- 3.2.3** The Body Corporate or any other legal entity in its stead shall be entitled to a financial guarantee to be provided by the Township Owner in the amount of R3 million, to be held in a financial vehicle in the name of the Body Corporate or any other legal entity in its stead, strictly for any damage caused by dolomite related sinkholes, subsidence and landslip not covered by an insurance policy and/or the NHBRC warranty scheme. Such financial guarantee shall only be used to the extent that any other insurance is not sufficient.

3.2.4 The Deeds of Sale of all property forming part of the Township shall include the following clauses:



The purchaser and its successors in title shall be responsible, at all
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times, to contribute towards all premiums for the required insurance cover relating to dolomite related incidents; including sinkholes, subsidence, and landslip; over and above any other premiums or levies paid.

(ii) The purchaser and its successors in title, in conjunction with the Body Corporate or any other legal entity in its stead, shall be responsible at all times for the implementation of a Risk Management Plan relating to the Township, of which its property forms part.

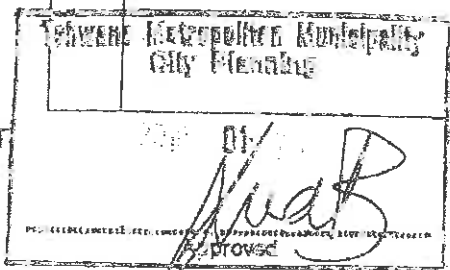
(iii) The purchaser and its successors in title, in conjunction with the Body Corporate or any other legal entity in its stead, shall be responsible for the management of the insurance fund to be provided by the Township Owner to cover incidents over and above the insurance cover mentioned under clause (a).

For the purposes of this clause the word property shall mean the owner of any erf, or subdivision, or interest therein, or any unit as defined in terms of the Section Titles Act, 95 of 1986.

4. CONDITIONS WHICH, IN ADDITION TO THE EXISTING PROVISIONS OF THE RULING TOWN-PLANNING SCHEME, HAVE TO BE INCORPORATED IN THE TOWN-PLANNING SCHEME IN TERMS OF SECTION 125 OF ORDINANCE 15 OF 1986, IN ADDITION TO THE PROVISIONS OF THE TOWN-PLANNING SCHEME IN OPERATION

4.1 Erven 2976 and 2977

1	Use Zone	III: Residential 3
2	Uses permitted	Table B, Column 3
3	Uses with consent	Table B, Column 4
4	Uses not permitted	Table B, Column 5
5	Definitions	Clause 2
6	Density	Not applicable
7	Coverage	35% that may increase with consent of the Municipality on submission of a site development plan
8	Height	3 storeys (the provisions of clauses 30(b) and 30(c) excluded)
9	Floor area ratio	0,3 provided that not more than 305 dwelling units shall be developed.
10	Site development plan and Landscape development plan	(1) A site development plan and a landscape development plan, unless otherwise determined by the City of Tshwane Metropolitan Municipality, compiled by a person suitably qualified to the satisfaction of the Municipality, shall be submitted to the Municipality for approval prior to the submission of building plans. (2) The landscaping, in terms of the landscape development plan, shall be completed by completion of the development or any phase thereof. The continued maintenance of the



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		landscape development shall be to the satisfaction of the Municipality.
11	Building lines	As per Town-Planning Scheme
12	Parking Requirements	As per Town-Planning Scheme
13	Paving of traffic areas	All parts of the erf upon which motor vehicles are allowed to move or park, shall be provided with a permanent dust-free surface, which surface shall be paved, drained and maintained to the satisfaction of the Municipality.
14	Access to the erf	Entrances to and exits from the erf shall be located, constructed and maintained to the satisfaction of the Municipality.
15	Loading and off-loading	Shall be provided on the erven to the satisfaction of the Municipality.
16	Turning facilities	Turning facilities shall be provided on the erf to the satisfaction of the Municipality.
17	Physical barriers	Physical barriers shall be erected and maintained on the boundaries of the erf to the satisfaction of the Municipality.
18	Health measures	(1) Any requirements for air pollution-, noise abatement- or health measures set by the Municipality shall be complied with to the satisfaction of the Municipality without any costs to the Municipality. (2) No air-conditioning units or compressors may be mounted to the exterior walls of buildings without the prior consent of the City of Tshwane Metropolitan Municipality.
19	Outdoor advertising	Advertisements and/or signboards shall not be erected or displayed on the erf without the written consent of the Municipality first being obtained in terms of municipal by-laws for outdoor advertising.
20	General: <ol style="list-style-type: none"> a. A detailed Dolomite Risk Management Program must exist in perpetuity for the entire development. b. Before approval of the Site Development Plan, the engineering geologist and the Council for Geoscience must certify that the final lay-out of structures and wet services are in accordance with the geological findings and recommendations. c. An engineer must be appointed before building plans are submitted, who must submit, together with the building plans, a certificate which states that he has studied the relevant geological report and that he has established the necessary measures with regard to building work, drainage of the buildings and the site and the installation of wet services so that the whole development is safe as far as possible from a geological point of view. On completion he must certify that all his specifications have been met. 	

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City Planning Page 12

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Approved

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	d. In addition to the above conditions the erf and buildings thereon are further subject to the general provisions of the Centurion Town-planning Scheme, 1992.
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4.2 Erf 2978

1	Use Zone	XVII: Municipal
2	Uses permitted	Municipal purposes
3	Uses with consent	Uses as in column 4
4	Uses not permitted	Uses not in columns 3 and 4
5	Height	Not applicable
6	Coverage	Not applicable
7	Floor area ratio	Not applicable
8	Site development plan and Landscape development plan	Not applicable
9	Density	Not applicable
10	Parking Requirements	As per Scheme
11	Access to the erf	Entrances to and exits from the erf shall be located, constructed and maintained to the satisfaction of the Municipality.
12	Health measures	Any requirements for air pollution-, noise abatement- or health measures set by the Municipality shall be complied with to the satisfaction of the Municipality without any costs to the Municipality.
13	General: <ol style="list-style-type: none"> 1. An Engineer must be appointed before building plans are submitted, who must submit, together with the building plans, a certificate which states that he has studied the relevant geological report and that he has established the necessary measures with regard to building work, drainage of the buildings and the site and the installation of wet services so that the whole development is safe as far as possible from the a geological point of view. On completion of the buildings he shall certify that all his specifications have been met. 2. In addition to the above conditions the erf and buildings thereon are further subject to the general provisions of the Centurion Town-Planning Scheme, 1992. 	

4.3 Erf 2979

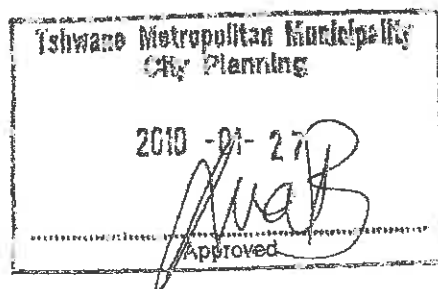
1	Use Zone	XXIII: Private Open Space
2	Uses permitted	Table B, column 3
3	Uses with consent	Table B, column 4
4	Uses not permitted	Table B, column 5
5	Definitions	Clause 2
6	Height	In accordance with the site development plan.
7	Coverage	In accordance with the site development plan.
8	Floor area ratio	In accordance with the site development plan.
9	Density	Not applicable

CoT

Metropolitan Municipality
 Planning Page 13
 2010 11 27

 Approved

1/27/2010

10	Site development plan and landscape development plan	<p>(1) A site development plan and a landscape development plan, unless otherwise determined by the City of Tshwane Metropolitan Municipality, compiled by a person suitably qualified to the satisfaction of the Municipality, shall be submitted to the Municipality for approval prior to the submission of building plans.</p> <p>(2) The landscaping, in terms of the landscape development plan, shall be completed by completion of the development or any phase thereof. The continued maintenance of the landscape development shall be to the satisfaction of the Municipality.</p>
11	Building lines	In accordance with the site development plan.
12	Parking requirements	In accordance with Town Planning Scheme, Table D
13	Access to the erf	Entrances to and exists from the erf shall be located, constructed and maintained to the satisfaction of the Municipality.
14	Health measures	Any requirements for air pollution-, noise abatement- or health measures set by the Municipality shall be complied with to the satisfaction of the Municipality without any costs to the Municipality.
15	General	<p>1. An Engineer must be appointed before building plans are submitted, who must submit, together with the building plans, a certificate which states that he has studied the relevant geological report and that he has established the necessary measures with regard to building work, drainage of the buildings and the site and the installation of wet services so that the whole development is safe as far as possible from the a geological point of view. On completion of the buildings he shall certify that all his specifications have been met.</p> <p>2. In addition to the above conditions the erf and buildings thereon are further subject to the general provisions of the Centurion Town-Planning Scheme, 1992.</p>





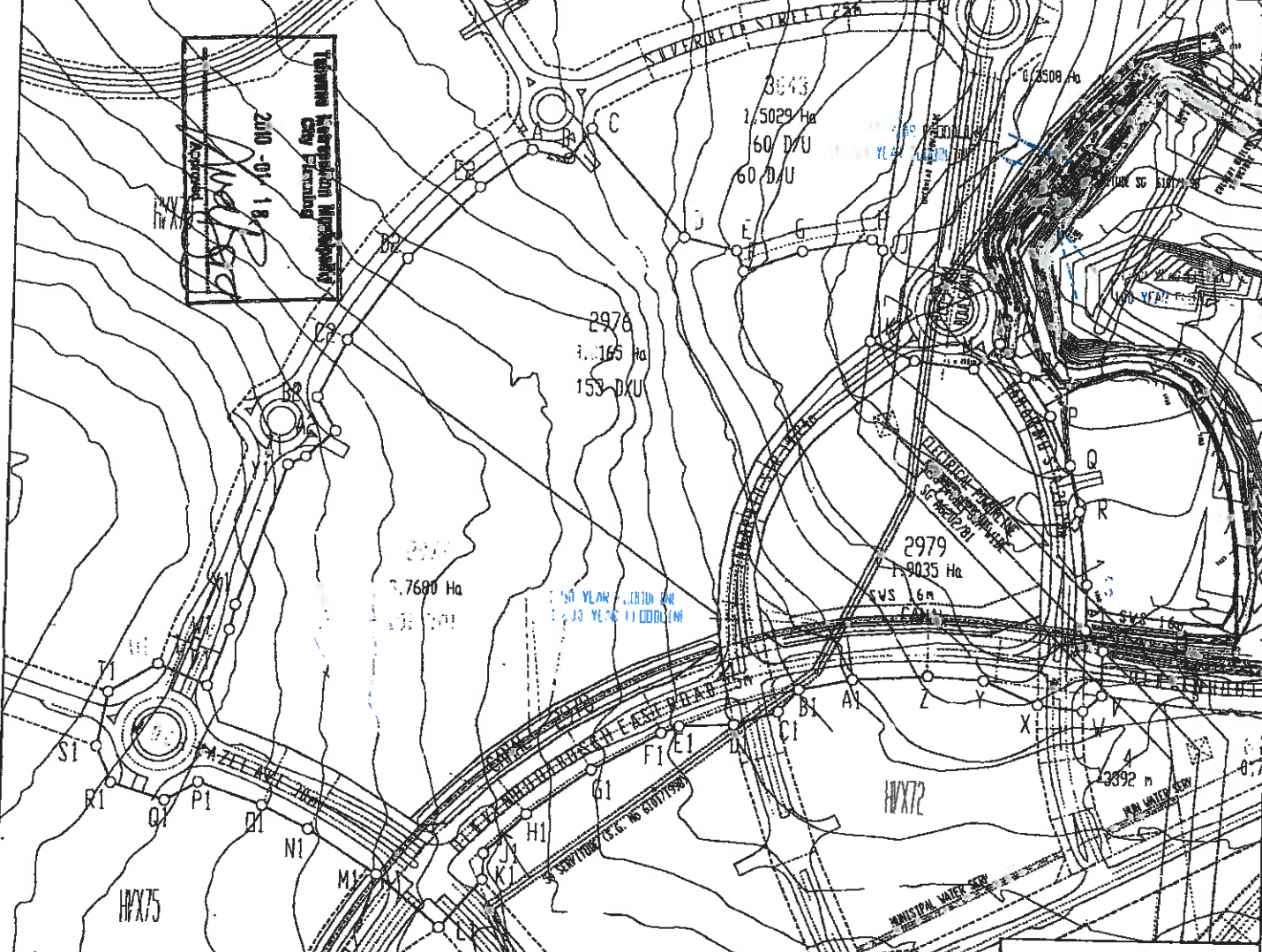
ERF 2978
2978

I HEREBY CERTIFY THAT THE PROPOSED LAYOUT IS APPROVED BY THE TOWN ENGINEER IN ACCORDANCE WITH SECTION 214 OF THE TOWN AND COUNTRY ADMINISTRATION ACT, 1993 AND IS SUBJECT TO THE NATIONAL BUILDING REGULATIONS AND STANDARDS ACT, 1977 AND THE REGULATIONS MADE UNDER THE ACT AND APPROVED BY THE MINISTER OF TRADE AND INDUSTRIES IN TERMS OF SECTION 29(2) AND 29(3)(a) OF THE ACT.

Muller 08/11/20
980476

ATTENUATION
DAM
FLOODLINE

28/11/2008
No 800102



GEOLOGICAL ZONATION

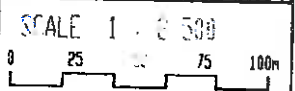


CLASSIFICATION

1	2	3
4	5	6

This is to certify that the township layout on this plan is in accordance with the provisions and requirements in the geotechnical extension 55 of the proposed Township Highveld.

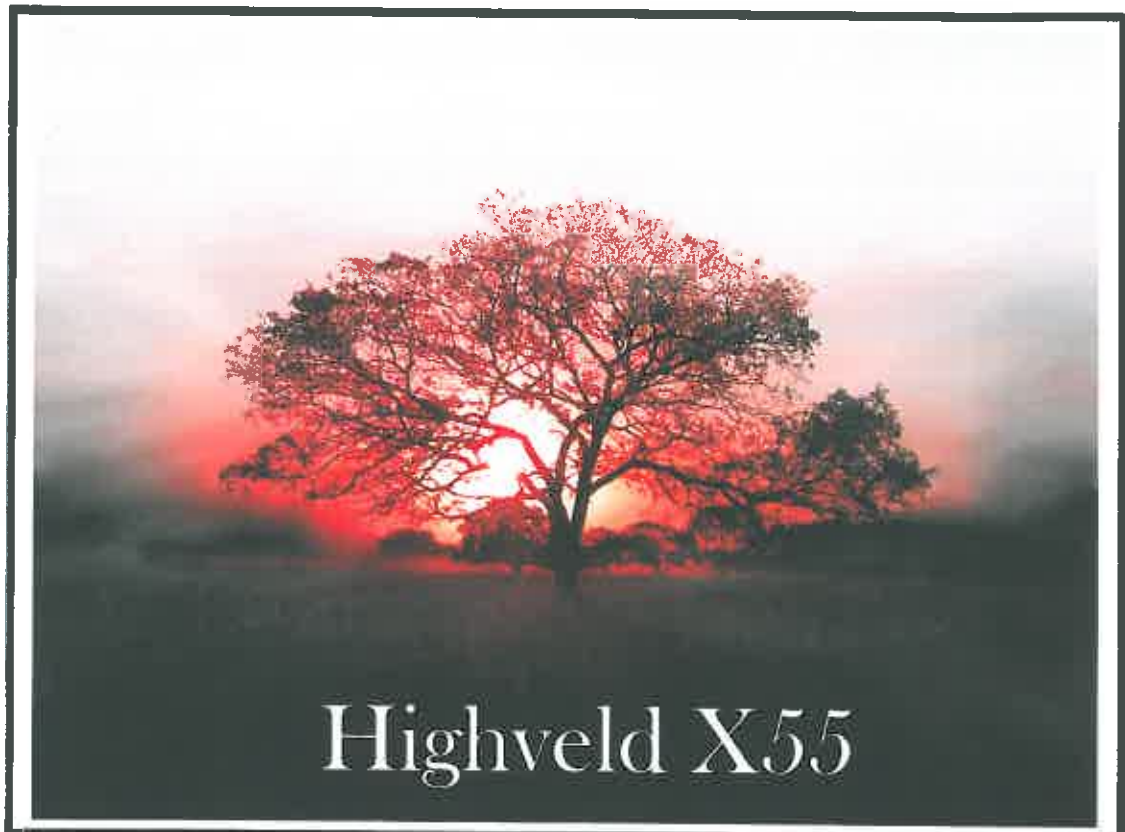
Samuel P. K.



LOCALITY: SITUATED ON PART OF THE REMAINDER OF PTN 60 OF THE FARM BRAKEDITE IN 390-N REPRESENTED BY THE FIGURE A-B-C-D-E-F-G-H-I-J-K-L-M-N-O-P-Q-R-S-T-U-V-W-X-Y-Z-A1-B1-C1-D1-E1-F1-G1-H1-I1-J1-K1-L1-M1-N1-O1-P1-Q1-R1-S1-T1-U1-V1-W1-X1-Y1-Z1-A2-B2-C2-D2-E2-F2-G2-H2-I2-J2-K2-L2-M2-N2-O2-P2-Q2-R2-S2-T2-U2-V2-W2-X2-Y2-Z2-A3-B3-C3-D3-E3-F3-G3-H3-I3-J3-K3-L3-M3-N3-O3-P3-Q3-R3-S3-T3-U3-V3-W3-X3-Y3-Z3-A4-B4-C4-D4-E4-F4-G4-H4-I4-J4-K4-L4-M4-N4-O4-P4-Q4-R4-S4-T4-U4-V4-W4-X4-Y4-Z4-A5-B5-C5-D5-E5-F5-G5-H5-I5-J5-K5-L5-M5-N5-O5-P5-Q5-R5-S5-T5-U5-V5-W5-X5-Y5-Z5-A6-B6-C6-D6-E6-F6-G6-H6-I6-J6-K6-L6-M6-N6-O6-P6-Q6-R6-S6-T6-U6-V6-W6-X6-Y6-Z6-A7-B7-C7-D7-E7-F7-G7-H7-I7-J7-K7-L7-M7-N7-O7-P7-Q7-R7-S7-T7-U7-V7-W7-X7-Y7-Z7-A8-B8-C8-D8-E8-F8-G8-H8-I8-J8-K8-L8-M8-N8-O8-P8-Q8-R8-S8-T8-U8-V8-W8-X8-Y8-Z8-A9-B9-C9-D9-E9-F9-G9-H9-I9-J9-K9-L9-M9-N9-O9-P9-Q9-R9-S9-T9-U9-V9-W9-X9-Y9-Z9-A10-B10-C10-D10-E10-F10-G10-H10-I10-J10-K10-L10-M10-N10-O10-P10-Q10-R10-S10-T10-U10-V10-W10-X10-Y10-Z10-A11-B11-C11-D11-E11-F11-G11-H11-I11-J11-K11-L11-M11-N11-O11-P11-Q11-R11-S11-T11-U11-V11-W11-X11-Y11-Z11-A12-B12-C12-D12-E12-F12-G12-H12-I12-J12-K12-L12-M12-N12-O12-P12-Q12-R12-S12-T12-U12-V12-W12-X12-Y12-Z12-A13-B13-C13-D13-E13-F13-G13-H13-I13-J13-K13-L13-M13-N13-O13-P13-Q13-R13-S13-T13-U13-V13-W13-X13-Y13-Z13-A14-B14-C14-D14-E14-F14-G14-H14-I14-J14-K14-L14-M14-N14-O14-P14-Q14-R14-S14-T14-U14-V14-W14-X14-Y14-Z14-A15-B15-C15-D15-E15-F15-G15-H15-I15-J15-K15-L15-M15-N15-O15-P15-Q15-R15-S15-T15-U15-V15-W15-X15-Y15-Z15-A16-B16-C16-D16-E16-F16-G16-H16-I16-J16-K16-L16-M16-N16-O16-P16-Q16-R16-S16-T16-U16-V16-W16-X16-Y16-Z16-A17-B17-C17-D17-E17-F17-G17-H17-I17-J17-K17-L17-M17-N17-O17-P17-Q17-R17-S17-T17-U17-V17-W17-X17-Y17-Z17-A18-B18-C18-D18-E18-F18-G18-H18-I18-J18-K18-L18-M18-N18-O18-P18-Q18-R18-S18-T18-U18-V18-W18-X18-Y18-Z18-A19-B19-C19-D19-E19-F19-G19-H19-I19-J19-K19-L19-M19-N19-O19-P19-Q19-R19-S19-T19-U19-V19-W19-X19-Y19-Z19-A20-B20-C20-D20-E20-F20-G20-H20-I20-J20-K20-L20-M20-N20-O20-P20-Q20-R20-S20-T20-U20-V20-W20-X20-Y20-Z20-A21-B21-C21-D21-E21-F21-G21-H21-I21-J21-K21-L21-M21-N21-O21-P21-Q21-R21-S21-T21-U21-V21-W21-X21-Y21-Z21-A22-B22-C22-D22-E22-F22-G22-H22-I22-J22-K22-L22-M22-N22-O22-P22-Q22-R22-S22-T22-U22-V22-W22-X22-Y22-Z22-A23-B23-C23-D23-E23-F23-G23-H23-I23-J23-K23-L23-M23-N23-O23-P23-Q23-R23-S23-T23-U23-V23-W23-X23-Y23-Z23-A24-B24-C24-D24-E24-F24-G24-H24-I24-J24-K24-L24-M24-N24-O24-P24-Q24-R24-S24-T24-U24-V24-W24-X24-Y24-Z24-A25-B25-C25-D25-E25-F25-G25-H25-I25-J25-K25-L25-M25-N25-O25-P25-Q25-R25-S25-T25-U25-V25-W25-X25-Y25-Z25-A26-B26-C26-D26-E26-F26-G26-H26-I26-J26-K26-L26-M26-N26-O26-P26-Q26-R26-S26-T26-U26-V26-W26-X26-Y26-Z26-A27-B27-C27-D27-E27-F27-G27-H27-I27-J27-K27-L27-M27-N27-O27-P27-Q27-R27-S27-T27-U27-V27-W27-X27-Y27-Z27-A28-B28-C28-D28-E28-F28-G28-H28-I28-J28-K28-L28-M28-N28-O28-P28-Q28-R28-S28-T28-U28-V28-W28-X28-Y28-Z28-A29-B29-C29-D29-E29-F29-G29-H29-I29-J29-K29-L29-M29-N29-O29-P29-Q29-R29-S29-T29-U29-V29-W29-X29-Y29-Z29-A30-B30-C30-D30-E30-F30-G30-H30-I30-J30-K30-L30-M30-N30-O30-P30-Q30-R30-S30-T30-U30-V30-W30-X30-Y30-Z30-A31-B31-C31-D31-E31-F31-G31-H31-I31-J31-K31-L31-M31-N31-O31-P31-Q31-R31-S31-T31-U31-V31-W31-X31-Y31-Z31-A32-B32-C32-D32-E32-F32-G32-H32-I32-J32-K32-L32-M32-N32-O32-P32-Q32-R32-S32-T32-U32-V32-W32-X32-Y32-Z32-A33-B33-C33-D33-E33-F33-G33-H33-I33-J33-K33-L33-M33-N33-O33-P33-Q33-R33-S33-T33-U33-V33-W33-X33-Y33-Z33-A34-B34-C34-D34-E34-F34-G34-H34-I34-J34-K34-L34-M34-N34-O34-P34-Q34-R34-S34-T34-U34-V34-W34-X34-Y34-Z34-A35-B35-C35-D35-E35-F35-G35-H35-I35-J35-K35-L35-M35-N35-O35-P35-Q35-R35-S35-T35-U35-V35-W35-X35-Y35-Z35-A36-B36-C36-D36-E36-F36-G36-H36-I36-J36-K36-L36-M36-N36-O36-P36-Q36-R36-S36-T36-U36-V36-W36-X36-Y36-Z36-A37-B37-C37-D37-E37-F37-G37-H37-I37-J37-K37-L37-M37-N37-O37-P37-Q37-R37-S37-T37-U37-V37-W37-X37-Y37-Z37-A38-B38-C38-D38-E38-F38-G38-H38-I38-J38-K38-L38-M38-N38-O38-P38-Q38-R38-S38-T38-U38-V38-W38-X38-Y38-Z38-A39-B39-C39-D39-E39-F39-G39-H39-I39-J39-K39-L39-M39-N39-O39-P39-Q39-R39-S39-T39-U39-V39-W39-X39-Y39-Z39-A40-B40-C40-D40-E40-F40-G40-H40-I40-J40-K40-L40-M40-N40-O40-P40-Q40-R40-S40-T40-U40-V40-W40-X40-Y40-Z40-A41-B41-C41-D41-E41-F41-G41-H41-I41-J41-K41-L41-M41-N41-O41-P41-Q41-R41-S41-T41-U41-V41-W41-X41-Y41-Z41-A42-B42-C42-D42-E42-F42-G42-H42-I42-J42-K42-L42-M42-N42-O42-P42-Q42-R42-S42-T42-U42-V42-W42-X42-Y42-Z42-A43-B43-C43-D43-E43-F43-G43-H43-I43-J43-K43-L43-M43-N43-O43-P43-Q43-R43-S43-T43-U43-V43-W43-X43-Y43-Z43-A44-B44-C44-D44-E44-F44-G44-H44-I44-J44-K44-L44-M44-N44-O44-P44-Q44-R44-S44-T44-U44-V44-W44-X44-Y44-Z44-A45-B45-C45-D45-E45-F45-G45-H45-I45-J45-K45-L45-M45-N45-O45-P45-Q45-R45-S45-T45-U45-V45-W45-X45-Y45-Z45-A46-B46-C46-D46-E46-F46-G46-H46-I46-J46-K46-L46-M46-N46-O46-P46-Q46-R46-S46-T46-U46-V46-W46-X46-Y46-Z46-A47-B47-C47-D47-E47-F47-G47-H47-I47-J47-K47-L47-M47-N47-O47-P47-Q47-R47-S47-T47-U47-V47-W47-X47-Y47-Z47-A48-B48-C48-D48-E48-F48-G48-H48-I48-J48-K48-L48-M48-N48-O48-P48-Q48-R48-S48-T48-U48-V48-W48-X48-Y48-Z48-A49-B49-C49-D49-E49-F49-G49-H49-I49-J49-K49-L49-M49-N49-O49-P49-Q49-R49-S49-T49-U49-V49-W49-X49-Y49-Z49-A50-B50-C50-D50-E50-F50-G50-H50-I50-J50-K50-L50-M50-N50-O50-P50-Q50-R50-S50-T50-U50-V5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ENVIRONMENTAL MANAGEMENT PLAN (EMP)





Highveld X55

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Draft Environmental Management Plan (EMPr)

**Proposed Development of Highveld x 55 on Erf 2979,
Previously Known as Portion 157
of the Farm Brakfontein 390-JR**

October 2013

Ref No: 002/13-14/E0026

October 2013

1 Project Outline

1.1 Background

Bokamoso Environmental Consultants was appointed **JR 209 Investments (Pty) Ltd, trading as M&T Development**, to compile a Basic Assessment (BA) Report for the proposed development on **Erf 2979 Highveld X55, previously known as Portion 157 of the Farm Brakfontein 390-JR.**

1.2 Project Description

The proposed Highveld X55 development is situated on Erf 2979 Highveld X55, previously known as Portion 157 of the Farm Brakfontein 390-JR. (Refer to **Figure 1: Locality Map** and **Figure 2: Aerial Map**)

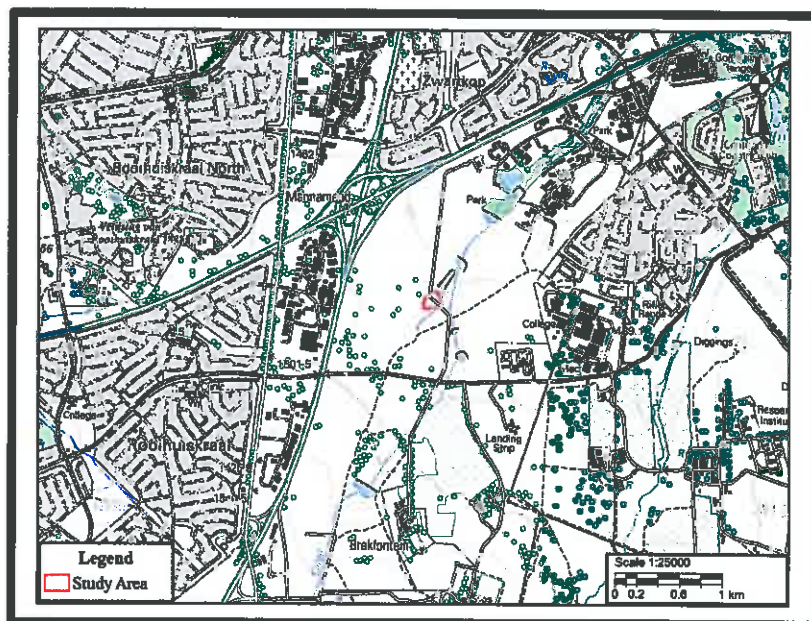


Figure 1: Locality Map

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Figure2: Aerial Map

The study area is situated within the suburb of the existing Eco Park residential development and is approximately **1.9 hectares** in extent. The site is located in the south-eastern quadrant of the N1-N14 interchange in the southern part of Centurion. Erf 2979 Highveld Extension 55 is situated on a strategically located enclave north of Olievenhoutbosch Road enclosed by Tamarillo Street and access to the proposed development will only be obtained from Tamarillo Street. The site falls within the area of jurisdiction of the **City of Tshwane Metropolitan Municipality** in **Gauteng Province**.

The proposed development entails the following land-use activities:

- "Landscaping"
- "Social Facilities"
- "Private Open Space"
- "Places of Education"
- "Shops"
- "Recreational Facilities"
- "Office"
- "Places of Refreshment"
- "Public Transportation Facilities"

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Timeframe for construction:

Will be provided when or if the application for the proposed development is approved. Therefore the timeframe for construction is unknown.

The developer will be responsible for the onsite activities. The EMP will be a binding document for purposes of compliance.

1.3 The Receiving Environment

The receiving environment on the application site can be summarized as follows:

Geology:

- No Dolomite is situated on the study area.

Hydrology:

- The proposed development is not subjected to flood lines of any natural stream or water course within an expected frequency of 1:50 and 1:100 years. A Perennial River is situated to the east of the proposed site. This delineated perennial river with its associated 32m buffer remains outside of the proposed development Mitigation measures will be implemented to ensure the nearby stream is not affected.

Fauna and Flora:

- No study was requested. The wetland study revealed no red data or any other sensitive species on site.

Cultural/Historical Features:

- The National Cultural History Museum compiled a survey for the whole Eco Park Development of which the proposed Highveld X55 development forms a part of. A few sites dating to historical times were identified, however none of these were judged to be of significance and the documentation thereof as part of the project can be taken as sufficient and there is no reason why the proposed development can not continue in the area.

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- Should any Cultural or Historical features be found on site during the construction phase all activities on site should cease with immediate effect and a specialist should be contacted immediately.

Visual Assessment:

- The construction phase will cause a visual impact and must be mitigated accordingly.

Noise Impact:

- The noise impact from the development on the surrounding area will only be temporary during the construction phase;
- The proposed development can act as a noise buffer to the surrounding residential development, therefore minimizing the effect of the noise generated by the surrounding highways interchange.

Dust Generation:

- Dust will be produced by the development during the construction phase.
- Dust will be minimized, in the long term, by the implementing on hard and soft landscape materials.

Dust could impact the surrounding residences if the construction will be done during the dry and windy months. It is proposed that regular damping down of the study area must be done if constructed during dry and windy months.

2 EMP Objectives and Context

Objectives

The objectives of this Environmental Management Plan (EMP) are to:

- Identify the possible environmental impacts of the proposed activity;
- Develop measures to minimize, mitigate and manage these impacts;

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- Meet the requirements of the Record of Decision of GDARD and other of other Authorities; and
- To monitor the project on a regular basis.

EMP Context

This Environmental Management Plan (EMP) fits into the overall planning process of the project by carrying out the conditions of consent set out by the GDARD. In addition, all mitigation measures recommended in the Basic Assessment (BA) Report are included in the Environmental Management Plan (EMP).

This EMP addresses the following three phases of the development:

- Pre-construction planning phase;
- Construction phase; and
- Operational phase.

3 Monitoring

In order for the Environmental Management Plan (EMP) to be successfully implemented all the role players involved must have a clear understanding of their roles and responsibilities in the project.

These role players may include the Authorities (A), other Authorities (OA), Developer/Proponent (D), Environmental Control Officer (ECO), Project Manager (PM), Contractors (C), Environmental Assessment Practitioner (EAP) and Environmental Site Officer (ESO). Landowners, Interested and Affected Parties (I&AP's) and the relevant environmental and project specialists are also important role players.

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3.1 Roles and Responsibilities

Developer (D)

The Developer is ultimately accountable for ensuring compliance with the EMP and conditions contained in the RoD. The Developer must appoint an independent Environmental Control Officer (ECO), for the duration of the pre-construction and construction phases, to ensure compliance with the requirements of this EMP. The Developer must ensure that the ECO is integrated as part of the project team. The responsibility of compliance will be carried across to the individual property owners as soon as transfer of the erven has taken place. It will be ensured that a copy of this document accompanies the purchase agreements for the erven.

Project Manager (PM)

The Project Manager is responsible for the coordination of various activities and ensures compliance with this EMP through delegation of the EMP to the Contractors and monitoring of performance as per the Environmental Control Officer's monthly reports.

Environmental Control Officer (ECO)

An independent Environmental Control Officer (ECO) shall be appointed, for the duration of the pre-construction and construction phase of the services and bulk infrastructure, by the Developer to ensure compliance with the requirements of this EMP. Thereafter the individual property owners will be responsible for the further appointment of the ECO.

- The Environmental Control Officer shall ensure that the contractor is aware of all the specifications pertaining to the project;
- Any damage to the environment must be repaired as soon as possible after consultation between the Environmental Control Officer, Consulting Engineer and Contractor;

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- The Environmental Control Officer shall ensure that the developer staff and/or contractor are adhering to all stipulations of the EMP;
- The Environmental Control Officer shall be responsible for monitoring the EMP throughout the project by means of site visits and meetings. This should be documented as part of the site meeting minutes;
- The Environmental Control Officer shall be responsible for the environmental training program;
- The Environmental Control Officer shall ensure that all clean up and rehabilitation or any remedial action required, are completed prior to transfer of properties;
- A post construction environmental audit is to be conducted to ensure that all conditions in the EMP have been adhered to.

Contractor (C):

The Contractors shall be responsible for ensuring that all activities on site are undertaken in accordance with the environmental provisions detailed in this document and that Sub-Contractor and laborers are duly informed of their roles and responsibilities in this regard.

The Contractor will be required, where specified to provide Method Statements setting out in detail how the management actions contained in the EMP will be implemented.

The Contractors will be responsible for the cost of rehabilitation of any environmental damage that may result from non-compliance with the environmental regulations.

Environmental Site Officer (ESO):

The ESO is appointed by the developer and then finally the owners of the individual properties as his/her environmental representative to monitor, review and verify compliance with the EMP by the contractor. The ESO is not an independent appointment but must be a member of the contractor's management team. The ESO must ensure that he/she is involved at all phases of the construction (from site clearance to rehabilitation).

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Authority (A):

The Authorities are the relevant environmental department that has issued the Environmental Authorization. The Authorities are responsible for ensuring that the monitoring of the EMP and other authorization documentation is carried out by means of reviewing audit reports submitted by the Environmental Control Officer (ECO) and conducting regular site visits.

Other Authorities (OA):

Other Authorities are those that may be involved in the approval process of the EMP.

Environmental Assessment Practitioner (EAP):

According to Section 1 of NEMA the definition of an Environmental Assessment Practitioner (EAP) is "the individual responsible for the planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management plans or any other appropriate environmental instruments through regulations".

3.2 Lines of Communication

The Environmental Control Officer (ECO) in writing should immediately report any breach of the EMP to the Project Manager. The Project Manager should then be responsible for rectifying the problem on-site after discussion with the contractor. Should this require additional cost, then the developer should be notified immediately before any additional steps are taken.

3.3 Reporting Procedures to the Developer

Any pollution incidents must be reported to the Environmental Control Officer (ECO) immediately (within 12 hours). The Environmental Control Officer (ECO) shall report to the Developer on a regular basis (site meetings).

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3.4 Site Instruction Entries

The site instruction book entries will be used for the recording of general site instructions as they relate to the works on site. There should be issuing of stop work order for the purposes of immediately halting any activities of the contractor that may pose environmental risk.

3.5 ESA/ESO (Environmental Site Officer) Diary Entries

Each of these books must be available in duplicate, with copies for the Engineer and Environmental Site Officer (ESO). These books should be available to the Authorities for inspection or on request. All spills are to be recorded in the ESA/Environmental Site Officer's diary.

3.6 Methods Statements

Methods statements from the Contractor will be required for specific sensitive actions on request of the Authorities or ESA/ESO (Environmental Site Officer). All method statements will form part of the EMP documentation and are subject to all terms and conditions contained within the EMP document. For each instance wherein it is requested that the contractor submit a method statement to the satisfaction of ESA/ESO, the format should clearly indicate the following:

What – a brief description of the work to be undertaken;

How - a detailed description of the process of work, methods and materials;

Where - a description / sketch map of the locality of work; and

When - the sequencing of actions with due commencement dates and completion date estimate.

The Contractor must submit the method statement before any particular construction activity is due to start. Work may not commence until the method statement has been approved by the ESA/ESO.

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3.7 Record Keeping

All records related to the implementation of this management plan (e.g. site instruction book, ESA/ESO dairy, methods statements etc.) must be kept together in an office where it is safe and can be retrieved easily. These records should be kept for two years at any time be available for scrutiny by any relevant Authorities.

3.8 Acts

3.8.1. The National Water Act, 1998 (Act No: 36 of 1998)

The purpose of this Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways that take into account, amongst other factors, the following:

- ❑ Meeting the basic human needs of present and future generations;
- ❑ Promoting equitable access to water;
- ❑ Promoting the efficient, sustainable and beneficial use of water in the public interest;
- ❑ Reducing and preventing pollution and degradation of water resources;
- ❑ Facilitating social and economic development; and
- ❑ Providing for the growing demand for water use.

Impact on proposed Development:

Significant – The proposed development is not subjected to flood lines of any natural stream or water course within an expected frequency of 1:50 and 1:100 years. A Perennial River is situated to the east of the proposed site. This delineated perennial river with its associated 32m buffer remains outside of the proposed development and therefore in terms of Section 21 of the National Water Act, the developer will not need any water licenses for the proposed development. Mitigation measures will be implemented to ensure the nearby stream is not affected.

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3.8.2. Atmospheric Pollution Prevention Act (Act 45 of 1965)

The NEMA: AQA serves to repeal the Atmospheric Pollution Prevention Act (45 of 1965) and various other laws dealing with air pollution and it provides a more comprehensive framework within which the critical question of air quality can be addressed.

The purpose of the Act is to set norms and standards that relate to:

- ❑ Institutional frameworks, roles and responsibilities
- ❑ Air quality management planning
- ❑ Air quality monitoring and information management
- ❑ Air quality management measures
- ❑ General compliance and enforcement.

Amongst other things, it is intended that the setting of norms and standards will achieve the following:

- The protection, restoration and enhancement of air quality in South Africa
- Increased public participation in the protection of air quality and improved public access to relevant and meaningful information about air quality
- The reduction of risks to human health and the prevention of the degradation of air quality.

The Act describes various regulatory tools that should be developed to ensure the implementation and enforcement of air quality management plans. These include:

- Priority Areas, which are air pollution 'hot spots'
- Listed Activities, which are 'problem' processes that require an Atmospheric Emission Licence
- Controlled Emitters, which includes the setting of emission standards for 'classes' of emitters, such as motor vehicles, incinerators, etc.
- Control of Noise
- Control of Odours.

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Impact on proposed Development:

Significant – The Act have relevance to the proposed development during the construction phase. Dust pollution could be a concern primarily during the construction phase of the proposed project. Dust control would be adequately minimised during this phase by way of water spraying and possible dust-nets, when working close to existing residential dwellings. It is not foreseen that the proposed development would contribute significantly to pollution in terms of emissions and noise during its operational phase, as it is a light industrial development, which does not include any noxious industries.

3.8.3 National Environmental Management Act (Act 107 of 1998)

The NEMA is primarily an enabling Act in that it provides for the development of environmental implementation plans and environmental management plans. The principles listed in the act serve as a general framework within which environmental management and implementation plans must be formulated.

The principles in essence state that environmental management must place people and their needs at the forefront of its concern and that development must be socially, environmentally and economically sustainable.

Impact on proposed Development:

Significant – Section 28 (1) of NEMA stated that every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.

The EMP is compiled in terms of Section 28 of NEMA.

3.8.4. The National Environmental Management: Waste Act (Act 59 of 2008)

This Act came into effect on 11 June 2009. It aims to consolidate waste management in South Africa, and contains a number of commendable provisions, including:

- The establishment of a national waste management strategy, and national and provincial norms and standards for, amongst others, the classification of waste, waste service delivery, and tariffs for such waste services;
- Addressing reduction, reuse, recycling and recovery of waste;
- The requirement for industry and local government to prepare integrated waste management plans;
- The establishment of control over contaminated land;
- Identifying waste management activities that requires a licence, which currently include facilities for the storage, transfer, recycling, recovery, treatment and disposal of waste on land;
- Co-operative governance in issuing licenses for waste management facilities, by means of which a licensing authority can issue an integrated or consolidated license jointly with other organs of state that has legislative control over the activity; and
- The establishment of a national waste information system.

On 3 July 2009 the Minister of Environmental Affairs and Tourism promulgated a list of waste management activities that might have a detrimental effect on the environment. These listed activities provide the activities that require a Waste Management License. Two Categories is specified: Category A and Category B. As part of Category A Waste Management License application a Basic Assessment in terms of Section 24(5) of the National Environmental Management Act (Act 107 of 1998) must be submitted to the relevant Authority. As part of a Category B Waste Management License a Scoping and EIA process in terms of Section 24(5) of the National Environmental Management Act (Act 107 of 1998) must be followed and submitted to the relevant Authority.

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Impact on proposed Development:

Not Significant– No Waste Management License will be required during the construction phase of the proposed development. One should however note that this development will be a full title light Industrial Park individual owners of the industrial properties will be responsible for the designs of their own industrial structures and facilities. Although Light Industrial uses do not provide for noxious industries or activities that require effluent pits and air and water pollution monitoring, the Waste Act could become applicable during the operational phase of some of the individual industrial uses. The developer must warn the potential tenants of this new Act.

3.8.5 . The Municipal Systems Act (Act 32 of 2000)

This Act was introduced to provide for the core principles, mechanisms and processes that are necessary to enable municipalities to move progressively towards the social and economic upliftment of local communities, and ensure universal access to essential services that are affordable to all.

The proposed development will support the local authority in complying with the principles of the Municipal Systems Act, by assisting in providing the community with essential services, such as water and sewage infrastructure.

Impact on proposed Development:

Significant – The proposed development will promote the Municipal System with in the area, as the proposed development will upgrade, and improve the essential services such as water and sewage reticulation networks, therefore contributing to the social and Economic upliftment of the involved City of Tshwane Metropolitan Municipality.

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3.8.6 National Veld and Forrest Fire Act, 1998 (Act No. 101, 1998)

The purpose of this Act is to prevent and combat veld, forest and mountain fires throughout the Republic. Furthermore the Act provides for a variety of institutions, methods and practices for achieving the prevention of fires.

Impact on proposed Development:

Significant – Fires of construction workers may only be lit in the designated site camp as indicated in assistance with the ECO. It is important that a site development camp be located on a part of the application site that is already disturbed.

3.8.7 National Heritage Resources Act, 1999 (Act No. 25 of 1999)

The National Heritage Resources Act legislates the necessity and heritage impact assessment in areas earmarked for development, which exceed 0.5ha. The Act makes provision for the potential destruction to existing sites, pending the archaeologist's recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA).

Impact on proposed Development:

Not significant- The National Cultural History Museum compiled a survey for the whole Eco Park Development of which the proposed Highveld X55 development forms a part of. A few sites dating to historical times were identified, however none of these were judged to be of significance and the documentation thereof as part of the project can be taken as sufficient and there is no reason why the proposed development can not continue in the area.

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3.8.8. Conservation of Agricultural Resources Act (Act No. 43 of 1983)

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

Impact on proposed Development:

Not Significant – In terms of the GDARD C-Plan the study area is regarded as having a very low to none agricultural potential.

3.8.9. National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004)

The purpose of the Biodiversity Act is to provide for the management of South Africa's biodiversity within the Framework of the NEMA and the protection of species and ecosystems that warrant National protection. As part of the implementation strategy, the National Spatial Biodiversity Assessment was developed.

Impact on proposed Development:

Not Significant – In terms of the GDARD C-Plan no sites of ecological importance such as sensitivity, irreplaceable sites and or ecological protection has been identified and therefore this Act is not applicable.

3.8.11. National Spatial Biodiversity assessment

The National Spatial Biodiversity Assessment (NSBA) classifies areas as worthy of protection based on its biophysical characteristics, which are ranked according to priority levels.

Impact on proposed Development:

Not Significant – no irreplaceable sites exist on the land development area.

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3.8.12 Protected Species – Provincial Ordinances

Provincial ordinances were developed to protect particular plant species within specific provinces. The protection of these species is enforced through permitting requirements associated with provincial lists of protected species. Permits are administered by the Provincial Departments of Environmental Affairs.

Impact on proposed Development:

Not Significant- No ecological report was conducted, however the wetland study revealed that no red data or protected species was found on the site.

3.8.13. National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)

The purpose of this Act is to provide for the protection, conservation and management of ecologically viable areas representative of South Africa's biological biodiversity and its natural landscapes.

Impact on proposed Development:

Not Significant - The Application site is not located within any conservancy or protected area.

3.8.14 National Road Traffic Act, 1996 (Act No. 93 of 1996)

This Act provides for all road traffic matters which shall apply uniformly throughout the Republic and for matters connected therewith.

Impact on proposed Development:

Not significant – Not Applicable.

4 Project Activities

4.1 Pre-Construction Phase

TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	PERFORMANCE INDICATOR	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO.
GENERAL	Project Contract	To make the EMP enforceable under the general conditions of the contract.	The EMP document must be included as part of the tender documentation for all contractor appointments.	The EMP is included as part of the tender documentation	Developer	-	3
DESIGN AND PLANNING	Stability of Structures and the Restriction of Land-use due to Geology	To ensure stability of structures.	1) The layout and land-uses must correspond to the stability zonation and development types recommended by the Geotechnical Engineer. 2) More detailed foundation investigation shall be done for each of the structures. 3) Detailed foundation investigations will be required and the foundation design as a minimum requirement must be able to span a 5m loss of support.	The land-uses and layout corresponds to the recommended stability zonation and development types. More detailed foundation investigations done.	Individual Developer Engineer Engineer Individual Developer	-	
	Storm Water Design	To prevent and restrict Erosion, Siltation and Groundwater Pollution	1) A detailed Storm Water Management Plan must be approved by the Local Authority prior to commencement of construction activities. Must be implemented according to the relevant guidelines provided by the relevant	Compilation and approval of Storm Water Management Plan	Engineer Individual Developer	-	9

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TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	PERFORMANCE INDICATOR	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO.
			<p>Local Authority Departments.</p> <p>2) The Storm Water Design for the proposed development must be designed to: Reduce and/ or prevent siltation, erosion and water pollution.</p> <p>3) Storm water runoff should not be concentrated as far as possible and sheet flow should be implemented.</p> <p>5) Energy dissipaters must be installed on the study area to break the speed of the water.</p> <p>6) Surface storm water generated as a result of the development must not be channeled directly into any natural drainage system or wetland.</p> <p>7) The storm water management plan should be designed in a way that aims to ensure that post development runoff does not exceed predevelopment values in: - Peak discharge for any given storm; - Total volume of runoff for any given storm; - Frequency of runoff; and - Pollutant and debris concentrations reaching water courses.</p>				
	Light Pollution	To minimise Light Pollution.	<p>Solid walling will help mitigate the light pollution; design of lighting features should accommodate the mitigation of light pollution.</p>	Lighting effectively designed.	Architect	-	
	Visual Impact	To minimize the visual impact of the proposed development.	<p>Architectural guidelines should be implemented to minimize the visual impact: The proposed development will be</p>	Architectural guidelines minimizes visual impact	Architect	-	

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TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	PERFORMANCE INDICATOR	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO.
			seen from a distance and therefore the roofs should not reflect the sun or be covered with roofing materials that have bright colours. Suitable plant materials should be used at strategic points to screen off impacts caused by roofs and cars in large parking areas. Existing trees and vegetation clumps should be retained as far as possible. The trees and vegetation will instantly soften the impact of the proposed permanent structures and they will bring the scale of the structures within the urban context down to a more human scale. The colour scheme should be taken from the palette of colours in the natural surroundings.				
CLIMATE	Extreme change in micro climate temperatures	To prevent the extreme change in micro climate temperatures.	Where open parking bays are involved, one tree for every two parking bays shall be indicated on the Site Development Plan (LDP) which shall be approved by the Local Authority and Design Review Committee, if any. The special precautionary measures, as indicated within the Geotechnical Report must be adhered to at all times.	Landscape Development Plan complies	Landscape Architect	-	
GEOLOGY AND SOILS	Unsuitable Geotechnical conditions	To prevent unsuitable Geotechnical Conditions.	1) A storm water management plan must be implemented on the study area to prevent the erosion of soil. 2) A pro-active maintenance strategy for water bearing services and other infrastructure should be implemented.	Pre-cautionary measures implemented	Geotechnical Engineer Dolomite Risk Manager	-	9

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TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	PERFORMANCE INDICATOR	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO.
			<p>3) No dolomite instabilities occur on the site and according to the Geotechnical Engineer no stability study will have to be compiled.</p> <p>1) The site development plan for the proposed development shall be submitted to the local authority for approval.</p> <p>2) It is important that all the plant positions, quantities and coverage per m² be indicated on a plan.</p> <p>3) The proposed planting materials for the areas to be landscaped shall be non-invasive, and preferably indigenous and /or endemic.</p> <p>4) As much of the existing indigenous trees, vegetation clumps and natural grassland will have to be incorporated within the proposed formal landscaping.</p>				
FAUNA AND FLORA	Floral Biodiversity and Ecological Health	To ensure that the species introduced to the area, are compatible with the current and future quality of the ecological Processes.		The Landscape Development Plan (LDP) submitted to the Local Authority for approval.	Landscape Architect		10,11,13
	Loss of Natural Grassland Areas	To conserve primary grassland	<p>Before commencement of any construction activities, the trees, vegetation clumps and natural grassland to be retained should be demarcated and fenced off before construction to prevent destruction of these areas.</p> <p>Designated routes shall be determined for the construction vehicles and designated areas for storage of equipment.</p> <p>Clearly mark the site access point and routes on site to be used by construction vehicles and pedestrians.</p>	The layout of the proposed development has been designed to accommodate the open space areas.	Urban Designer		5, 10, 11, 13
PREPARING SITE ACCESS	Environmental Integrity	To avoid Erosion and disturbance to Indigenous Vegetation.		<p>Access to site is erosion free.</p> <p>Minimum disturbance to surrounding vegetation.</p> <p>Vehicles make use of established</p>	Contractor	Continuous	

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TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	PERFORMANCE INDICATOR	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO.
			Provide an access map to all contractors whom in turn must provide copies to the construction workers. Instruct all drivers to use access point and determined route.	access routes.			
	Waste Storage	To control the temporary storage of waste.	Temporary waste storage points on site shall be determined. These storage points shall be accessible by waste removal trucks and these points should not be located in sensitive areas like for example: Areas highly visible from the properties of the surrounding land-owners/tenants/in areas where the wind direction will carry bad odours across the properties of adjacent Tenants or Landowners.		Contractor ESO		
		Ensure that the waste storage area does not generate pollution.	Build a bund around waste storage area to stop overflow into storm water.		Contractor	-	

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4.2 Construction Phase

TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	PERFORMANCE INDICATOR	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO.
CONTRACTOR'S CAMP	Surface and Ground Water Pollution	To minimize pollution of surface and ground water resources.	<p>1) Sufficient and temporary facilities including ablution facilities must be provided for construction workers operating on the site.</p> <p>2) A minimum of one chemical toilet shall be provided per 10 construction workers.</p> <p>The Contractor shall keep the toilets in a clean, neat and hygienic condition. Toilets provided by the contractor must be easily accessible and a maximum of 50m from the works area to ensure they are utilized. The Contractor (who must use reputable toilet-servicing company) shall be responsible for the cleaning, maintenance and servicing of the toilets. The Contractor (using reputable toilet-servicing company) shall ensure that all toilets are cleaned and emptied before the builders' or other public holidays.</p> <p>3) No person is allowed to use any other area than chemical toilets.</p> <p>4) No French Drain Systems may be installed.</p> <p>5) No chemical or waste water must be allowed to contaminate the run-off on site.</p> <p>6) The chemical toilets may not be placed in close proximity of the adjacent group housing units (south and western borders) to prevent odors from causing uncomfortable situations.</p>	<p>Effluents managed Effectively.</p> <p>No pollution of water resources from site.</p> <p>Workforce use toilets provided.</p>	Contractor ESO	As and when required	

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TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	PERFORMANCE INDICATOR	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO.
			<p>7) avoid the clearing of the site camp (of specific phase) or paved surfaces with soap.</p> <p>1) Drip trays and/ or lined earth bunds must be provided under vehicles and equipment, to contain spills of hazardous materials such as fuel, oil and cement.</p> <p>2) Repair and storage of vehicles only within the demarcated site area.</p> <p>3) Spill kits must be available on site.</p> <p>4) Oils and chemicals must be confined to specific secured areas within the site camp. These areas must be bunded with adequate containment (at least 1.5 times the volume of the fuel) for potential spills or leaks.</p> <p>5) All spilled hazardous substances must be contained in impermeable containers for removal to a licensed hazardous waste site.</p> <p>6) No leaking vehicle shall be allowed on site. The mechanic/ the mechanic of the appointed contractor must supply the environmental officer with a letter of confirmation that the vehicles and equipment are leak proof.</p> <p>7) No bins containing organic solvents such as paints and thinners shall be cleaned on site, unless containers for liquid waste disposal are placed for this purpose on site.</p>				
	To minimize pollution of surface and Groundwater resources due to spilling of materials.			No pollution of the environment	Contractor ESO	Daily	
	To minimize Pollution of surface and groundwater resources by		The mixing of concrete shall only be done at specifically selected sites, as close as possible to the entrance, on mortar boards or similar structures to prevent run-off into drainage lines.	No evidence of contaminated soil on the construction site.	Contractor ESO	Daily	

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TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	PERFORMANCE INDICATOR	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO.
		cement To minimize pollution of surface and Groundwater resources due to effluent.	streams and natural vegetation. No effluent (including effluent from any storage areas) may be discharged into any water surface or ground water resource.	No evidence of contaminated water resources.	Contractor ESO	Daily	
	Pollution of the Environment	To prevent unhygienic usage on the site and pollution of the natural assets.	<p>1) Weather proof waste bins must be provided and emptied regularly.</p> <p>2) The Contractor shall provide laborers to clean up the contractor's camp and construction site on a daily basis.</p> <p>3) Temporary waste storage points on the site should be determined. These areas shall be predetermined and located in areas that is already disturbed and not in close proximity of the sensitive fenced off areas (no-go" areas). These storage points should be accessible by waste removal trucks and these points should be located in already disturbed areas /areas not highly visible from the properties of the surrounding land-owners/ in areas where the wind direction will not carry bad odours across the properties of adjacent landowners, this site should comply with the following:</p> <ul style="list-style-type: none"> • Skips for the containment and disposal of waste that could cause soil and water pollution, i.e. paint, lubricants, etc.; • Small lightweight waste items should be contained in skips with lids to prevent wind littering; and • Bunded areas for containment 	<p>No waste bins overflowing</p> <p>No litter or building waste lying in or around the site</p>	Contractor ESO	Daily Weekly	5,13

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TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	PERFORMANCE INDICATOR	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO.
			and holding of dry building waste. 4) No solid waste may be disposed of on the site. 5) No waste materials shall at any stage be disposed of in the open veld. 6) The storage of solid waste on the site, until such time as it may be disposed of, must be in a manner acceptable to the local authority and DWAF. 7) Cover any wastes that are likely to wash away or contaminate storm water.				
			1) Waste shall be separated into recyclable and non-recyclable waste, and shall be separated as follows: <ul style="list-style-type: none"> • General waste: including (but not limited to) construction rubble, • Re-usable construction material. 2) Recyclable waste shall preferably be deposited in separate bins. 3) All solid waste including excess spoil (soil, rock, rubble etc) must be removed to a permitted waste disposal site on a weekly basis. 4) No bins containing organic solvents such as paints and thinners shall be cleaned on site, unless containers for liquid waste disposal are placed for this purpose on site. 5) Keep records of waste re-use, recycling and disposal for future reference. Provide information to ESO.	Sufficient containers available on site No visible signs of pollution	Contractor ESO	Daily Weekly	
	Increased Fire Risk to the Site and	To decrease Fire Risk	Recycle material where possible and correctly dispose of un-usable Wastes	No open fires on site that have	Contractor	Monitor daily	6

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TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	PERFORMANCE INDICATOR	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO.
	Surrounding Areas		<p>under controlled circumstances.</p> <p>2) Food vendors shall be allowed within specified areas.</p> <p>3) Fire extinguishers to be provided in all vehicles and fire beaters must be available on site.</p> <p>4) Emergency numbers/ contact details must be available on site, where applicable.</p>	been left unattended			
CONSTRUCTION SITE	Geology and Soils	To prevent the damaging of the existing Soils and Geology.	<p>1) The top layer of all areas to be excavated for the purposes of construction shall be stripped and stockpiled in areas where this material will not be damaged, removed or compacted.</p> <p>2) All surfaces that are susceptible to erosion, shall be protected either by cladding with biodegradable material or with the top layer of soil being seeded with grass seed/planted with a suitable groundcover.</p>	<p>Excavated materials correctly stockpiled</p> <p>No signs of erosion</p>	Contractor	Monitor daily	
		<p>To prevent the loss of topsoil</p> <p>To prevent Siltation and Water Pollution.</p>	<p>1) Stockpiling will only be done in designated places where it will not interfere with the natural drainage paths of the environment.</p> <p>2) In order to minimize erosion and siltation and disturbance to existing vegetation, it is recommended that stockpiling be done/ equipment is stored in already disturbed/exposed areas.</p> <p>3) Cover stockpiles and surround downhill sides with a sediment fence to stop materials washing away.</p> <p>4) Remove vegetation only in areas designated during the planning stage and for the purpose of construction.</p>	<p>Excavated materials correctly stockpiled</p> <p>No visible signs of erosion and sedimentation</p> <p>Minimal invasive weed growth</p> <p>Vegetation only removed in designated areas</p>	<p>Contractor</p> <p>Developer</p>	Monitor daily	4,9

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TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	PERFORMANCE INDICATOR	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO.
			<p>5) Rehabilitation/ landscaping to be done immediately after the involved works are completed (will prevent erosion of the topsoil layer on site).</p> <p>6) All compacted areas should be ripped prior to them being rehabilitated/landscaped by the contractor.</p> <p>7) The top layer of all areas to be excavated must be stripped and stockpiled in areas where this material will not be damaged, removed or compacted. This stockpiled material should be used for the rehabilitation of the site and for landscaping purposes.</p> <p>8) Strip topsoil at start of works and store in stockpiles no more than 1,5 m high in designated materials storage area.</p> <p>9) During the laying of any cables, pipelines or infrastructure (on or adjacent to the site) topsoil shall be kept aside to cover the disturbed areas immediately after such activities are completed. Rehabilitation of these areas shall be done directly after infill of the trenches. No rocks shall be placed on the topsoil after re-filling.</p>				
	Erosion and Siltation	To prevent Erosion and Siltation	<p>1) It is recommended that the construction of the development be done in phases.</p> <p>2) Each phase should be rehabilitated immediately after the construction for that phase has been completed. The rehabilitated areas should be maintained by the appointed rehabilitation contractor until a</p>	<p>No erosion scars</p> <p>No loss of topsoil</p> <p>All damaged areas successfully rehabilitated</p>	<p>Contractor</p> <p>ESO</p>	Monitor daily	

October 2013

TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	PERFORMANCE INDICATOR	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO.
			<p>vegetative coverage of at least 80% has been achieved.</p> <p>3) Mark out the areas to be excavated.</p> <p>4) Large exposed areas during the construction phases should be limited. Where possible areas earmarked for construction during later phases should remain covered with vegetation coverage until the actual construction phase. This will prevent unnecessary erosion and siltation in these areas.</p> <p>5) Unnecessary clearing of flora resulting in exposed soil prone to erosive conditions should be avoided.</p> <p>6) All embankments must be adequately compacted and planted with grass to stop any excessive soils erosion and scouring of the landscape if required.</p> <p>7) The eradication of alien vegetation should be followed up as soon as possible by replacement with indigenous vegetation to ensure quick and sufficient coverage of exposed areas.</p> <p>8) Storm water outlets shall be correctly designed to prevent any possible soil erosion.</p> <p>9) All surface run-offs shall be managed in such a way so as to ensure erosion of soil does not occur.</p> <p>10) The implementation of temporary storm water management measures that will help to reduce the speed of surface water by the individual erf owner / Developer.</p>				

TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	PERFORMANCE INDICATOR	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO.
			11) All surfaces that are susceptible to erosion shall be covered with a suitable vegetative cover as soon as construction is completed by the individual erf owner / Developer. Preventative foundation designs shall be done detailed foundation inspections should be carried out at the time of construction to identify any variances and adjust foundation designs accordingly if need be. The foundation recommendations and geotechnical measures from the Geotechnical Engineers must be adhered to.		Engineers Contractor Individual Developer	When required	
	Stability of Structures due to Geology	To ensure stability of structures.	1) Ongoing monitoring of groundwater levels on and in the immediate vicinity of the site is recommended. 2) Baseline data from sampling should be obtained relevant to the activity and sensitivity of the area. Regular sampling must be carried out to determine deviations from the baseline data.	No deviation from baseline data during regular sampling	Engineer	Monthly	
	Hydrology	Groundwater Management	1) Increased run-off during construction must be managed using berms and other suitable structures as required to ensure flow velocities are reduced. 2) The contractor shall ensure that excessive quantities of sand, silt and silted water do not enter the storm water system.	No visible signs of erosion. No visible signs of pollution	Contractor	Monitor daily	
	Fauna and Flora	To protect the existing Fauna and Flora.	1) All exotic invaders and weeds must be eradicated on a continuous basis. 2) Exotic invaders must be included in an Alien Management Program for the site. Eradication must occur every 6	No exotic plants used for landscaping	Contractor ESO Design Review	As and when required Every 6 months	10,11,13

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TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	PERFORMANCE INDICATOR	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO
			<p>months. The entire application site, shall be cleared of invader species (the Developer will ask assistance by a qualified person if he/she doesn't know which plants to eradicate).</p> <p>3) Plants not indigenous to the area, or exotic plant species, especially lawn grasses and other ground-covering plants, should be introduced in the communal landscaping of the proposed site, as they will drastically interfere with the nature of the area.</p> <p>1) Trees that are intended to be retained shall be clearly marked on site.</p> <p>2) Snaring and hunting of fauna by construction workers on or adjacent to the study area are strictly prohibited and offenders shall be prosecuted.</p> <p>3) Wood harvesting of any trees or shrubs on the study area or adjacent areas shall not be allowed.</p> <p>4) Where possible, work should be restricted to one area at a time.</p> <p>5) Noise should be kept to a minimum and the development should be done in phases to allow faunal species to temporarily migrate into the conservation areas in the vicinity.</p> <p>6) The integrity of remaining wildlife should be upheld, and no trapping or hunting by construction personnel should be allowed. Offenders will be prosecuted and a fine will be issued in accordance with the GDARD. Caught animals should be relocated to the conservation areas in the vicinity.</p>		Committee		
		To protect the existing Fauna and Flora.		No measurable signs of habitat destruction	Contractor ESO	As and when required	5,10,11,13,16

October 2013

TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	PERFORMANCE INDICATOR	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO.
			<p>7) Vegetation clumps and natural grassland areas to be retained and incorporated within the proposed development formal landscaping, must be marked and demarcated before any commencement of construction activities. These areas must be fenced off (will be seen as "no-go" areas).</p>				
SOCIAL	Noise Impact	To maintain noise levels below "disturbing" as defined in the National Noise Regulations.	<p>1) Site workers must comply with the provincial noise requirements as outlined. 2) Noise activities shall only take place during working hours.</p>	No complaints from surrounding residents and I&AP's	Contractor	Monitored daily	16
	Dust Impact	Minimise Dust from the site	<p>1) Dust pollution could occur during the construction works, especially during the dry months. Regular and effective damping down of working areas (especially during the dry and windy periods) must be carried out to avoid dust pollution that will have a negative impact on the surrounding environment. 2) When necessary, these working areas should be damped down in the mornings and afternoons.</p>	No visible signs of dust pollution No complaints from surrounding residents and I&AP's	Contractor	Monitored daily	2
	Safety and Security	To ensure the Safety and Security of the Public.	<p>1) Although regarded as a normal practice, it is important to erect proper signs indicating the operations of heavy vehicles in the vicinity of dangerous crossings and access roads or even in the development site if necessary. 2) With the exception of the appointed security personnel, no other workers, friend or relatives will be allowed to sleep on the construction site</p>	No incidences reported	Contractor ECO	Monitored daily	

October 2013

TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	PERFORMANCE INDICATOR	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO
			(weekends included) 3) Construction vehicles and activities to avoid peak hour traffic times 4) Presence of law enforcement officials at strategic places must be ensured 5) Following actions would assist in management of safety along the road <ul style="list-style-type: none"> ▪ Adequate road marking ▪ Adequate roadside recovery areas ▪ Allowance for pedestrians and cyclists where necessary ▪ Although regarded as a normal practice, it is important to erect proper signs indicating the danger of the excavation in and around the development site. Putting temporary fencing around excavations where possible. 				
	Influx of People from other Areas	In order to limit the influx of people from other areas	It is recommended that (where possible) only people from the local communities in and around Pretoria are employed.	People from local community employed.	Contractor	When required	
	Infrastructure and Services		The road and services upgrading as recommended by the involved engineers to be implemented. Determine areas where services will be upgraded and relocated well in advance. Discuss possible disruptions with affected parties to determine most convenient times for service disruptions and warn affected parties well in advance of dates that service disruptions will take place.	Road and services upgrading according to recommendation	Engineers	When required	4,15
		Installation of Services		No complaints from I & AP's	Contractor ESO	When required	4,9

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TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	PERFORMANCE INDICATOR	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO.
	Cultural Resources		Although no features of cultural or historical significance is located on site or in the direct vicinity, it is recommended that if any graves or archaeological sites are exposed during construction work it should immediately be reported to a museum. The report from the Archaeologist must be provided to the Local Authorities if any graves are recovered.	No destruction of or damage to graves or known archaeological sites	Contractor ECO	Monitor daily	7
	Visual Impact	In order to minimise the Visual Impact	1) The disturbed areas shall be rehabilitated immediately after the involved construction works are completed. 2) Shade cloth must be used to conceal and minimise the visual impact of the site camps and storage areas	Visual impacts minimized	Contractor ESO	Monitor daily	
	Vegetation	Landscaping	1) When planting trees, care should be taken to avoid the incorrect positioning of trees and other plants, to prevent the roots of trees planted in close proximity to the line of water-bearing services from causing leaking in, or malfunctioning of the services. 2) The proposed planting materials for the areas to be landscaped should preferably be endemic and indigenous. 3) All new trees and shrubs to be planted on the study area shall be inspected for pests and diseases prior to them being planted. 4) The inspection shall be carried out by the maintenance contractor at the property of the supplier and not on the study area. 5) All trees to be planted shall be in 20l	Landscaping done according to Landscape Development Plan (LDP)	Landscapist Architect Contractor	When required	

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TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	PERFORMANCE INDICATOR	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO.
			containers with a height of approximately 1,8 metres and a main stem diameter of approximately 300 mm.				
			1) Aerate compacted soil and check and correct ph for soils affected by construction activities. 2) Make sure plant material will be matured enough and hardened off ready for planting. Water plants immediately as planting proceeds. 3) Apply mulch to conserve moisture plant according to the layout and planting techniques specified by the landscape architect in the landscape development plan for the site.	Landscaping done according to Landscape Development Plan (LDP)	Landscape Architect Contractor	When required	
		Loss of Plants	Ensure that materials used for mulching and topsoil/ fertilisers are certified weed free. Collect Certifications where available. Control weeds growth that appears during construction.	Weed growth controlled	Landscape Architect Contractor	When required	
		Spread of Weeds					

4.3 Operational Phase

TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO.
SITE CLEAN UP AND PREPARED FOR USE	Storm Water Pollution	Do not allow any materials to wash into the storm water system	Remove erosion and sediment controls only if all bare soil is sealed, covered or re-vegetated. Sweep roadways clean and remove all debris from kerb and gutter areas. Do not wash into drains.	Contractor	-	
		Minimise waste	Decontaminate and collect waste in storage area ready for off-site recycling or disposal Arrange for final collection and removal of excess and waste materials.	Contractor	-	
ESTABLISHING PLANTS	Slow or No Re-Vegetation to Stabilise Soil; Loss or Degradation of Habitat	To ensure re-vegetation to stabilize soil	Agreed schedule for regular follow-up watering, weed control, mulch supplements and amenity pruning, if needed. Replace all plant failures within three month period after planting.	Contractor	To be agreed.	
MATERIALS FAILURE	Structural Damage and Loss of Site Materials.		Inspect all structures monthly to detect any cracking or structural problems. Confirm with designer if there are design problems. Rectify with materials to match, or other agreed solution.	Contractor	-	
DRAINAGE FAILURE	On-Site and Downstream Drainage Pollution or Flooding	Storm Water Management Plan	Inspect all site drainage works and repair any failures. Confer with design engineer and to correct site problems.	Contractor	-	
SITE AUDIT	Eventual Project Failure	Successful project establishment	Routinely audit the works and adjust maintenance schedule accordingly.	Contractor	-	
GENERAL			Open fires and smoking during maintenance works are strictly prohibited.	Contractor	-	6
GEOLOGY	Erosion of Topsoil	Prevent topsoil erosion	Due to loss of topsoil, the soil must be covered by means of re-seeding and vegetation with suitable ground covering.	Engineer Contractor	Once off	
	Air Pollution	To mitigate air pollution	1) The air pollution impact can be mitigated by screening through the planting of trees.	Contractor	-	2

Environmental Management Plan (EMP) for the Proposed Highveld x 55 on Erf 2979, Previously known as Portion 157 of the Farm Brakfontein 390 JR
 October 2013

TYPE	ENVIRONMENTAL RISK OR ISSUE	OBJECTIVE OR REQUIREMENT	MITIGATION MEASURE	RESPONSIBILITY	FREQUENCY OF ACTION	APPLICABLE ACT NO.
			2) Dust pollution could be mitigated by identifying the source and to recommend the regular damping down during windy periods.			

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5. Procedures for Environmental Incidents

5.1 Leakages and Spills

- Identify the source of the problem.
- Stop the goods from leaking, if it is safe to do so.
- Contain spilt material, using spills kit or sand.
- Notify Environmental Control Officer (ECO) immediately.
- Remove the spilt material and place it in sealed containers for disposal (if possible).
- Environmental Control Officer (ECO) to follow Incident Management Plan.

5.2 Failure of Erosion/Sediment Control Devices

- Prevent further escape of sediment.
- Contain escaped material using silt fence, hay bales, pipes, etc.
- Notify Environmental Control Officer (ECO) immediately.
- Repair or replace failed device as appropriate.
- Dig/scrape up escaped material; take care not to damage vegetation.
- Remove escaped material from site.
- Environmental Control Officer (ECO) to follow Incident Management plan.
- Monitor for effectiveness until re-establishment.

5.3 Bank/Slope Failure

- Stabilize toe of slope to prevent sediment escape using aggregate bags, silt fence, logs, hay bales, pipes, etc.
- Notify Environmental Control Officer (ECO).
- Environmental Control Officer (ECO) to follow Incident Management plan.
- Divert water upslope from failed fence.
- Protect area from further collapse as appropriate.
- Restore as advised by Environmental Control Officer (ECO).
- Monitor for effectiveness until stabilized.

5.4 Discovery of Rare and/or Endangered Species

- Stop work.
- Notify Environmental Control Officer (ECO).
- If a plant is found, mark location of plants.
- If an animal, mark location where sighted.
- Environmental Control Officer (ECO) to identify or arrange for identification of species and or the relocation of the species if possible.
- If confirmed significant, Environmental Control Officer (ECO) to liaise with Endangered Wildlife Trust.
- Recommence work when cleared by Environmental Control Officer (ECO).

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5.5 Discovery of Archeological and/or Heritage Items

- Stop work.
- Do not further disturb the area.
- Notify Environmental Control Officer (ECO).
- Environmental Control Officer (ECO) to arrange appraisal of specimen.
- If confirmed significant, Environmental Control Officer (ECO) to liaise with National, Cultural and History Museum.
P.O. Box 28088
SUNNYSIDE
0132
Contact Mr. J. van Schalkwyk or Mr. Naude
- Recommence work when cleared by Environmental Control Officer (ECO).

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6 EMP Review

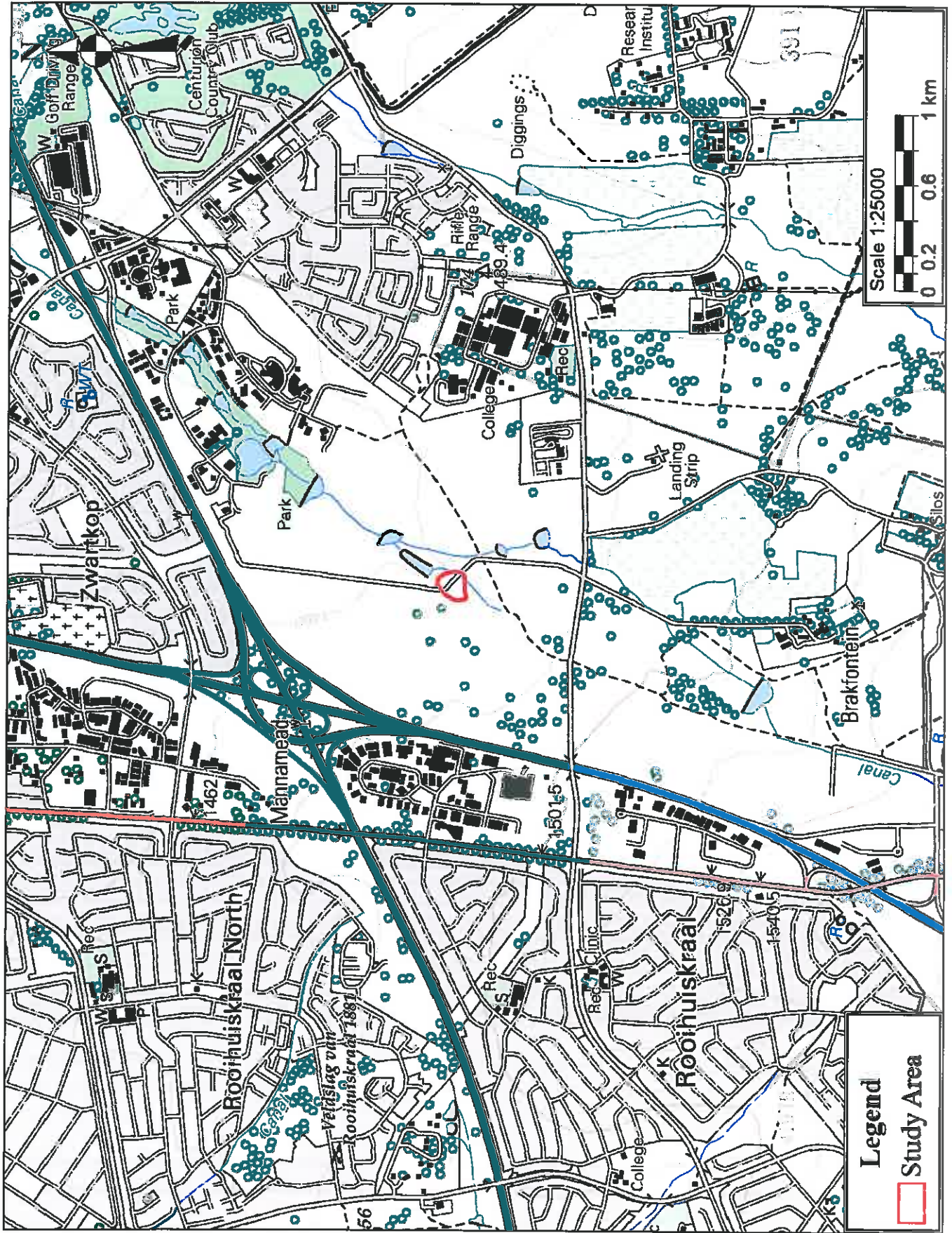
1. The Site Supervisor is responsible for ensuring the work crew is complying with procedures, and for informing the work crew of any changes. The Site Supervisor is responsible for ensuring the work crew is aware of changes that may have been implemented by GDARD before starting any works.
2. If the Contractor cannot comply with any of the activities as described above, they should inform the Environmental Control Officer (ECO) with reasons within seven (7) working days.

FIGURES (Enlarged)



FIGURE 1: Locality Map





Scale 1:25000
0 0.2 0.6 1 km

Legend
Study Area

FIGURE 2: Aerial Photo



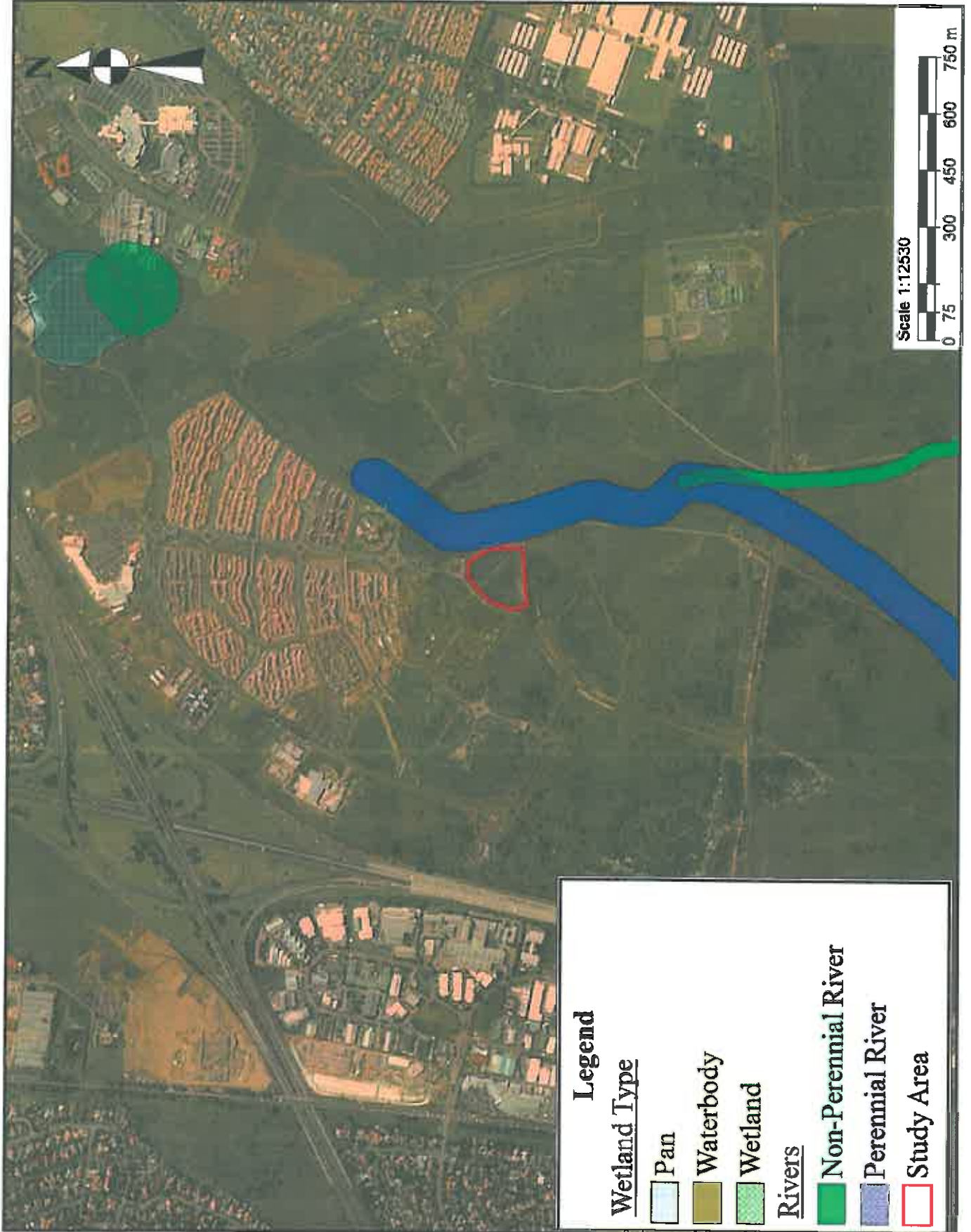


Legend

Study Area

FIGURE 3: Hydrology Map








Scale 1:12530





Legend

Wetland Type

-  Pan
-  Waterbody
-  Wetland

Rivers

-  Non-Perennial River
-  Perennial River


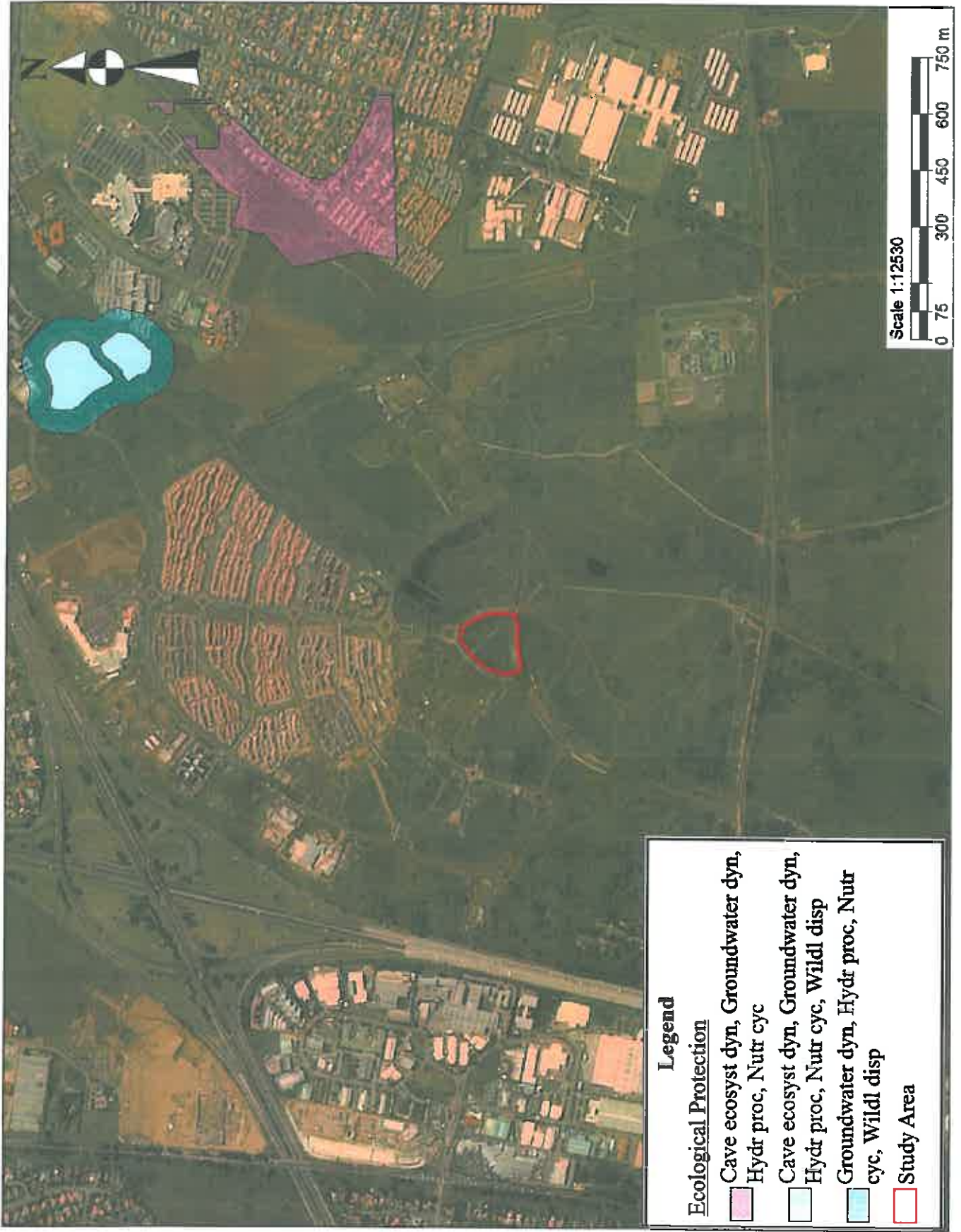
 Study Area

FIGURE 4: Protected areas map





Legend

Ecological Protection

- Cave ecosyst dyn, Groundwater dyn, Hydr proc, Nutr cyc
- Cave ecosyst dyn, Groundwater dyn, Hydr proc, Nutr cyc, Wildl disp
- Groundwater dyn, Hydr proc, Nutr cyc, Wildl disp
- Study Area

Scale 1:12530

0 75 300 450 600 750 m

FIGURE 5: Irreplaceable Sites Map





FIGURE 6: Sensitivity Map





Legend

C Plan

Sensitivity

- Prim veg
- RL plant hab, Prim veg
- RL plant hab, OL plant hab, Prim veg
- RL plant hab, OL plant hab, RL mammal hab, Prim veg
- Study Area

Scale 1:23340

0 0.3 0.6 0.9 1.2 1.5 km

FIGURE 7: Ridges map



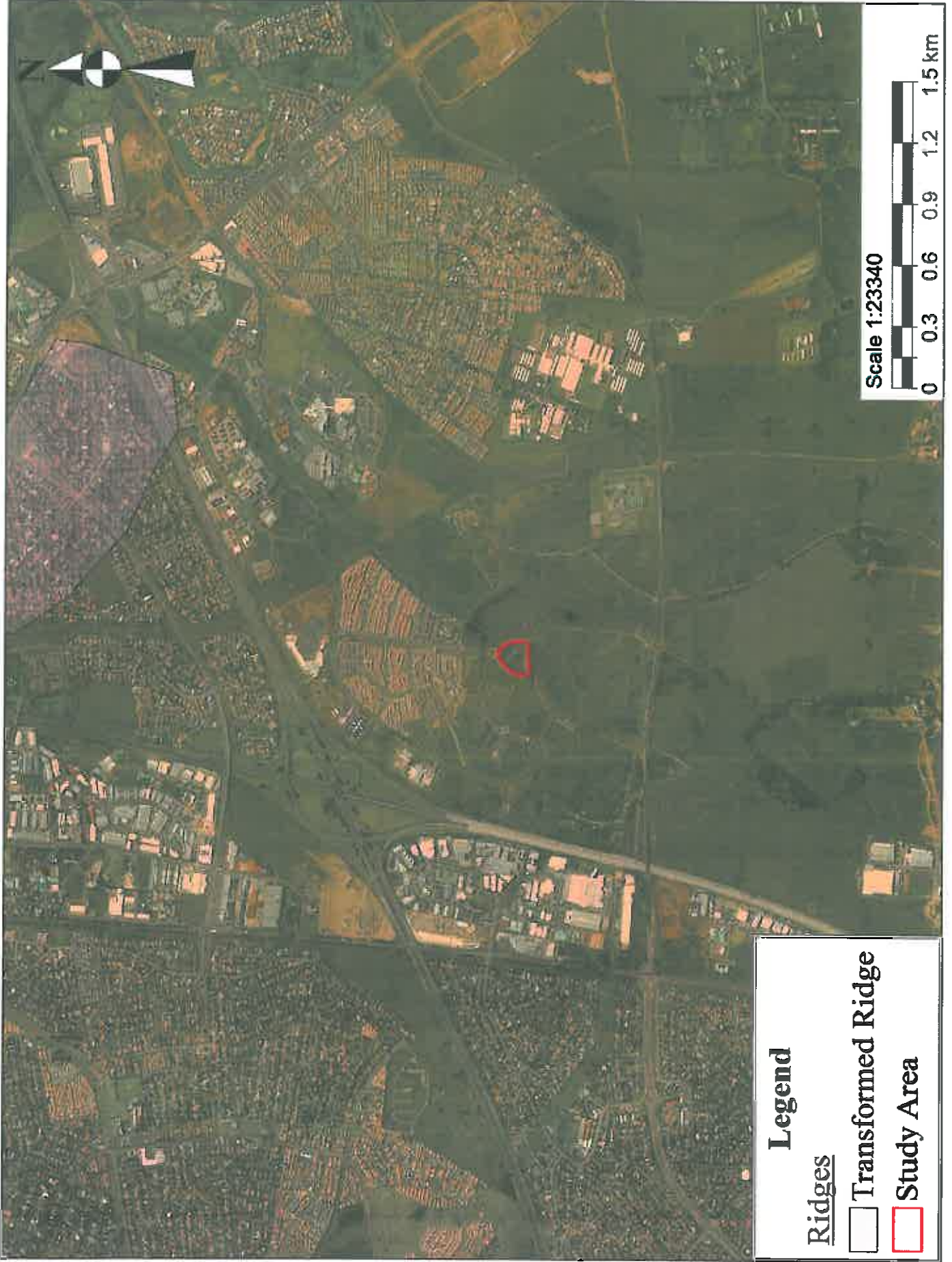


FIGURE 8: Agricultural Potential Map



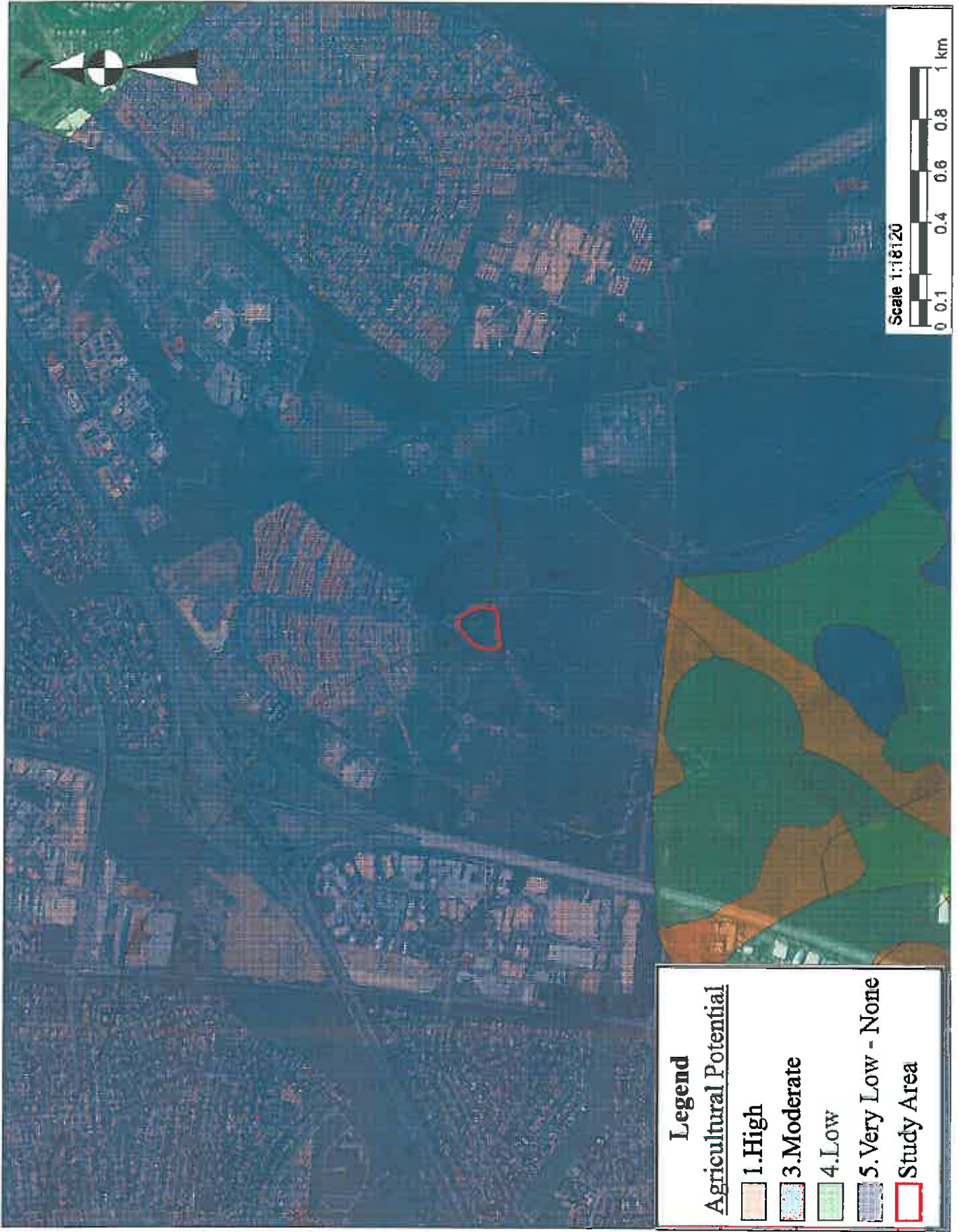
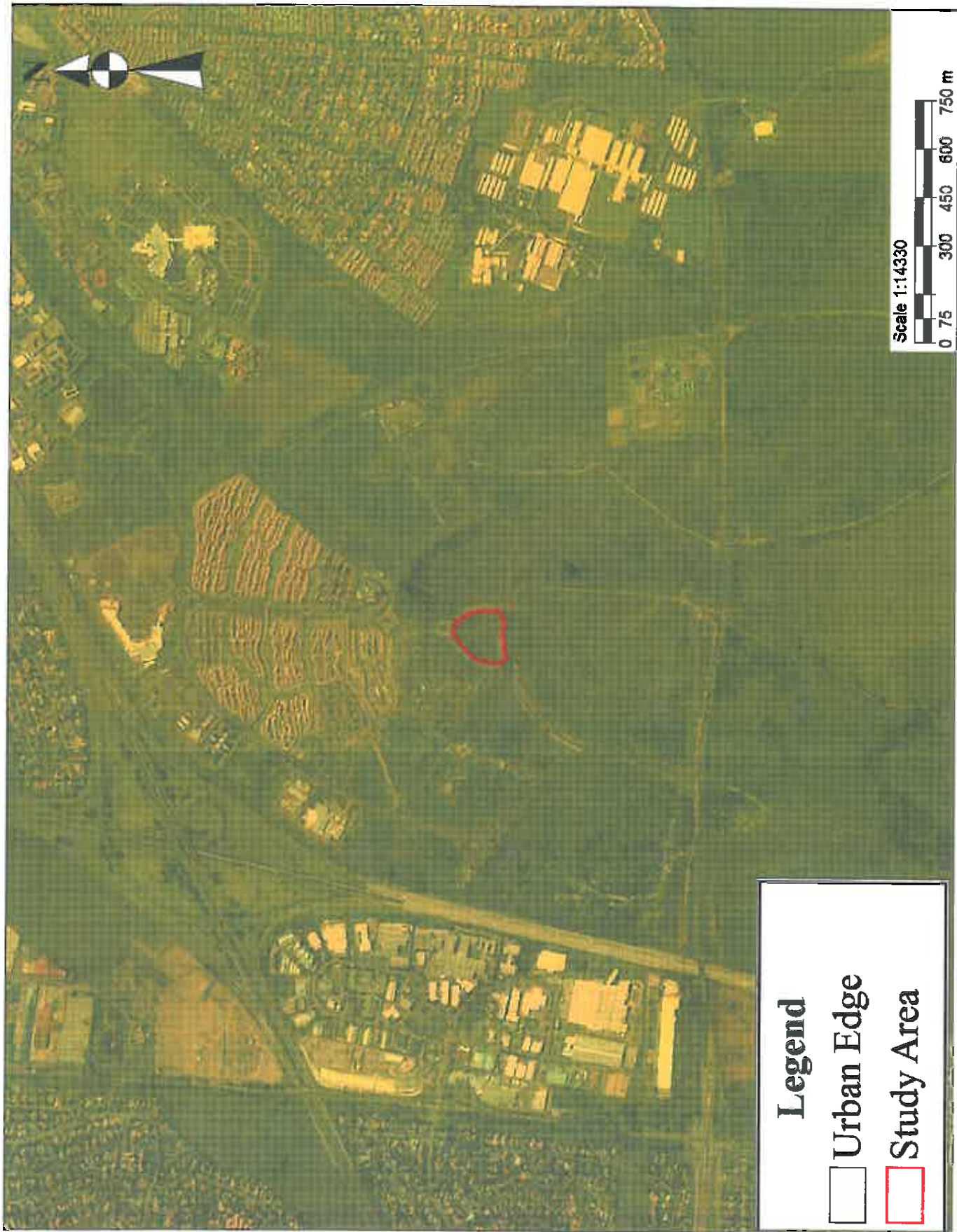


FIGURE 9: Urban Edge Map






Legend

-  Urban Edge
-  Study Area

Scale 1:14330



0 75 300 450 600 750 m



FIGURE 10: Existing Roads map





Legend
□ Study Area
— TPC_Road_network

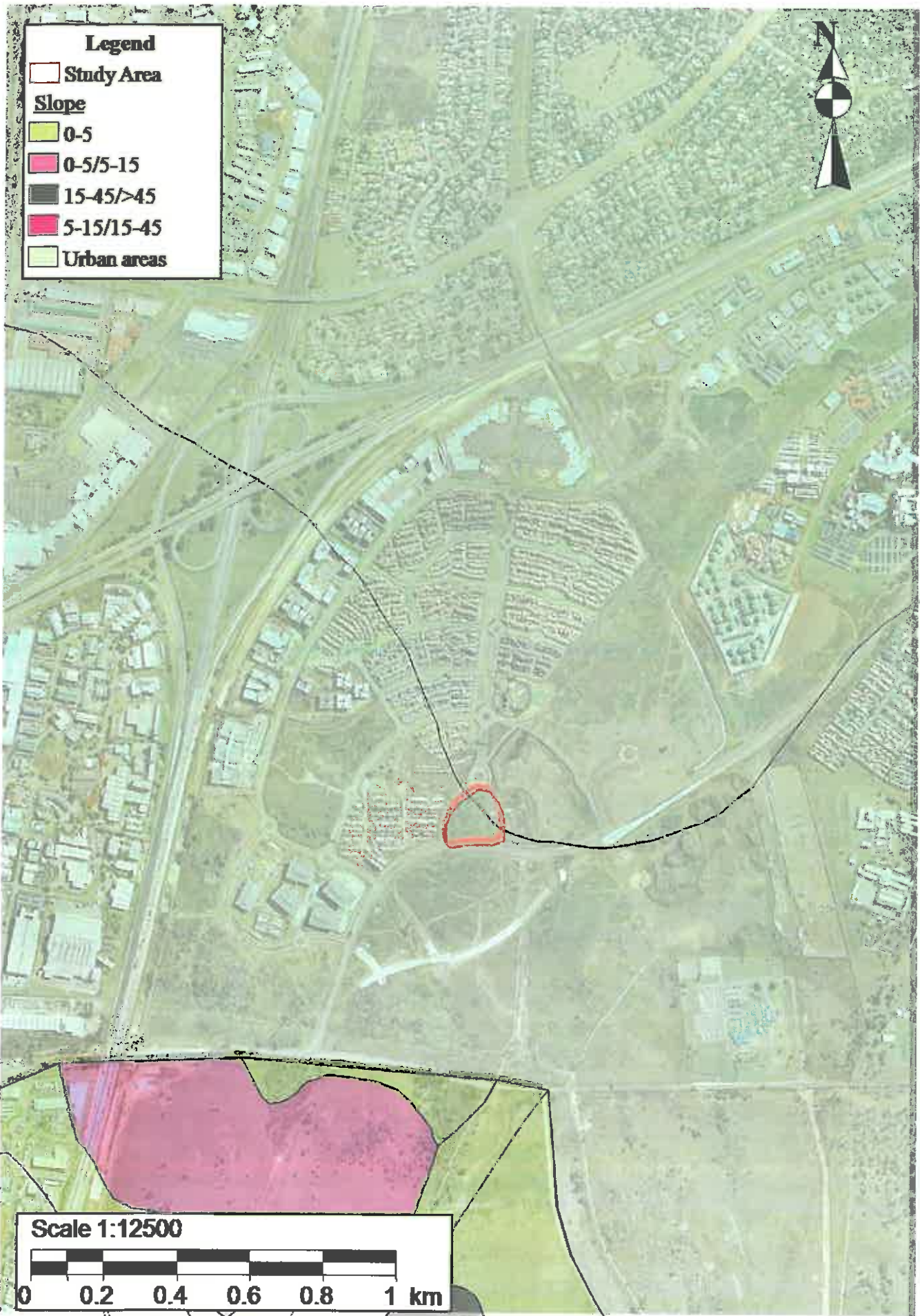
Scale 1:10000
0 75 300 450 600 750 m

FIGURE 11: Slope map



Legend

- Study Area
- Slope**
 - 0-5
 - 0-5/5-15
 - 15-45/>45
 - 5-15/15-45
- Urban areas



Scale 1:12500

0 0.2 0.4 0.6 0.8 1 km

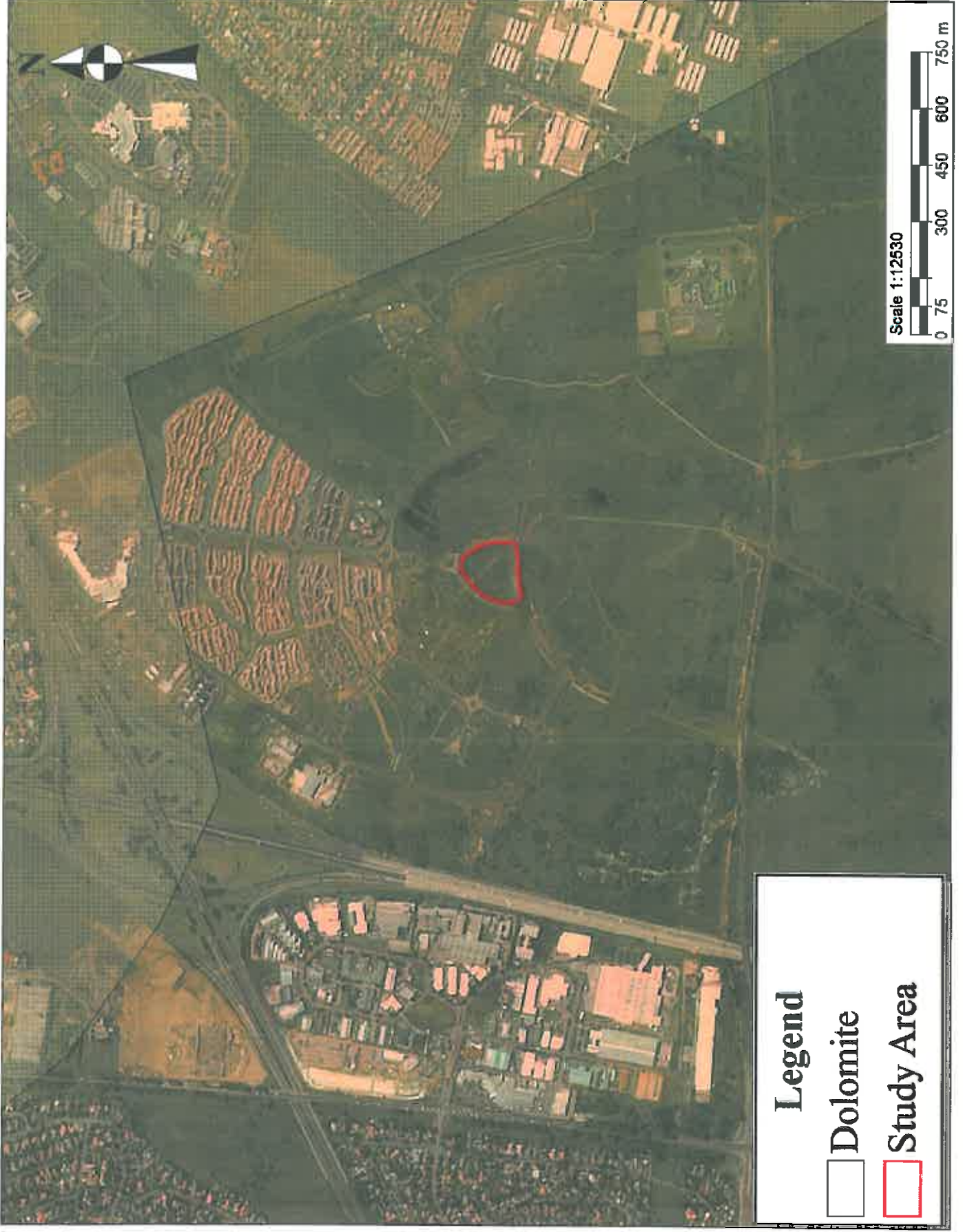
FIGURE 12: 3D Illustration





FIGURE 13: Dolomite Map





Legend

-  Dolomite
-  Study Area

Scale 1:12530



FIGURE 14: Soils Map



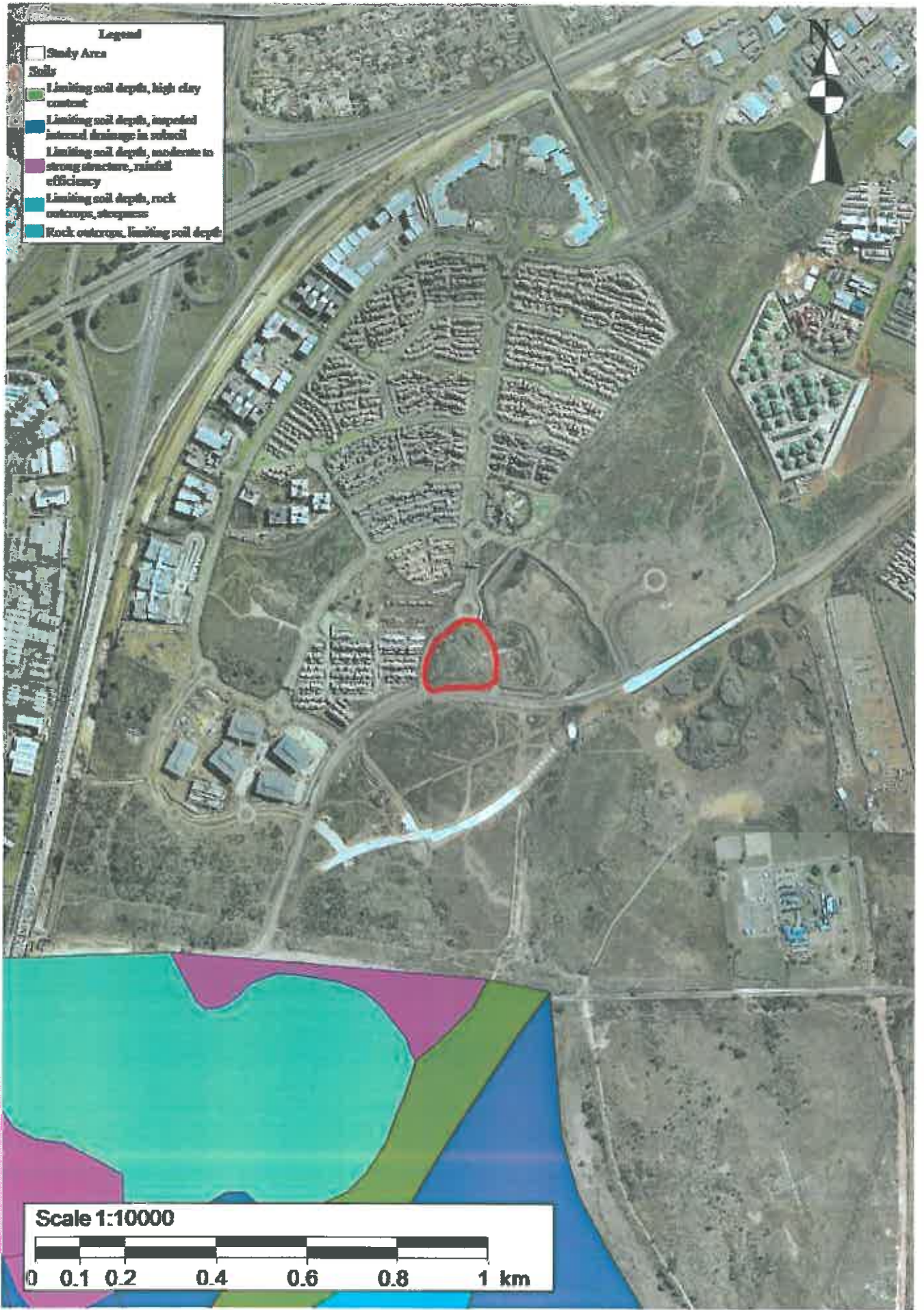
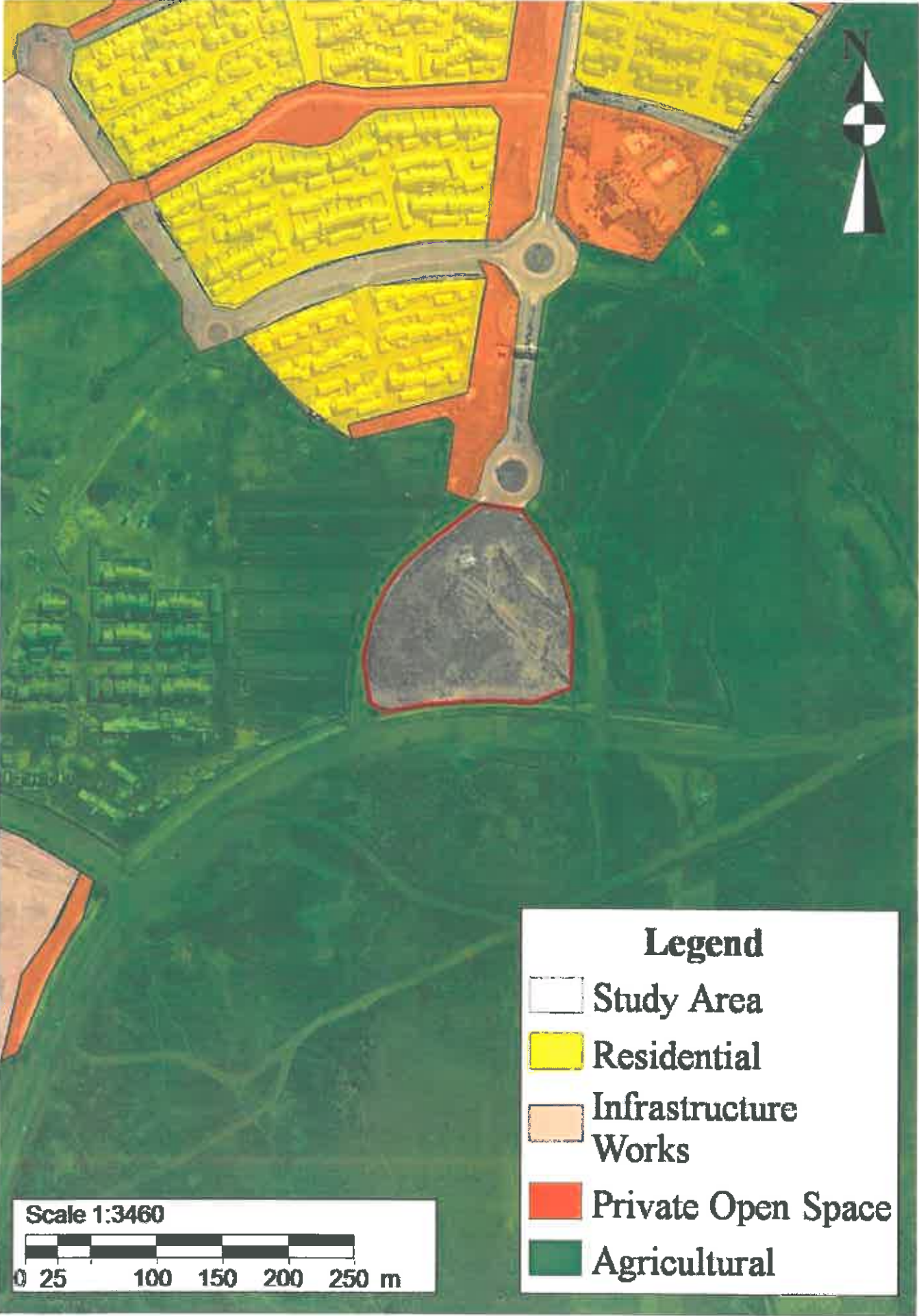







FIGURE 15: Land-use Map





Legend

-  Study Area
-  Residential
-  Infrastructure Works
-  Private Open Space
-  Agricultural

Scale 1:3460
0 25 100 150 200 250 m

**A COPY OF ENVIRONMENTAL
PRACTITIONER'S CV AND
COMPANY PROFILE**





Bokamoso

Landscape Architects &
Environmental consultants

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Website: www.bokamoso.net

- 01 Executive Summary**
- 02 Vision, Mission & Values**
- 03 Human Resources**
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Bokamoso
بوموسو

Table of Contents

Bokamoso specialises in the fields of Landscape Architecture and all aspects of Environmental Management and Planning. Bokamoso was founded in 1992 and has shown growth by continually meeting the needs of our clients. Our area of expertise stretches throughout the whole of South Africa. Our projects reflect the competence of our well compiled team. The diversity of our members enables us to tend to a variety of needs. Our integrated approach establishes a basis for outstanding quality. We are well known to clients in the private, commercial as well as governmental sector.

At Bokamoso we stand on a firm basis of environmental investigation in order to find unique solutions to the requirements of our clients and add value to their operations.



01 Executive Summary

02 Company Overview

Vision:

At Bokamoso we strive to find the best planning solutions by taking into account the functions of a healthy ecosystem. Man and nature should be in balance with each other.

Mission:

We design according to our ethical responsibility, take responsibility for successful completion of projects and constitute a landscape that contributes to a sustainable environment. We add value to the operations of our clients and build long term relationships that are mutually beneficial.

Values:

Integrity
Respect



Bokamoso stands on the basis of fairness. This include respect within our multicultural team and equal opportunities in terms of gender, nationality and race.

We have a wide variety of projects to tend to, from complicated reports to landscape installation. This wide range of projects enables us to combine a variety of professionals and skilled employees in our team.

Bokamoso further aids in the development of proficiency within the working environment. Each project, whether in need of skilled or unskilled tasks has its own variety of facets to bring to the table.

We are currently in the process of receiving our BEE scorecard. We support transformation in all areas of our company dynamics.



03 Human Resources

001 Employment Equity

Lizelle Gregory (100% interest)

Lizelle Gregory obtained a degree in Landscape Architecture from the University of Pretoria in 1992 and passed her board exam in 1995. Her professional practice number is PrLArch 97078.

Ms. Gregory has been a member of both the Institute for Landscape Architecture in South Africa (ILASA) and South African Council for the Landscape Architecture Profession (SACLAP), since 1995.

Although the existing Environmental Legislation doesn't yet stipulate the academic requirements of an Environmental Assessment Practitioner (EAP), it is recommended that the Environmental Consultant be registered at the International Association of Impact Assessments (IAIA). Ms. Gregory has been registered as a member of IAIA in 2007.

Ms. Gregory attended and passed an International Environmental Auditing course in 2008. She is a registered member of the International Environmental Management and Assessment Council (IEMA).

She has lectured at the Tshwane University of Technology (TUT) and the University of Pretoria (UP). The lecturing included fields of Landscape Architecture and Environmental Management.

Ms. Gregory has more than 18 years experience in the compilation of Environmental Evaluation Reports:

- Environmental Management Plans (EMP);

- Strategic Environmental Assessments;

- All stages of Environmental input;

- EIA under ECA and the new and amended NEMA regulations and various other Environmental reports and documents.

Ms. Gregory has compiled and submitted more than 600 Impact Assessments within the last 5-6 years. Furthermore, Ms. L. Gregory is also familiar with all the GDARD/Provincial Environmental policies and guidelines. She assisted and supplied GAUTRANS/former PWV Consortium with Environmental input and reports regarding road network, plants, road determinations, preliminary and detailed designs for the past 12 years.



Consulting

Mientjie Coetzee

MSc Medical Sciences (US)

BSc (Hons) Medical Sciences (US)

More than 8 years experience in the compilation of various environmental reports

Ane Agenbacht

Introduction to Sustainable Environmental Management—An overview of Principles, Tools, & Issues (Potch 2006)

Leadership Training School (Lewende Woord 2010)

BA Environmental Management (UNISA 2011)

PGCE Education (Unisa 2013)

Project Manager

More than 10 years experience in the compilation of various environmental reports

Qiqi Nkangana

BA Environmental Management (UNISA)

Specialises in compiling various environmental reports.

Nicolene Lotter

BSc (Hons) Environmental Science (NWU)

BSc Tourism (NWU)

1 year 4 months experience in the field of Environmental Sciences.

Specialises in Water Use License Applications

Ben Bhukwana

BSc Landscape Architecture (UP)

More than 4 years experience in the field of Landscape Architecture.

Specialises in Landscape Design, ECO, & Environmentalist in training.

Marli Burger

B-Tech Nature Conservation (TUT)

N. Dip. Nature Conservation (TUT)

EMI Training (GDARD/University of Pretoria)

5 years Biodiversity Enforcement & Awareness Training experience

Specialises in Water Use Licences

03 Human Re-

033 Personnel

The logo for Bokamoso features the word 'Bokamoso' in a stylized, white, outlined font. Above the text is a graphic of a tree with bare branches, rendered in a similar white, outlined style. The entire logo is set against a dark, textured background.

Anton Nel

B-Tech Landscape Technology (TUT)
N Dip Landscape Technology (TUT)
1 year experience in ECO.
Specialises in Basic Assessment Reports.

Juanita de Beer

Events Management and Marketing (Damelin)
Specializes in Public relations and public participation processes

Mary-Lee Potgieter

Msc. Plant Science (UP)
BSc (Hons) Plant Science (UP)
BSc Ecology (UP)
1 year 5 months working experience in the Environmental field
Specialises in ECO works, Basic Assessments, EIA's, and Flora Reports

Alfred Thomas

CIW Foundation & Internet Marketing (IT Academy)
12 years experience in GIS and IT in general.
GIS Operator and Multimedia Specialist.

Maretha Roux

Effective People Management (UCT)
18 years management experience
Specializes in AutoCAD, Visio, Accounting, and Administration
Compiling of various Environmental Reports/
Assisting Project Management
Photographer



03 Human Resources

034 Personnel

Elsa Viviers

Interior Decorating (Centurion College)
(Accounting/ Receptionist) and Secretary to Lizelle Gregory

Loura du Toit

N. Dip. Professional Teacher (Heidelberg Teachers Training College)
Librarian and PA to Project Manager

Merriam Mogalaki

Administration Assistant with in-house training in bookkeeping

Landscape Contracting

Elias Maloka

Site manager overseeing landscape installations.
Irrigation design and implementation.
Landscape maintenance
18 years experience in landscape contracting works.

The contracting section comprises of six permanently employed black male workers. In many cases the team consists of up to 12 workers, depending on the quantity of work.

The logo for Bokamoso features the word "Bokamoso" in a stylized, white, outlined font. Above the text is a graphic of a tree with dark, gnarled branches and some green leaves, set against a light green background.

03 Human Resources

035 Personnel

01 Environmental Management Services

- Basic Assessment Reports
- EIA & Scoping Reports
- Environmental Management Plans
- Environmental Scans
- Strategic Environmental Assessments
- EMP for Mines
- Environmental Input and Evaluation of Spatial Development Frameworks
- State of Environmental Reports
- Compilation of Environmental Legislation and Policy Documents
- Environmental Auditing and Monitoring
- Environmental Control Officer (ECO)
- Visual Impact assessments
- Specialist Assistance with Environmental Legislation Issues and Appeals
- Development Process Management
- Water Use License applications to DWA
- Waste License Application



04 Services

011 Consulting Services

02 Landscape Architecture

- Master Planning
- Sketch Plans
- Planting Plans
- Working Drawings
- Furniture Design
- Detail Design
- Landscape Development Frameworks
- Landscape Development Plans (LDP)
- Contract and Tender Documentation
- Landscape Rehabilitation Works

03 Landscape Contracting

- Implementation of Plans for:
- Office Parks
 - Commercial/ Retail / Recreational Development
 - Residential Complexes
 - Private Residential Gardens
 - Implementation of Irrigation systems



Bokamoso
Pty Ltd

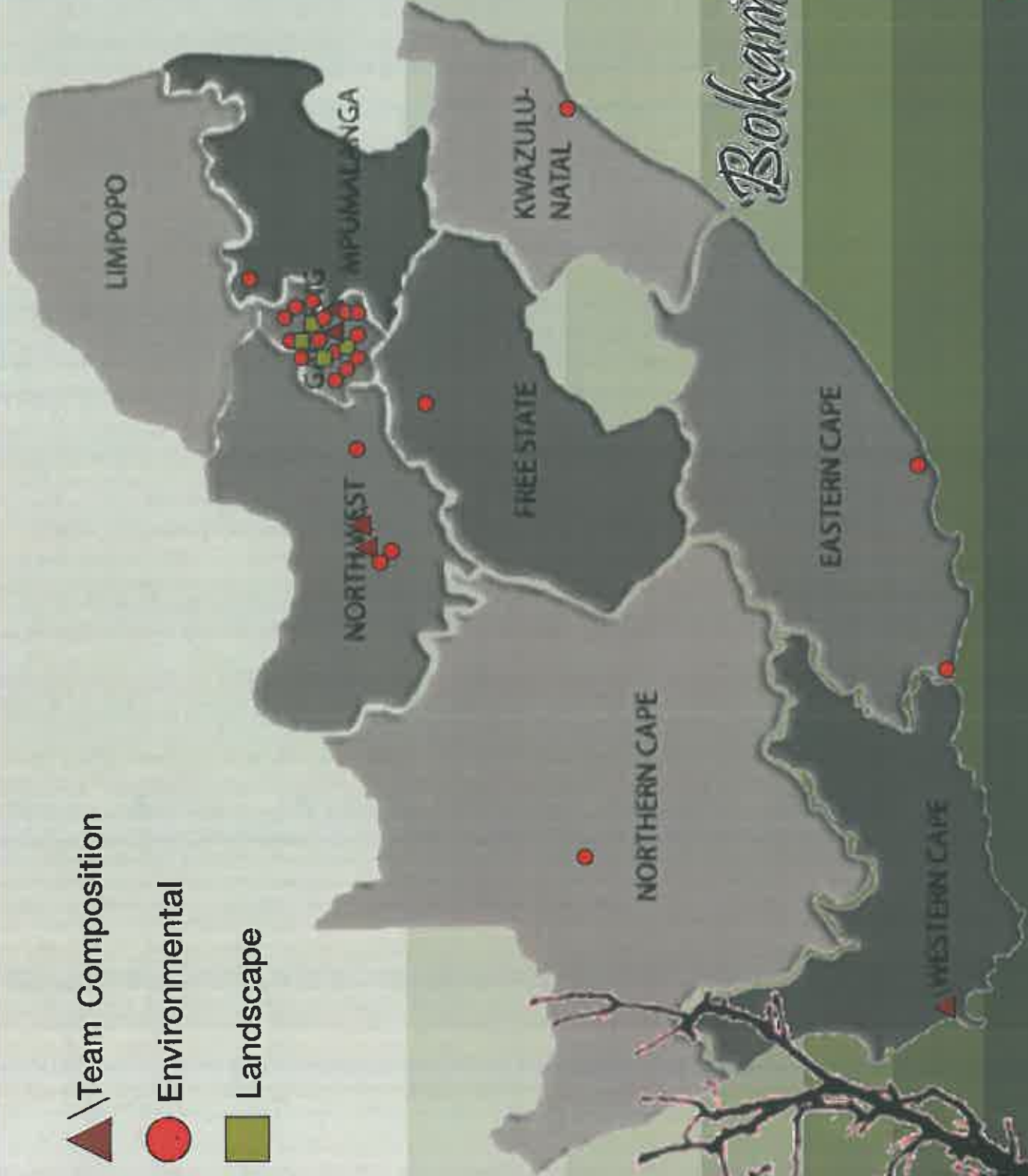
04 Services

042 Contracting Services

▲ Team Composition

● Environmental

■ Landscape



Bokamoso

04 Services

043 Orientation

01 Valpre Bottling Plant, Heidelberg



project shelter - site plan

05 Landscape Projects - Current
05 Commercial



01 Valpre Bottling Plant, Heidelberg



Bokamoso Hills



06 Landscape Projects- Current

051 Commercial

01 Valpre Bottling Plant, Heidelberg



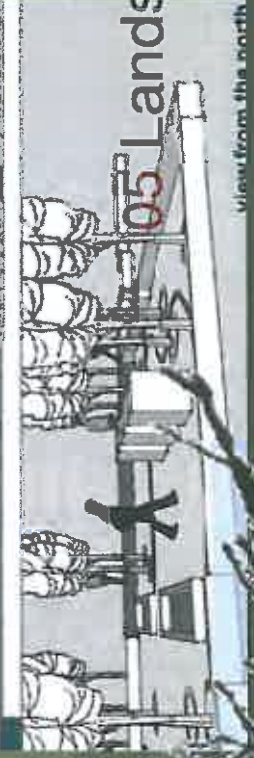
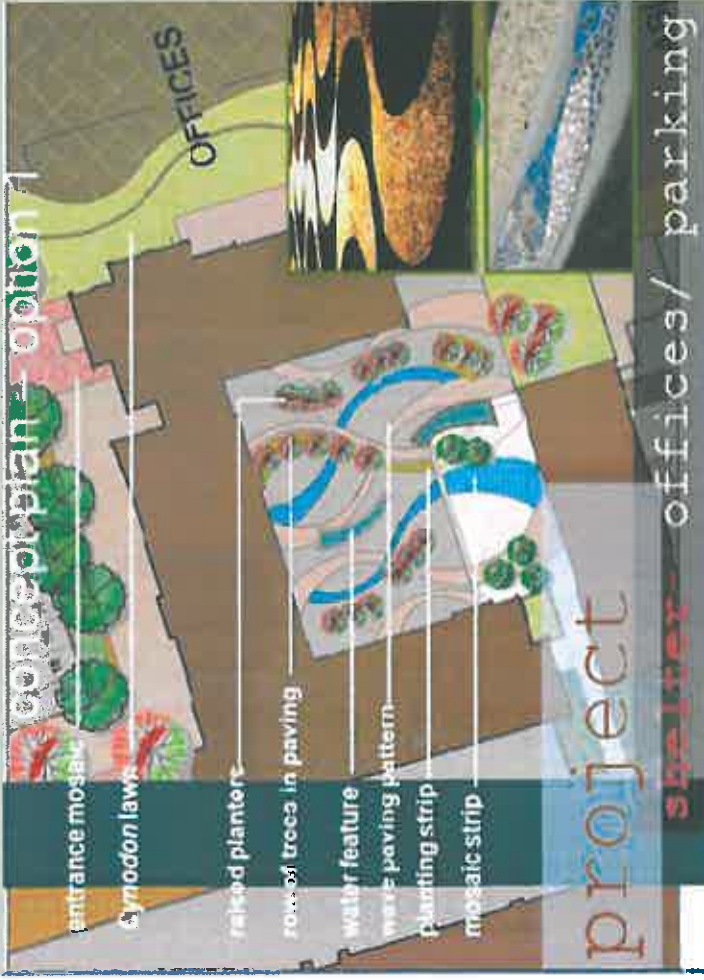
Bokamoso



05 Landscape Projects- Current

051 Commercial

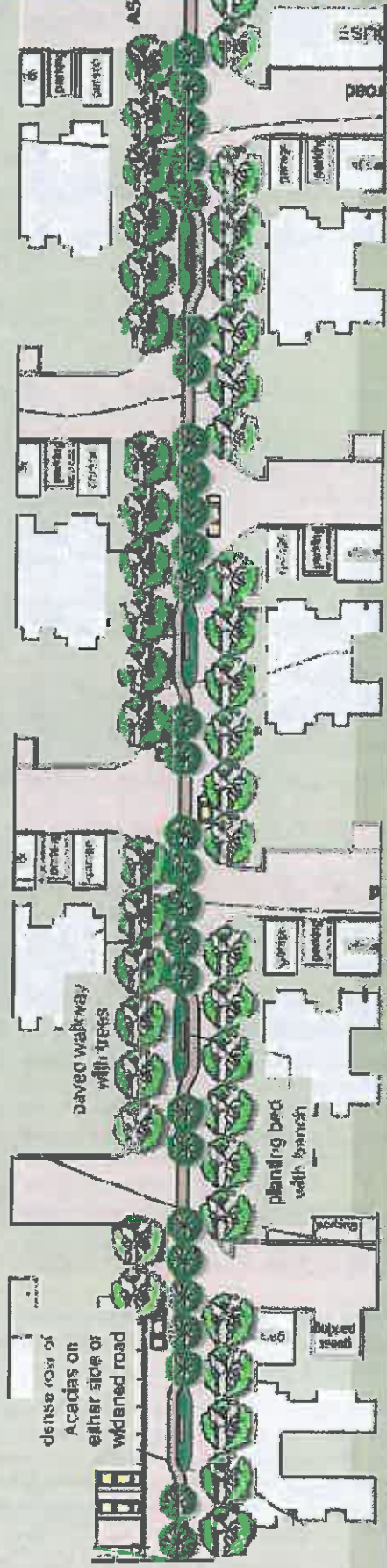
01 Valpre Bottling Plant, Heidelberg



Bokamoso

05 Landscape Projects - Current Commercial

02 Melodie Waters, Hartebeespoortdam



Streetscape

Indigenous Planting



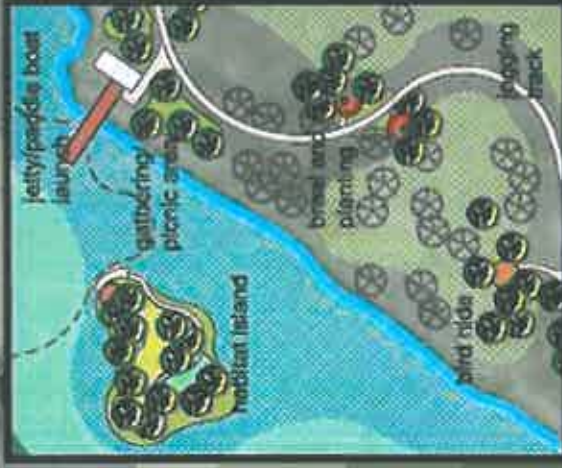
05 Landscape Projects – Current
052 Commercial/Recreational



02 Melodie waters, Hartebeestpoortdam



Development Framework



Rehabilitation



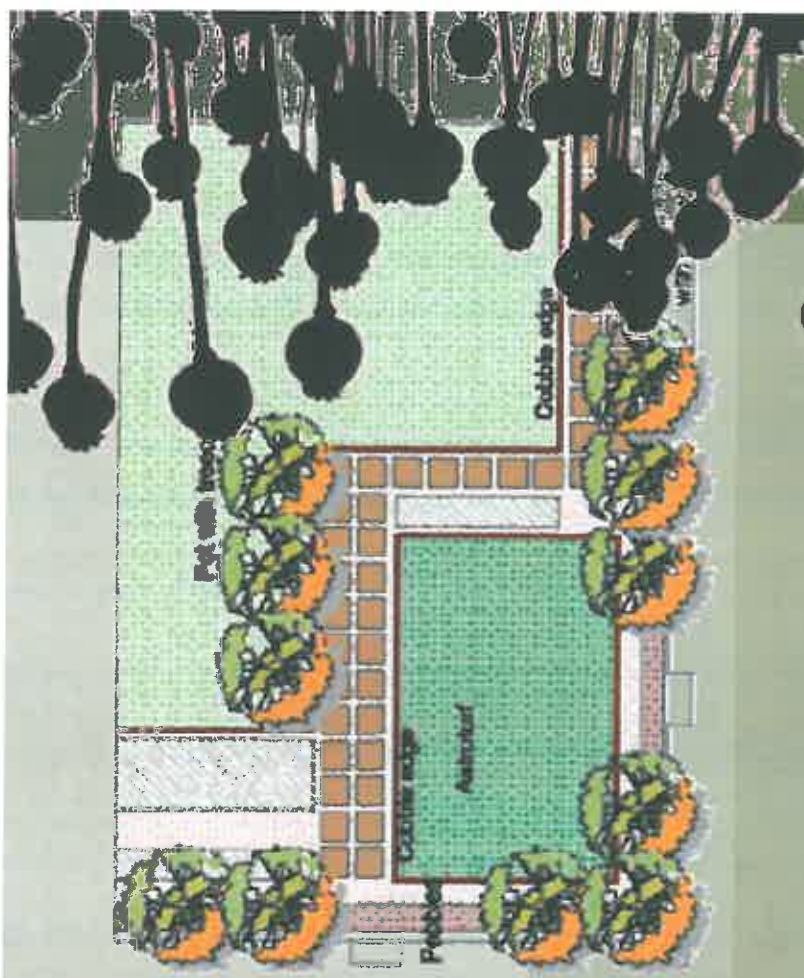
Area Layout



05 Landscape Projects – Current

052 Commercial/Recreational

03 Grain Building, Pretoria



05 Landscape Projects - Completed
053 Offices

04 Ismail Dawson offices, Pretoria



Bokamoso

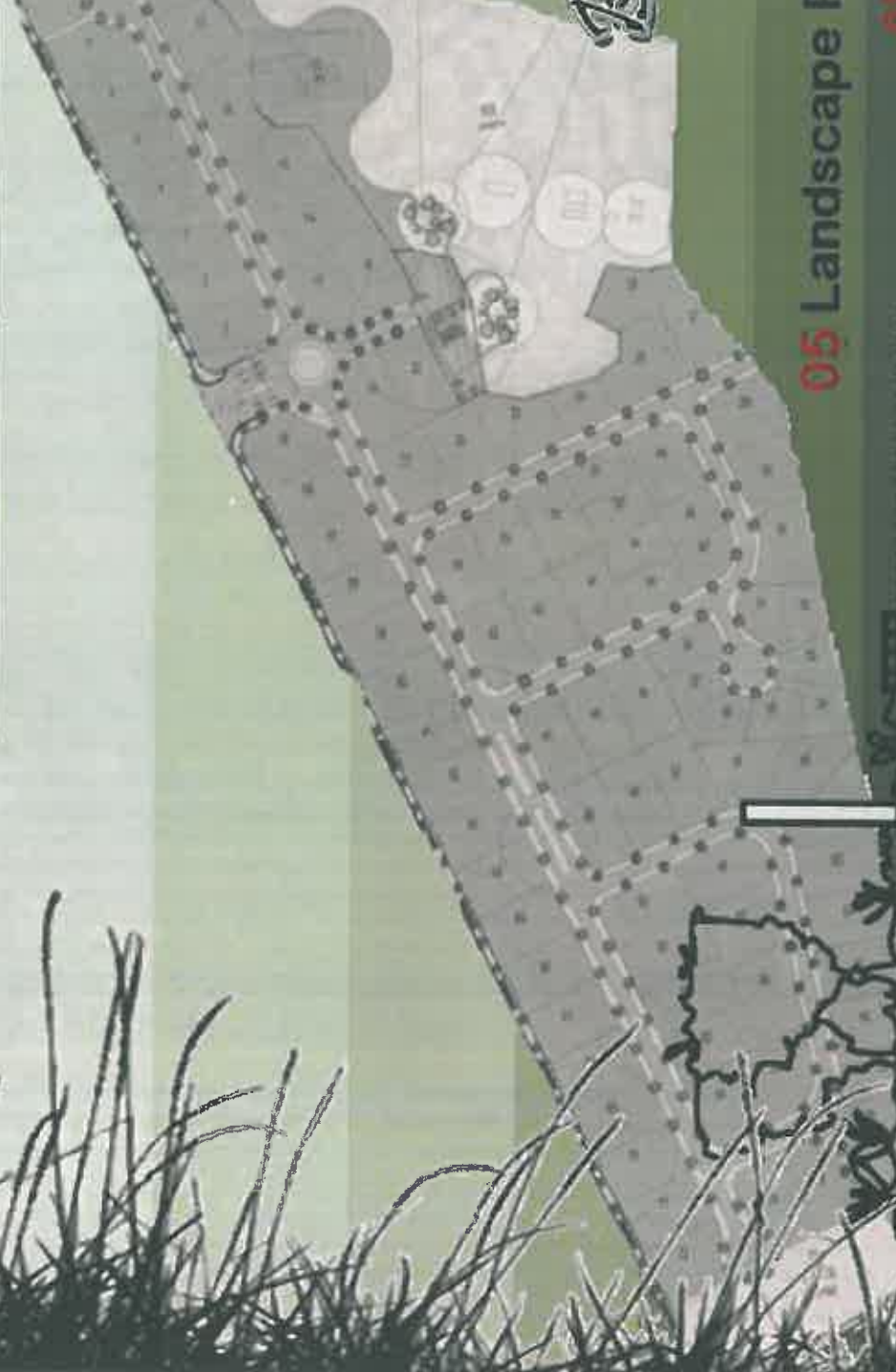
05 Landscape Projects – Conceptual

053 Offices

05 Celtic Manor, Pretoria



Bokamoso



05 Landscape Projects - Completed
054 Complex Development

Boundary Brick Kallie Witkop

05 The Wilds, Pretoria



05 Landscape Projects - Completed

054. Complex Development

07 The Wilds, Pretoria



05 Landscape Projects – Completed

055 Residential



08 The Wilds, Pretoria



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Landscape Projects – Completed

055 Residential

09 The Wilds, Pretoria \-



Bokamoso

05 Landscape Projects - Completed

055 Residential



010 The Wilds, Pretoria



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05 Landscapers & Architects - Completed

055 Residential

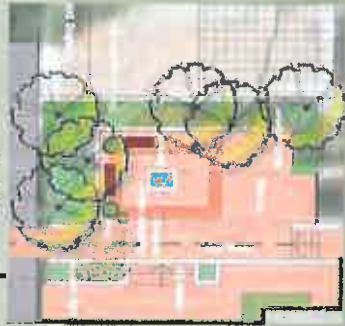
011 Governor of Reserve Bank's Residence, Pretoria



Plant Palette



Option 1



Option 2



Bokamoso

012 House Ismail, Pretoria



Front Garden



Back Garden

Bokamoso

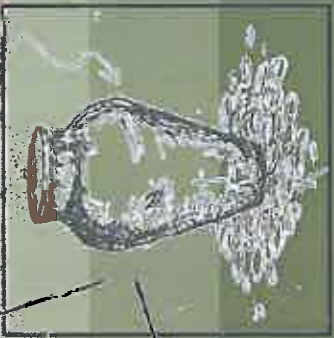
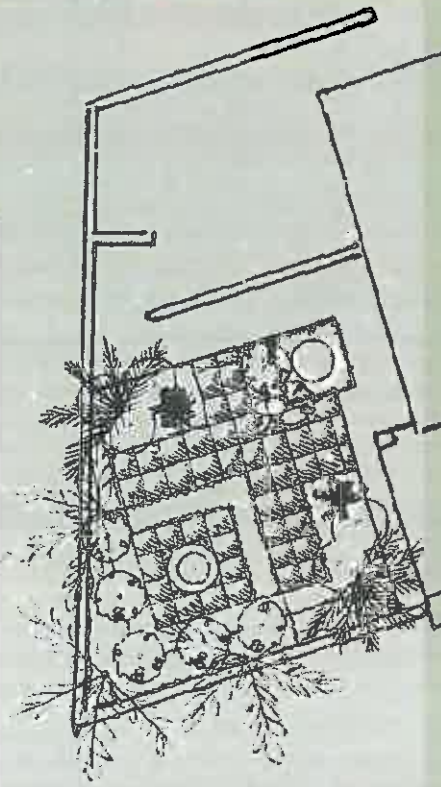
013 Forest Garden, Pretoria



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Landscape Projects – Completed
055 Residential

016 Forest Garden, Pretoria



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05 Landscape Projects - Completed

055 Residential

01 Safari Garden Expo

Received a Silver Certificate at the Safari Garden Expo, 2010



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06 Corporate Highlights

061 Awards

02 UNISA Sunnyside Campus, Pretoria
Best Commercial Paving Plan in Gauteng, 1997



06 Corporate Highlights

051 Awards

Project Name	Status	Project
Environmental Impact Assessment(EIA) and Scoping Report		
Junction 21	ROD	EIA
5 O'clock site access	In Progress	EIA
Bokamoso X 1	In Progress	Scoping & EIA
Doornvallei Phase 6 & 7	In Progress	EIA
Engen Interchange	In Progress	Scoping & EIA
Erasmia X15	In Progress	EIA
Franschklouf	In Progress	EIA
K113	Amendment of ROD	EIA
K220 East	ROD	EIA
K220 West	ROD	EIA
K54 ROD conditions	In Progress	EIA
Knopjeslaagte 95/Peachtree	ROD	EIA
Knopjeslaagte portion 20 & 21	ROD	EIA
Lillieslief/Nooitgedacht	In Progress	EIA
Mooiplaats 70 (Sutherland)	In Progress	EIA
Naaupoort 1 - 12/Valley View	In Progress	EIA
PeachTree X5	In Progress	EIA
Strydfontein 60	In Progress	EIA
Thabe Motswere	In Progress	Scoping & EIA
Makplaats	In Progress	EIA
Waterval Valley	In Progress	EIA
Environmental Opinion		
Doornklouf 68 (Ross)	In Progress	Opinion
Monavoni X 53	In Progress	BA & Opinion
Mboikloof (USN)	In Progress	Opinion
Norwood Mall/Sandspruit	In Progress	Opinion
Riversong X 9	In Progress	Opinion
Suid Chemile	In Progress	Opinion
USN Benjoh Fishing Resort	In Progress	Opinion

The adjacent list host the status of our current projects. Only a selected amount of projects are displayed.



07 Current Environmental Projects

07 EIA, Scoping & Opinion

Project Name	Status	Project
Basic Assessment(BA)		
Annlin X 138	In Progress	BA
Clubview X 29	ROD	BA
Darrenwood Dam	In Progress	BA
Durley Holding 90 & 91	In Progress	BA
Elim	In Progress	BA
Fochville X 3	In Progress	BA
Hartebeeshoek 251	In Progress	BA
Klerksdorp (Matlosana Mall)	In Progress	BA
Monavoni External Services	ROD	BA
Monavoni X 45	Amendment of ROD	BA
Montana X 146	In Progress	BA
Rooihuiskraal X29	In Progress	BA
Thorn tree Mall	In Progress	BA

Environmental control officer (ECO)		
Grace Point Church	In Progress	ECO
R 81	In Progress	ECO
Highveld X 61	In Progress	ECO
Mall of the North	In Progress	ECO
Olievenhoutbosch Road	In Progress	ECO
Orchards 39	In Progress	ECO
Pierre van Ryneveld Reservoir	In Progress	ECO
Project Shelter	In Progress	ECO

S24 G		
Wonderboom	In Progress	S24 G
Mogwasi Guest houses	Completed	S24 G

07 Current Environmental Projects

072 BA, ECO & S24 G





Project Name	Status	Project
Objection		
Colesberg WWTW	In Progress	Objection
Nigel Steelmill	Completed	Objection
Chantilly Waters	Completed	Objection
Development facilitation Act- Input (DFA)		
Burgersfort	In Progress	DFA & BA
Doornpoort Filling Station	In Progress	DFA & EIA & Scoping
Eastwood Junction	In Progress	DFA
Ingersol Road (Erf 78, 81 - 83)	In Progress	DFA
Roos Senekal	In Progress	DFA & EIA & Scoping
Thaba Meetse 1	In Progress	DFA & EIA & Scoping

Water Use License Act (WULA)		
Britstown Bulk Water Supply	In Progress	WULA
Celery Road / Green Channel	In Progress	WULA
Clayville X 46	In Progress	WULA
Dindingwe Lodge	In Progress	WULA
Doornpoort Filling Station	In Progress	WULA+DFA+EIA+SC
Eco Park Dam	In Progress	WULA
Groote Drift Potch	In Progress	WULA
Jozini Shopping Centre	In Progress	WULA+BA
K60	Completed	WULA
Maloto Roads	In Progress	WULA
Kwazele Sewage Works	In Progress	WULA
Monavoni External Services	In Progress	WULA+BA
Nyathi Eco Estate	In Progress	WULA
Prairie Giants X 3	In Progress	WULA
Waveside Water Bottling Plant	Completed	WULA

Project Name Status Project

Environmental Management Plan(EMP)		
Heidelberg X 12	ROD	EMP
Monavoni Shopping Centre	Completed	EMP
Forest Hill Development	Completed	EMP
Weltevreden Farm 105KQ	Completed	EMP+EIA
Raslouw Holding 93	Completed	EMP+BA
Durley Development	Completed	EMP+BA
Rooihuiskraal North X 28	Completed	EMP

Rehabilitation Plan

Norwood Mall/Sandspruit	In Progress	Rehabilitation
Project Shelter Heidelberg	In Progress	Rehabilitation
Sagewood Attenuation Pond	ROD	Rehabilitation
Velmore Hotel	Completed	Rehabilitation
Grace Point Church	Completed	Rehabilitation
Mmamelodi Pipeline	Completed	Rehabilitation

Visual Impact Assessment

Swatzkop Industrial Development	Completed	Assessment +DFA
Erasmia	Completed	Assessment

Signage Application

Menlyn Advertising	Completed	Signage
The Villa Mall	Completed	Signage+EMP+BA




07 Current Environmental Projects

074 EMP, Rehabilitation , Waste Management & Signage Application

- Billion Property Group
- Cavaleros Developments
- Centro Developers
- Chamberlains
- Chieftain
- Century Property Group
- Coca Cola
- Elmado Property Development
- Flanagan & Gerard
- Gautrans
- Hartland Property Group
- Moolman Group
- MTN
- M&T Development
- Old Mutual
- Property Investment Company
- Petroland Developments
- RSD Construction
- SAND
- Stephan Parsons
- Twin City Developments
- Urban Construction
- USN



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- Adobe Illustrator CS3
 - Adobe Photoshop CS3
 - Adobe InDesign CS3
 - AutoCAD
 - Google SketchUP
 - GIS
 - Microsoft Office Word
 - Microsoft Office Excel
 - Microsoft Office Publisher
 - Microsoft Office Power Point

Bokamoso
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Qualifications And Experience In The Field Of Environmental Planning And Management (Lizelle Gregory (Member Bokamoso)):

Qualifications:

- Qualified as **Landscape Architect** at UP 1991;
- Qualified as **Professional Landscape Architect** in 1997;
- A Registered Member at The **South African Council for the Landscape Architect Profession (SACLAP)** with Practise Number: **PLArch97078**;
- A Registered Member at the **International Association for Impact Assessment Practitioners (IAIA)**;
- Qualified as an **Environmental Auditor** in July 2008 and also became a Member of the International Environmental Management Association (IEMAS) in 2008.

Working Experience:

- Worked part time at Eco-Consult – 1988-1990;
- Worked part time at **Plan Associates as Landscape Architect in training** – 1990-1991;
- Worked as Landscape Architect at **Environmental Design Partnership (EDP)** from 1992 - 1994
- Practised under **Lizelle Gregory Landscape Architects** from 1994 until 1999;
- Lectured** at Part-Time at UP (1999) – Landscape Architecture and TUT (1998- 1999)- Environmental Planning and Plant Material Studies;
- Worked as **part time Landscape Architect and Environmental Consultant at Plan Associates** and **managed their environmental division for more that 10 years** – 1993 – 2008 (assisted the **PWV Consortium** with various road planning matters which amongst others included environmental Scans, EIA's, Scoping reports etc.)
- Renamed business as **Bokamoso in 2000** and is the only member of Bokamoso Landscape Architects and Environmental Consultants CC;
- More than 20 years experience in the compilation of Environmental Reports**, which amongst others included the compilation of various **DFA Regulation 31 Scoping Reports**, EIA's for EIA applications in terms of the applicable environmental legislation, Environmental Management Plans, Inputs for Spatial Development Frameworks, DP's, EMF's etc. Also included EIA Application on and adjacent to mining land and slimes dams (i.e. Brahm Fisherville, Doornkop)

Qualifications And Experience In The Field Of Landscape Architecture (Lizelle Gregory (Member Bokamoso)):

Landscape Architecture:

-Compiled landscape and rehabilitation plans for more than 22 years.

The most significant landscaping projects are as follows:

- Designed the Gardens of the Witbank Technicon (a branch of TUT). Also supervised the implementation of the campus gardens (2004);
- Lizelle Gregory was the Landscape Architect responsible for the paving and landscape design at the UNISA Sunnyside Campus and received a Corobrick Golden Award for the paving design at the campus (1998-2004);
- Bokamoso assisted with the design and implementation of a park for the City of Johannesburg in Tembisa (2010);
- The design and implementation of the landscape gardens (indigenous garden) at the new Coca-Cola Valpre Plant (2012-2013);
- Responsible for the rehabilitation and landscaping of Juksei River area at the Norwood Shopping Mall (Johannesburg) (2012-2013);
- Designed and implemented a garden of more than 3,5ha in Randburg (Mc Arthurpark). Bokamoso also seeded the lawn for the project (more than 2,5 ha of lawn successfully seeded) (1999);
- Bokamoso designed and implemented more than 800 townhouse complex gardens and submitted more than 500 Landscape Development Plans to CTMM for approval (1995 - 2013);
- Assisted with Landscape Designs and the Masterplan at Eco-Park (M&T Developments) (2005-2011);
- Bokamoso designed and implemented an indigenous garden at an office park adjacent to the Bronberg. In this garden it was also necessary to establish a special garden for the Juliana Golden Mole. During a recent site visit it was established that the moles are thriving in this garden. Special sandy soils had to be imparted and special indigenous plants had to be established in the natural section of the garden.

-Lizelle Gregory also owns her own landscape contracting business. For the past 20 years she trained more than 40 PDI jobless people (sourced from a church in Mamelodi) to become landscape contracting workers. All the workers are on a continuous basis placed out to work at nurseries and other associated industries;

-Over the past 20 years the Bokamoso team compiled more than 800 landscape development plans and also implemented most of the gardens. Bokamoso also designed and implemented the irrigation for the gardens (in cases where irrigation was required). Lizelle regarded it as important to also obtain practical experience in the field of landscape implementation.