

# FINAL BASIC ASSESSMENT REPORT FOR THE PROPOSED TIJGER VALLEY EXTENTION 14 & 34

On a Part of Portion 5 of the Farm Tyger Valley 334  
JR, Pretoria.

GAUT: 002/14-15/0091

JUNE 2015



## BOKAMOSO

LANDSCAPE ARCHITECTS AND ENVIRONMENTAL CONSULTANTS

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P O BOX 11375  
MAROELANA  
0161



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Cii- Layout as Approved in the Amendment granted

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(Preferred layout if Alternative 3 of Hazeldean Road is approved by GDARD)

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Kv – Correspondence to SEF regarding the proposed road

# **Application Form**

LEBOMBO GARDENS BUILDING  
36 LEBOMBO ROAD  
ASHLEA GARDENS  
0081

P.O. BOX 11375  
MAROELANA  
0161

Tel: (012) 346 3810  
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Landscape Architects, Environmental Consultants,  
Environmental Auditing, Water License Applications

**Gauteng Department of Agriculture  
and Rural Development  
Ground floor SUE Admin Unit  
11 Diagonal Street  
JOHANNESBURG  
2000  
Tel: 011 240 3051**

**ATTENTION: Bongani Shabangu**

**21 July 2014**

**RE: APPLICATION FORM FOR THE PROPOSED TIJGER VALLEY EXTENSION 14 &  
34 SITUATED ON PART OF PORTION 5 OF THE FARM TYGERVALLEY 334 JR**

Please find 3 X hard copies of the Application Form for the abovementioned project.

We trust you find the above in order. Please do not hesitate to contact our office should you have any questions in this regard.

Sincerely,

  
Ané Agenbacht  
**Bokamoso Landscape Architects and  
Environmental Consultants CC**



**Application Form for Environmental Authorisation in terms of National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010, as amended (version 2)**

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**Kindly note that:**

1. This application form is current as of 01 April 2014. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
  2. 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. Spaces are provided in tabular format and will extend automatically when each space is filled with typing.
  3. Incomplete applications may be returned to the applicant for revision.
  4. The use of the phrase "**not applicable**" in the form must be done with circumspection. Should it be done in respect of material information required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the Regulations.
  5. Three copies of this form must be handed in at the offices of the relevant competent authority as detailed below.
  6. No faxed or e-mailed applications shall be accepted. Only hand delivered or posted applications will be accepted.
  7. Unless protected by law, all information filled in on this application will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this application on request, during any stage of the application process.
  8. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
- 

**For official use only**

Application Number:  
NEAS Reference number:  
Date Received:


## 1. DEPARTMENTAL DETAILS

### Postal Address

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

### Physical Address

Administrative Unit of the Sustainable Utilisation of the Environment (SUE) Branch  
Ground floor, Diamond Building, 11 Diagonal Street  
Johannesburg

Queries should be directed to the Strategic Administrative Unit at:

Administrative Unit telephone number (011) 240 3051/3052  
Administrative Unit fax number (011) 240 3055  
Departmental central telephone number (011) 240 2500

View the Department's website at <http://www.gdard.gov.za> for the latest version of the documents

## Application for Environmental Authorisation in terms of NEMA

Proof of payment must accompany this application. The application will not be processed without proof of payment unless one of the exclusions provided for in the fee Regulations is applicable **AND** such information in the exclusion section of this application form has been confirmed by this Department.

## 2. FEES

Gauteng Department of Agriculture and Rural Development' details for the payment of application fees

### Payment Enquiries:

Contact person: Boniswa Belot  
Tel: (011) 240 3377/3051  
Email: Boniswa.Belot@gauteng.gov.za

### Department Banking details:

Bank Name: FNB Bank  
Account Name: GPG Agriculture and Rural Development PMG  
Account Number: 62298144058  
Branch Name and Number: Global Transactional Services Johannesburg - 255005

Reference number: EIA – Tiger Valley Extension(2014–7–17) of payment e.g. EIA20140401 (please quote this reference number when making payment)

Application form to be submitted with proof of payment attached- Annexure 1

### Tax exemption status:

Status: Tax Exempted



## EXCLUSIONS

An applicant is excluded from paying fees if:

- The activity is a community based project funded by a government grant; or
- The applicant is an organ of state.

Applicants are required to tick the appropriate box below to indicate that either proof of payment is attached or that, in the applicant's view, exclusion applies. Proof and a motivation for exclusions must be attached to this application form as **Annexure 2**.

Proof attached

Exclusion applies

TYPE OF EXCLUSION	Tick where applicable. Proper motivation must be attached to the application
The activity is a community based project funded by a government grant	
The applicant is an organ of state	

## FEE AMOUNT

Application	Fee
Applications for an environmental authorisation for which basic assessment is required in terms of the Environmental Impact Assessment Regulations	R2 000
Application for an environmental authorisation, for which S&EIR is required in terms of the Environmental Impact Assessment Regulations	R10 000
Applications dealt with in terms of section 24L of the Act (where an environmental authorisation is required in terms of NEMA and a waste management license is required in terms of NEMWA and the same competent authority is dealing with both these applications)	100% of the most expensive application, namely, R10 000 (Ten Thousand Rand) if S&EIR is triggered and R2 000 (Two Thousand Rand) if the basic assessment is triggered; (b) 50% of the other application, namely, R5 000-00 (Five Thousand Rand) if the S&EIR is triggered or R1 000 (One Thousand Rand) if the basic assessment is triggered.

### 3. PROJECT TITLE

Tijger Valley Extension 14 & 34

### 4. PROPERTY DESCRIPTION

Proposed Residential Township Development on Part of Portion 5 of the Farm Tygervalley 334 JR

### 5. APPLICANT INFORMATION

Project applicant:	André Wright		
Responsible position:	Director		
Contact person:	André Wright		
Physical address:	1133 Jan Shoba Street (Duncan Street), Brooklyn, Pretoria		
Postal address:	P O Box 12516, Hatfield		
Postal code:	0028	Cell:	082 554 8098
Telephone:	012-429 7300	Fax:	012-346 8687
E-mail:	Andrew@boogertmanpta.co.za		

Local municipality:	City of Tshwane Metropolitan Municipality		
Contact person:	Livhuwani Siphuma		
Postal address:	P Bag X1454, Pretoria		
Postal code:	0001	Cell:	082 772 5450
Telephone:	012 358 8871	Fax:	012 358 8934
E-mail:	livhuwanis@tshwane.gov.za		

Where there is more than one local authority involved, please attach a list of those authorities with their contact details as Annexure 3.

Land owner:	Pasqua Tamma		
Contact person:	André Wright		
Postal address:	P.O. Box 12516, Pretoria		
Postal code:	1020	Cell:	082 554 8098
Telephone:	082 554 8098	Fax:	086 570 5659
E-mail:	Andrew@boogertmanpta.co.za		

In instances where there is more than one landowner, please attach a list of those landowners with their contact details as Annexure 4. If the applicant is not the owner or person in control of the land, proof of notice to the landowner or person in control of the land on which the activity is to be undertaken must be submitted as Annexure 5.

### 6. ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP) INFORMATION

EAP:	Ané Agenbacht		
Professional affiliation/registration:			
Contact person (EAP):	Ané Agenbacht		
Company:	Bokamoso Landscape Architects & Environmental Consultants		

Physical address:

36 Lebombo Road, Lebombo Garden Building, Ashlea Gardens,  
0081

Postal address:

P O Box 11375, Maroelana

Postal code:

0161

Cell:

083 533 0420

Telephone:

012 346 3810

Fax:

086 570 5659

E-mail:

lizelleg@mweb.co.za

## 7. ACTIVITY(S) APPLIED FOR

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.

Number of the  
Government Notice:

Activity No (s)

Describe each listed activity as per the wording in the listing notices:

R544 of 18 June 2010	Listing Notice 1, Activity 9	The construction of facilities or infrastructure exceeding 1000metres in length for the bulk transportation of water, sewage or storm water: (i) With an internal diameter of 0.36metres or more; or (ii) with a peak throughput of 120m litres per second or more,  excluding where: a) such facilities or infrastructure are for bulk transportation of water, sewage or storm water drainage inside a road reserve; or b) where such construction will occur within urban areas but further than 32 metres of a watercourse, measured from the edge of a watercourse.
R544, of 18 June 2010	Listing No. 1, Activity 10	The construction of facilities or infrastructure for the transmission and distribution of electricity-  (i) outside urban area or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or (ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more.
R544, of 18 June 2010	Listing No.1, Activity 11	The construction of:  (i) Canals; (ii) Channels; (iii) Bridges; (iv) Dams; (v) Weirs; (vi) Bulk storm water outlets structures;

		<p>(vii) Marinas;</p> <p>(viii) Jetties exceeding 50 square metres in size;</p> <p>(ix) Slipways exceeding 50 square metres in size;</p> <p>(x) Buildings exceeding 50 square metres in size;</p> <p>(xi) Infrastructure or structures covering 50 square metres or more</p> <p>where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p>
R. 544, of 18 June 2010	Listing No. 1, Activity 18	<p>The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from:</p> <p>A watercourse;</p> <p>The sea</p> <p>The seashore;</p> <p>The littoral active zone, an estuary or a distance of 100 metres inland of the highwater mark of the sea or an estuary, whichever distance is the greater-</p> <p>But excluding where such infilling, depositing, dredging, excavation, removal or moving:</p> <p>Is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or</p> <p>Occurs behind the development setback line</p>
R. 544, of 18 June 2010	Listing No. 1, Activity 22	<p>The construction of a road, outside urban areas,</p> <p>(i) With a reserve wider than 13.5 meters, or</p> <p>(ii) Where no reserve exists where the road is wider than 8 meters, or</p> <p>(iii) For which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Notice 545 of 2010</p>
R. 544, of 18 June 2010	Listing No. 1, Activity 23	<p>The transformation of undeveloped, vacant or derelict land to-</p> <p>Residential, retail, commercial, recreational, industrial or institutional use, inside an urban area, and where the total area to be transformed to 5 hectares or more, but less than 20 hectare; or</p>

		Residential , retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares-
		Except where such transformational takes place for linear activities.
R. 544, of 18 June 2010	Activity 26	Any process or activity identified in term of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No.10 of 2004).

**Listing Notice 3:**

R. 546. of 18 June 2010	Listing No.3. Activity 13	<p>The clearance of an area of 1 hectare of more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for:</p> <ol style="list-style-type: none"> <li>1. The undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste act, 2008 (Act No. 59 of 2008), in which case the activity is regarded to be excluded from this list.</li> <li>2. The undertaking of a linear activity falling below the thresholds mentioned in Listing Notice 1 in terms of GN No.544 of 2010.</li> </ol>	<p>d. in Gauteng:</p> <ol style="list-style-type: none"> <li>(i) A protected area identified in terms of NEMPAA, excluding conservancies;</li> <li>(ii) National Protected Area Expansion Strategy Focus areas;</li> <li>(iii) Any declared protected area including Municipal or Provincial Nature Reserves as contemplated area including Municipal or Provincial Nature Reserves as contemplated by the Environment Conservation Act 1989 (Act No. 73 of 1989), the Nature conservation Ordinance (Ordinance 12 of 1983);</li> <li>(v) Sensitive area as identified in an environmental management framework as contemplated in chapter 5 of the Act</li> </ol>
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			<p>and as adopted by the competent authority;</p> <p>(iv) sites or areas identified in terms of an International Convention;</p> <p><b>(v) Sites identified as irreplaceable or important in the Gauteng Conservation Plan.</b></p>
<p>R.546, of 18 June 2010</p>	<p>Listing No.3 Activity 16</p>	<p>The construction of:</p> <ol style="list-style-type: none"> <li>1. Jetties exceeding 10 square metres in size;</li> <li>2. Slipways exceeding 10 square metres in size;</li> <li>3. Building with a footprint exceeding 10 square metre in size; or</li> <li>4. Infrastructure covering 10 square metres or more</li> <li>5. Where such construction occurs within a watercourse or within 32 meters of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</li> </ol>	<p>b. In Gauteng:</p> <p>(i) A protected area identified in terms of NEMPAA., excluding conservancies;</p> <p>(ii) National Protected Area Expansion Strategy Focus areas;</p> <p>(iii) Sensitive areas as identified in an environment framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p> <p>(iv) Sites or areas identified in terms of an international Convention;</p> <p><b>(v) Sites identified as irreplaceable or important in the Gauteng Conservation Plan;</b></p> <p>(vi) Any declared protected area including Municipal or Provincial Nature Reserves as contemplated by the Environment</p>

			Conservation Act, 1989 (Act No.73 of 1989) and the Conservation Ordinance (Ordinance 12 of 1983); (vii) Areas zoned for a conservation purposed.
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Please note that any authorisation that may result from this application will only cover activities applied for.

## 8. SECTOR BASED PROJECT DESCRIPTION

Please indicate which sector the project falls under by crossing out the relevant block in the table below:

Green economy + "Green" and energy-saving industries		Greenfield transformation to urban or industrial form	<b>X</b>
Infrastructure – electricity (generation, transmission & distribution)		Biodiversity or sensitive area related activities	
Biofuels		Potential of metal fabrication capital & transport equipment – arising from large public investments	
Basic services (local government) – electricity and electrification		Boat building	
Basic services (local government) – area lighting		Manufacturing – automotive products and components, and medium and heavy commercial vehicles	
Infrastructure – transport (roads, land strips)		Manufacturing – plastics, pharmaceuticals and chemicals	
Basic services (local government access roads)		Manufacturing – clothing textiles, footwear and leather	
Basic services (local government) – public transport		Forestry, paper, pulp and furniture	
Infrastructure – water (bulk and reticulation)		Business process servicing	
Basic services (local government) – sanitation		Basic services (local government) – education	
Basic services (local government) – waste management		Basic services (local government) – health	
Agricultural value chain + agro-processing (linked to food security and food pricing imperatives)		Basic services (local government) – housing	
Infrastructure – information and communication technology		Basic services (local government) security of tenure	
Tourism + strengthening linkages between cultural industries and tourism		Other (Stormwater management infrastructure)	
Basic services (local government) – public open spaces and recreational facilities			

## 9. SOCIO-ECONOMIC VALUES

Provide details on the anticipated socio-economic values associated with the proposed project

Anticipated CAPEX of the project on completion	R45 million
What is the expected annual income to be generated by or as a result of the project?	R 2 million
New skilled employment opportunities created in the development phase of the project	Nil
New skilled employment opportunities created in the construction phase of the project	30 construction workers
New un-skilled employment opportunities created in the development phase of the project	50
New un-skilled employment opportunities created in the construction phase of the project	50
What is the expected value of the employment opportunities during the development and construction phase?	R2,5m
What percentage of this new unskilled and skilled value that will accrue to previously disadvantaged individuals during both development and construction phase of the project?	R1.5m
What percentage of this value that will accrue to previously disadvantaged individuals?	Nil
The expected current value of the employment opportunities during the first 10 years	R3m
What percentage of this value that will accrue to previously disadvantaged individuals?	Nil

## 10. SITE DESCRIPTION

Farm name and number:

Tygervalley 334 JR

Portion / holding /erf number/

Part of Portion 5

(Where multiple properties (including alternatives) are involved, please attach a list of the properties as Annexure 6).

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The coordinates 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):

S25.793257°

E28.371640°

In the case of linear activities:

Latitude (S):

Longitude (E):

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




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

Latitude (S):	Longitude (E):

SG 21 Digit Code(s) of the properties

(If there are more than 4, please attach a list with the rest of the codes as **Annexure 8**)

Please indicate the proportion of the property/ies to be developed (ecological footprint) as a percentage for each property

T	0	J	R	0	0	0	0	0	0	0	0	0	3	3	4	0	0	0	0	5
1		2		3									4							5

Should any activities in GN R.546 be applied for, please provide a map indicating the triggering area (e.g. Critical Biodiversity Area, Conservancy Area, etc) overlaid by the study area in **Annexure 9**.

## 11. LAND USE ZONING

The zoning certificate of the property where the activity is going to be undertaken must be attached as **Annexure 10**

## 12. PROJECT SCHEDULE

A project schedule, indicating the different phases and timelines of the project, must be attached as **Annexure 11**.

## 13. OTHER AUTHORISATIONS REQUIRED

LEGISLATION	AUTHORISATION REQUIRED		APPLICATION SUBMITTED	
	YES	NO	YES	NO
<b>SEMA's</b>				
National Environmental Management: Air Quality Act		X		
National Environmental Management: Biodiversity Act		X		
National Environmental Management: Integrated Coastal Management Act		X		
National Environmental Management: Protected Areas Act		X		
National Environmental Management: Waste Act		X		
<b>National legislation</b>				
Mineral Petroleum: Development Resources Act		X		
National Water Act	X			X
National Heritage Resources Act		X		
Others: Please specify		X		

Please provide proof of authorisations of submission of applications (if there are any) as **Annexure 12**.

## 14. LOCALITY MAP

A clear and legible locality map must be submitted with the application as **Annexure 13**

**15. LIST OF ANNEXURES**

		<b>YES</b>	<b>N/A</b>
Annexure 1	Proof of payment of a fee for this application	<b>X</b>	
Annexure 2	Proof and a motivation for exclusions from paying a fee		<b>X</b>
Annexure 3	List of Local Municipalities (with contact details)		<b>X</b>
Annexure 4	List of land owners (with contact details) and proof of notification of land owners in the event there is more than one land owner.		<b>X</b>
Annexure 5	Proof of notice to the landowner or person in control of the land on which the activity is to be undertaken	<b>X</b>	
Annexure 6	List of properties in the case of multiple properties involved		<b>X</b>
Annexure 7	List of co-ordinates at turning points for linear activities		<b>X</b>
Annexure 8	SGIDs		<b>X</b>
Annexure 9	Map indicating triggered areas for GN R.546	<b>X</b>	
Annexure 10	Land use zoning or zoning certificate of the property	<b>X</b>	
Annexure 11	Project schedule		<b>X</b>
Annexure 12	Proof by way of copies of Environmental Authorisations obtained for the same property or submission of such applications	<b>X</b>	
Annexure 13	Locality map	<b>X</b>	
Addendum 1	Declaration by the applicant	<b>X</b>	
Addendum 2	Declaration by the environmental assessment practitioner	<b>X</b>	

**ADDENDUM 1**

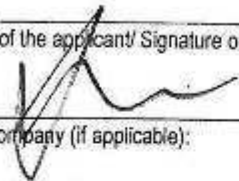
**16. DECLARATIONS**

**DECLARATION OF THE APPLICANT**

I Andre Wright, declare under oath that I

- am, or represent, the applicant in this application;
- have appointed / will appoint (delete that which is not applicable) an Environmental Assessment Practitioner (EAP) to act as the independent EAP for this application / will obtain exemption from the requirement to obtain an environmental assessment practitioner;
- will provide the EAP 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 Regulations, including but not limited to –
  - costs incurred in connection with the appointment of the EAP or any person contracted by the EAP;
  - 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 EAP is competent to comply with the requirements of the Regulations and will take reasonable steps to verify that the EAP
  - know the Act and the regulations, and how they apply to the proposed development
  - know any applicable guidelines
  - perform the work objectively, even if the findings do not favour the applicant
  - disclose all information which is important to the application and the proposed development
  - have expertise in conducting environmental impact assessments
  - complies with the Regulations
- will inform all registered I&APs 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 EAP 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 realise 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 applicant/ Signature on behalf of the applicant:



Name of company (if applicable):

2014/07/17

Date:



Signature of the Commissioner of Oaths:

2014/07/17

Date:

Designation:

Commissioner of Oaths Official stamp (below)

**WILLEM JACOBUS MARX**  
COMMISSIONER OF OATHS  
36 LEBOMBO ROAD  
ASHLEA GARDENS  
PRETORIA 0081  
CHARTERED ACCOUNTANT OF SOUTH AFRICA

**ADDENDUM 2**

**DECLARATION OF THE EAP**

I, Ané Agenbacht, declare that -

- I act as the independent environmental practitioner in this application
- 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 of the Regulations and is punishable in terms of section 24F of the Act;

Ané Agenbacht

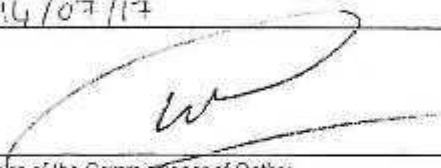
Signature of the Environmental Assessment Practitioner:

**Bokamoso Landscape and Environmental Consultants CC**

Name of company:

2014/07/17

Date:



Signature of the Commissioner of Oaths:

2014/07/17

Date:

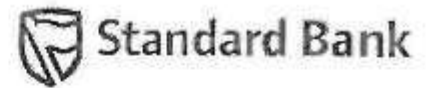
Designation:

Commissioner of Oaths Official stamp (below)

**WILLEM JACOBUS MARX**  
COMMISSIONER OF OATHS  
36 LEBOMBO ROAD  
ASHLEA GARDENS  
PRETORIA 0081  
CHARTERED ACCOUNTANT OF SOUTH AFRICA

**Annexure 1:** Proof of payment of a fee for this application

Payment Receipt



Beneficiary name:	GPG Agriculture and
Bank name:	FIRST NATIONAL BANK
Beneficiary account number:	62298144058
Branch code:	25500500
Branch name:	RMB CORPORATE BANKING JHB
My reference:	Tiger Valley
Beneficiary reference:	EIA-Tygervalley 2014-7-18
Payment date:	2014-07-18
Amount:	R 2,000.00

Print

Close

**Annexure 2:** Proof and a motivation for exclusion from paying a fee.

**N/A**

**Annexure 3:** List of municipalities with contact details

N/A



**Annexure 4:** List of land owners with contact details and proof of notification of landowners in the event there is more than one land owner

**N/A**

**Annexure 5:** Proof of notice to the landowner or person in control of the land on which the activity is to be undertaken

List of REGISTERED LETTERS  
 Lys van GEREgistreerde BRIEWE  
 (With an Insurance option/met 'n versekeringsopsie)



Full tracking and tracing/Volledige volg en spoor

Name and address of sender  
 Naam en adres van afsender: Bobarnaso, P.O. Box 11375,  
Marceloná 0161,  
Graystone.

Enquiries Number  
 Mailbox number  
 Telery nommer  
**0800 111 502**

No	Name and address of addressee Naam en adres van geadresseerde	Insured amount Versekerde bedrag	Insurance fee Versekeringsgeld	Postage Posgeld	Service fee Diensgeld	Affix Track and Trace customer only Post Volg-en-Spoor klante slegs RD 885 058 677 ZA CUSTOMER COPY 30102	
1	Pasqua Tammd 650 Sibelius street, Lukarand, 0181						
2							
3							
4							
5							
6							
7							
8							
9							
10							
Number of letters posted Getal briewe gepos		Total Totaal		R	R	R	R

Signature of client  
 Handtekening van klient: [Signature]

Signature of accepting officer  
 Handtekening van aanneembeslante: [Signature]

The value of the contents of these letters is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100,00. No compensation is payable without documentary proof. Optional insurance of up to R2 000,00 is available and applies to domestic registered letters only.

Die waarde van die inhoud van hierdie briewe is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat sonder voorbehoud ontvang word nie. Vergoeding is beperk tot R100,00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering van tot R2 000,00 is beskikbaar en is slegs op binnelandse geregistreerde briewe van toepassing.



LEBOMBO GARDEN BUILDING  
38 LEBOMBO ROAD  
ASHLEA GARDENS  
0081

P.O. BOX 11375  
MAROELANA  
0161

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



Dear Landowner

30 June 2014

**Basic Assessment Process 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) for the proposed Residential Township Development on Part of Portion 5 of the Farm Tygervalley 334 JR**

We hereby confirm that André Wright, appointed Bokamoso Landscape Architects and Environmental Consultants cc, to undertake a Basic Assessment Process in terms of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment (EIA) Regulations, 2010 (Version 1) for the proposed Residential Township Development on Part of Portion 5 of the Farm Tygervalley 334 JR as listed above.

In terms of the 2010 amended NEMA EIA Regulations, the applicant, if not the land-owner, must notify the land-owner and tenants of a proposed development planned on a property occupied by the land-owner/tenant. In the case of this application the property occupied by you (as the land-owner/ tenant) forms part of the land-parcel earmarked for the above-mentioned project.

This notification therefore represents the formal notification of land-owners and/or tenants of the proposed project on Part of Portion 5 of the Farm Tygervalley 334 JR. This notification letter will be submitted as part of the formal application to be submitted to the Gauteng Department of Agriculture and Rural Development (GDARD).

This notification also affords you the opportunity to register (at an early stage) as an Interested and Affected Party (I&AP) in the Basic Assessment Process. In order to register you are requested to fill in your full details on the form supplied below and to fax or e-mail your details to Juanita de Beer (public participation co-ordinator of Bokamoso) for the inclusion of your details onto our public participation database.

Once you are registered as an interested and affected party, we will keep you informed of the progress with the application and we will make all correspondence, documents and other information regarding the application available to you throughout the application process.

Registration as Interested and Affected Party	
Farm Name:	
Erf /Portion Number:	
Street Address:	
Landowner:	Name & Surname: Email address: Telephone: Cell phone: Fax Number: Postal Address:
Tenant Details: (if applicable)	Name & Surname: Email address: Telephone: Cell phone: Fax Number: Postal Address:

**Sincerely,**

**Lizelle Gregory**  
**Bokamoso Landscape Architects and Environmental Consultants cc**

## Deeds Office Property



TYGER VALLEY, 334, 5 (PRETORIA)

Deeds Office                    PRETORIA  
 Date Requested                2014/06/30 08:46  
 Information Source             DEEDS OFFICE  
 Reference                       -

Property Type                 FARM  
 Farm Name                    TYGER VALLEY  
 Farm Number                 334  
 Portion Number               5  
 Local Authority              KUNGWINI LOCAL MUNICIPALITY  
 Registration Division         JR  
 Province                     GAUTENG  
 Diagram Deed                T24178/968  
 Extent                        21.4133H  
 Previous Description         -  
 LPI Code                     TQJR0000000033400005

Owner 1 of 1  
 Person Type                 PRIVATE PERSON  
 Name                         TAMMA PASQUA  
 ID Number                   350226  
 Title Deed                   T49417/1969  
 Registration Date           1969/11/13  
 Purchase Price (R)         -  
 Purchase Date               -  
 Share                         -  
 Microfilm Reference         1989 0666 0474  
 Multiple Properties         NO  
 Multiple Owners             NO

#	Document	Institution	Amount (R)	Microfilm
1	NOTICE 1051 OF 1/8/9	7 ACT 70/70 NOT APPLICABLE	UNKNOWN	-

No documents to display

**Annexure 6: List of properties**  
**N/A**

**Annexure 7:** List of coordinates at turning points of linear activities

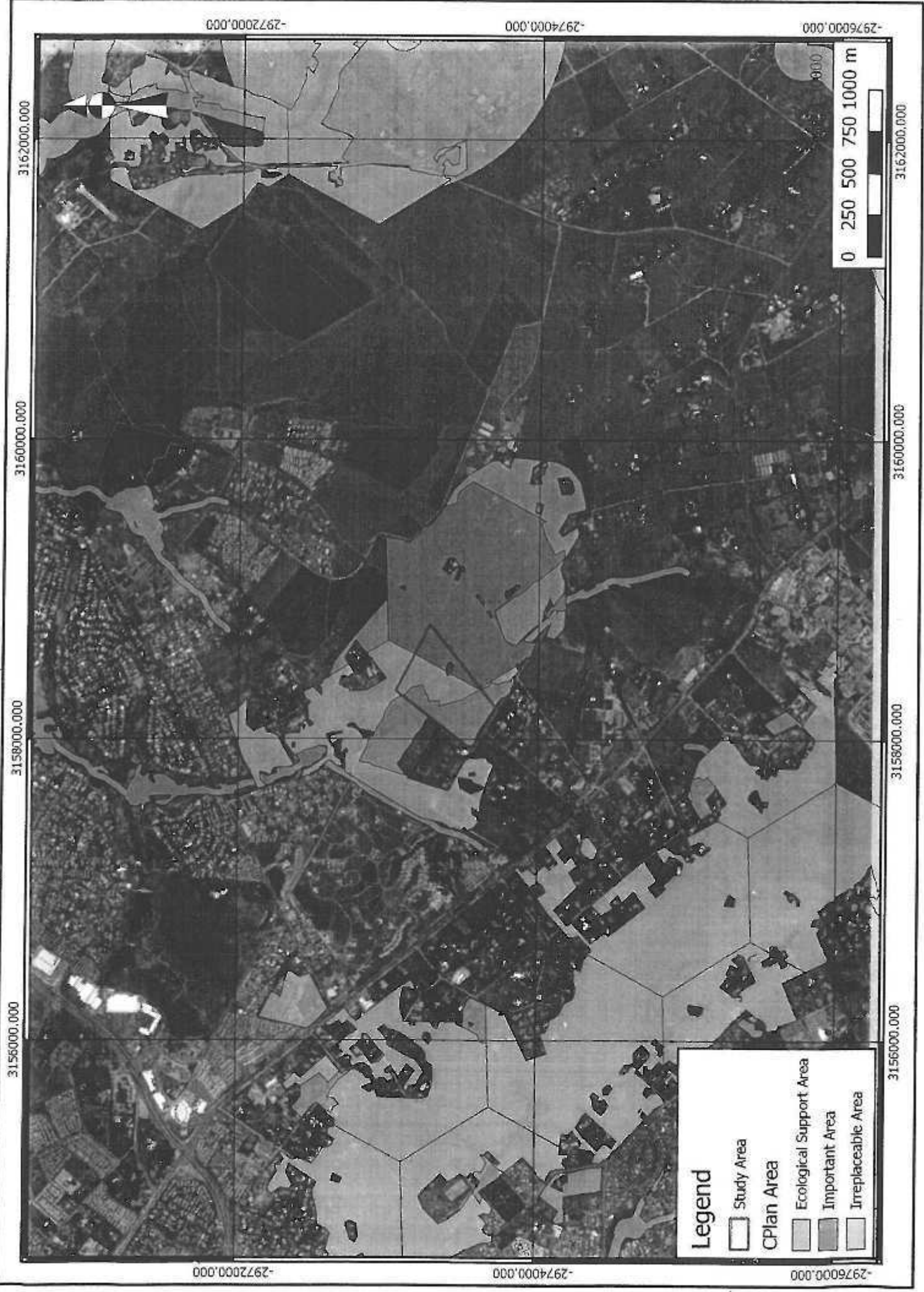
**N/A**



**Annexure 8: SGIDs**

**N/A**

**Annexure 9:** Map indicating triggered areas for GN R.546




3156000.000 3158000.000 3160000.000 3162000.000

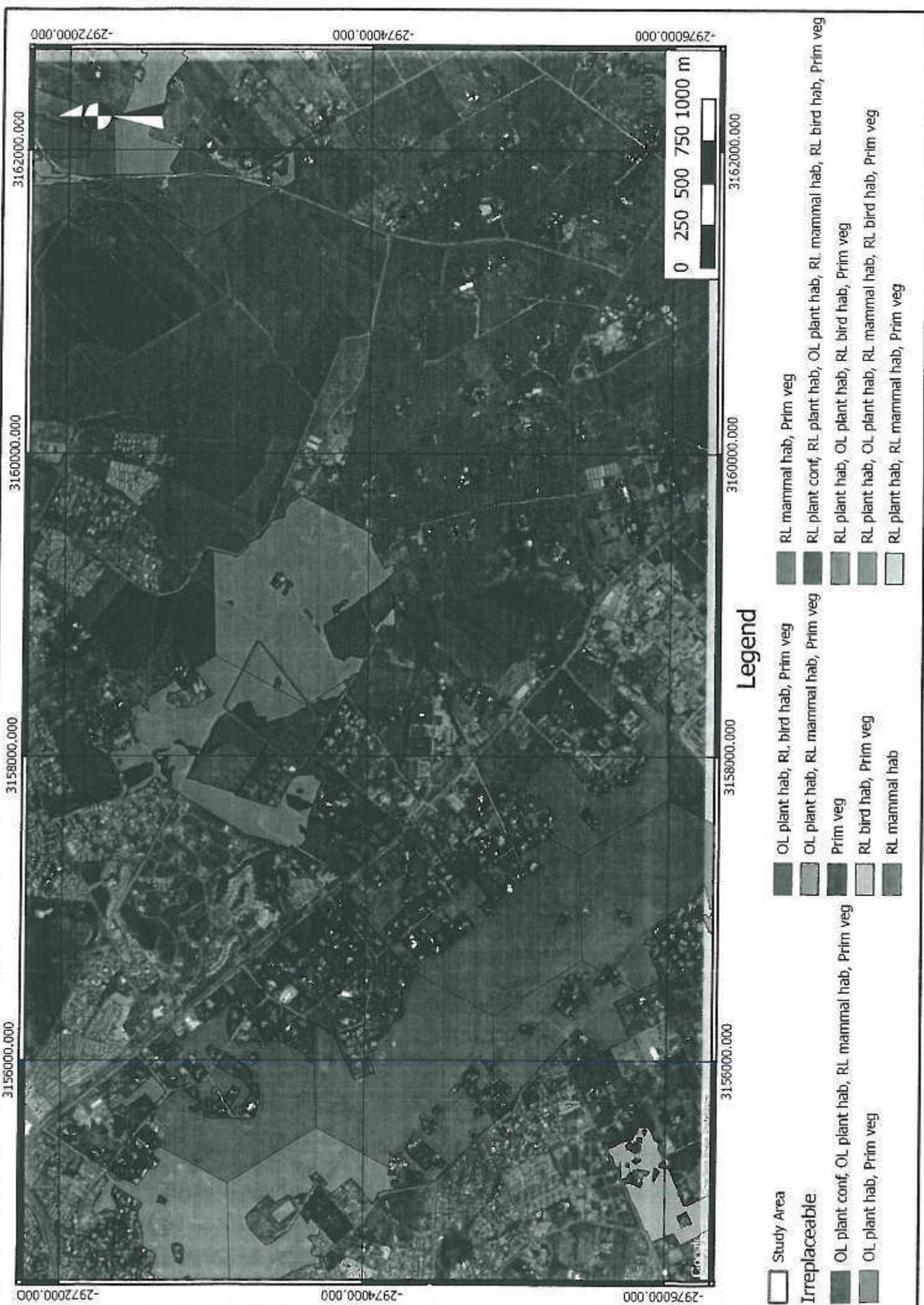
-2972000.000 -2974000.000 -2976000.000

0 250 500 750 1000 m

**Legend**

-  Study Area
- CPlan Area**
-  Ecological Support Area
-  Important Area
-  Irreplaceable Area

3156000.000 3158000.000 3160000.000 3162000.000



Study Area

Irreplaceable

OL plant conf, OL plant hab, RL mammal hab, Prim veg

OL plant hab, Prim veg

OL plant hab, RL bird hab, Prim veg

OL plant hab, RL mammal hab, Prim veg

Prim veg

RL bird hab, Prim veg

RL mammal hab

RL mammal hab, Prim veg

RL plant conf, RL plant hab, OL plant hab, RL mammal hab, RL bird hab, Prim veg

RL plant hab, OL plant hab, RL bird hab, Prim veg

RL plant hab, OL plant hab, RL mammal hab, RL bird hab, Prim veg

RL plant hab, RL mammal hab, Prim veg

### Legend

0 250 500 750 1000 m

3162000.000

3160000.000

3158000.000

3156000.000

3162000.000

3160000.000

3158000.000

3156000.000



-2972000.000

-2974000.000

-2976000.000

-2972000.000

-2974000.000

-2976000.000

**Annexure 10:** Land use zoning or zoning certificate of the property

## 1. DESCRIPTION AND PURPOSE OF THE APPLICATION

The purpose of the application is the **Establishment of a Township** in terms of Section 96 (1) of the Town-Planning and Township Ordinance, 1986 (Ordinance 15 of 1986) on the property described here under in order to develop a **Residential Township**, to be known as **Tijger Valley Extension 14**.

## 2. PARTICULARS PERTAINING TO THE PROPERTY

### 2.1 Property Description

The proposed township is situated on **Part of Portion 5 of the farm TYGERVALLEY No. 334, Registration Division J.R., district of Pretoria** (vide **Deed of Transfer No. T49417/1969**, attached to the application documents).

### 2.2 Location of the Property

It is situated approximately 2,7km east of the Tshwane Metropolitan Municipal /Kungwini Local Municipal boundary, 750m north of Lynnwood Road and is south-south-east from Silver Lakes. "The property" measures approximately 9,9525 Ha.

### 2.3 Existing Zoning and Land Use of the Application Site

"The property" is currently zoned as agriculture and is vacant.

### 2.4 Registered Owner and Applicant

According to Deed of Transfer No. 49417/1969, "the property" is registered in the name of Pasqua Tamma (born on 26<sup>th</sup> February 1935). "The property" has been sold to Runtogo (Pty) Ltd. which is also the applicant.

### 2.5 Topography

The gradient of "the property" on which the residential development will take place, decline in a north-eastern direction towards the "spruit" with a mean gradient of approximately 10% (1:10).

## 3. PROPOSED DEVELOPMENT AND CONTROL MEASURES

### 3.1 Proposed Zoning

As indicated on the Layout Plan No. 15/4/218/3/1, attached to the application documents, the proposed township consists of streets, open space and erven with the following zoning:

- 37 erven for residential purposes to be zoned "Residential 1", for the erection of one dwelling unit per erf with no limitation on

**Annexure 11: Project Schedule**

**N/A**

**Annexure 12:** Proof by way of copies of Environmental Authorisations obtained for the same property or submissions of such applications





# AGRICULTURE, CONSERVATION AND ENVIRONMENT

Office of the Head of Department

Diamond Corner Building, 88 Bloff & Market Street, Johannesburg  
P O Box 8769, Johannesburg, 2000

Telephone: (011) 355-1900

Fax: (011) 333-0667

Email: [tlshh@gpp.gov.za](mailto:tlshh@gpp.gov.za)

Website: <http://www.dacel.gpp.gov.za>

Reference: Gaut 002/03-04/185

Enquiries: Unine van den Berg

Telephone: (011) 355 1286

E-mail: [unine.vandenberg@gauteng.gov.za](mailto:unine.vandenberg@gauteng.gov.za)

Andre Wright  
Runtogo (Pty) Ltd  
P. O. Box 12516  
HATFIELD  
0028

Fax: (012) 346 8687

BY FACSIMILE/ REGISTERED MAIL

Dear Sir/Madam

## GRANTING OF CONDITIONAL AUTHORISATION FOR PROJECT REFERENCE GAUT 002/03-04/185: PROPOSED TOWNSHIP DEVELOPMENT ON PORTION 5 OF THE FARM TYGER VALLEY 334 JR: GRAYSTONE ESTATE

Please find attached the Record of Decision in respect of your application for authorisation in terms of Regulations R1182 and R1183 (as amended) promulgated under sections 21, 22, 26 and 28 of the Environment Conservation Act (Act 73 of 1989).

Yours faithfully

Dr. S. F. Cornelius  
Head of Department

Department of Agriculture, Conservation and Environment

Date: 15/05/2006

cc: Bokamoso Landscape Architects & Attn: Lizelle Gregory  
Environmental Consultants Fax: (012) 460 7079  
Kungwini Local Municipality Attn: Lynn Feneysey  
Fax: (012) 809 0871



AGRICULTURE, CONSERVATION AND ENVIRONMENT

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.gdace.gpg.gov.za>

RECORD OF DECISION FOR PROJECT REFERENCE GAUT 002/03-04/185

By virtue of the powers delegated by the Minister in terms of Section 22 of the Environment Conservation Act (Act 73 of 1989) ("the Act"), the Department of Agriculture, Conservation and Environment ("the Department") hereby authorises Runtogo (Pty) Ltd to undertake the activity specified/ detailed below subject to the indicated conditions.

1. DESCRIPTION, EXTENT AND LOCATION OF THE ACTIVITY:

The proposed activity is the change of land use to allow for township development which falls within the ambit of sub regulation 2(c) of Government Notice R1182 (as amended) promulgated under sections 21, 26 and 28 of the Act.

The township development is proposed to take place on Portion 5 of the farm Tyger Valley 334 JR to be known as Graystone Estate. The site falls within the jurisdiction of Kungwini Local Municipality of the Metsweding District Municipality.

2. KEY FACTORS INFORMING THE DECISION:

In reaching its decision in respect of the application, the Department has taken, *inter alia*, the following into consideration:

- a) The information contained in the:
  - Plan of Study for Scoping dated 7 July 2003.
  - Scoping Report dated June 2005.
  - The final layout plan drawn by Vlietsra Town and Regional Planning 15 February 2006.
  - Supporting document dated 20 March 2006.
- b) Information obtained from the Departmental information base including *inter alia*:
  - Geographical Information System (GIS).
  - Gauteng Open Space Programme (GOSP).
  - Kungwini Local Municipality's Integrated Development Plan.
  - Departmental Ridge Policy.
- c) Compliance with applicable departmental, provincial and national legislation, policies and guidelines including the principles set out in section 2 of the National Environmental Management Act 1998 (Act 107 of 1998).
- d) The findings of the site visit undertaken by Olivia Rakobela and Rosemary Maswakhoma on 18 October 2005.

In reviewing this information, the Department made the following findings:

- 1.1 The application entails the township development indicated as phase 1 on Portion 5 of the farm Tyger Valley 334 JR to be known as Graystone Estate.
- 1.2 The site is 21.41ha in extent and the proposed development will occupy 6.2706ha.

- 1.3 A river traverses the subject property.
- 1.4 The Gauteng Agricultural Potential Atlas – (GAPA 2002) indicates that part of the site has a moderate to low agricultural value.
- 1.5 The Gauteng Open Space Programme (GOSP) indicates that a part of the site is located on a class 2 ridge.
- 1.6 The proposed development falls outside of the urban edge, as demarcated in the Gauteng Spatial Development Framework (2002). The proposed development is nevertheless consistent with the surrounding development in the area and is accordingly not considered as constituting urban sprawl.

Based on the above, the Department's conclusion is that this activity will not lead to substantial detrimental impact on the environment, alternatively, that potential detrimental impacts resulting from this activity can be mitigated to acceptable levels and that the principles contained in section 2 of NEMA can be upheld.

The Department has accordingly decided, to grant Runtogo (Pty) Ltd authorisation in terms of Regulations R1182 and R1183 (as amended) promulgated under sections 21, 22, 26 and 28 of the Environment Conservation Act (Act 73 of 1989) subject to the conditions and provisions listed below.

### 3. CONDITIONS

#### 3.1. Description and extent of the activity

The authorisation applies in respect of the change of land use to allow for township development on Portion 5 of the farm Tyger Valley 334 JR to be known as Graystone Estate.

The above activity falls within the ambit of sub regulation 2(c) of Government Notice R1182 (as amended) promulgated under sections 21, 26 and 28 of the Act.

The proposed township development will occupy 6,2706ha of the 21,41ha site and will be developed at a minimum nett density of 17 units per hectare.

#### 3.2. Specific conditions

1. This authorisation is for Phase 1 development as described in 3.1 above.
2. No further development will be allowed on the property due to its ecological and biodiversity characteristics.
3. The development must adhere to the recommended buffer zone of 25 metres along the heritage site as indicated in the report. Any archaeological sites exposed during construction must not be disturbed during or after the construction period prior to authorisation from the South African Heritage Resources Agency (SAHRA). The removal, exhuming, destruction, altering or any other disturbance of heritage sites must be authorised by SAHRA in terms of the National Heritage Resources Act (Act No. 25 of 1999).
4. The development must adhere to all applicable Municipal by-laws.
5. To ensure that noise does not constitute a disturbance during construction it is instructed that construction activity may only take place between the hours of 8H00 and 17H00 weekdays, 8H00 and 13H00 Saturdays and no operation on Sundays and Public holidays.
6. The Department's Directorate of Conservation must be notified if any Red Data species found in the study area.
7. An Environmental Control Officer (ECO) must be appointed. The ECO, Developer and Contractor must be responsible for ensuring compliance with all the conditions of the Record of Decision, the provisions of the Environmental Management Plan (EMP) and other recommendations of the Environmental Impact Assessment (EIA) process. These people must also be familiar with the EMP.
8. A palisade fence must be erected to allow the movement of faunal species in the area not earmarked for the development during the construction phase.
9. A rehabilitation plan must be implemented during and after the construction activities so as to restore areas of natural vegetation. The disturbed areas must be covered with topsoil and re-vegetated with indigenous plant species, if all possible vegetated areas must be left undisturbed.

10. Provision for adequate facilities for the storage of oil, diesel etc. Such facilities must be designed in a way that would not pose threat to the environment. If any spillages occur, appropriate remediation must be followed.
11. To prevent release of hydrocarbon pollutants into the ground as well as storm water, no vehicle repairs must be undertaken on site during the construction phase.
12. If any groundwater or surface water pollution incident occurs, DWAF must be notified.
13. No development must be installed within the 1:50 and 1:100 year flood lines.
14. Water may not be extracted from a river for any activities related to the construction and operational phase of the development without the necessary permits from DWAF.
15. All recommendations made in the Report dated June 2005 and supporting documents with respect to the mitigation of potential environmental impacts must be strictly implemented. These recommendations are seen as an extension of this ROD and non-compliance therewith will constitute non-compliance with the conditions of this ROD.

### 3.3. General conditions

- a) Any changes to, or deviations from, the project description set out in this letter must be approved, in writing, by the Department before such changes or deviations may be effected. In assessing whether to grant such approval or not, the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations.
- b) This Department may review the conditions contained in this letter from time to time and may, by notice in writing to the applicant, amend, add or remove a condition.
- c) The applicant must notify the Department, in writing, at least 10 (ten) days prior to the change of ownership, project developer or the alienation of any similar rights for the activity described in this letter. The applicant must furnish a copy of this document to the new owner, developer or person to whom the rights accrue and inform the new owner, developer or person to whom the rights accrue that the conditions contained herein are binding on them.
- d) Where any of the applicant's contact details change, including the name of the responsible person, the physical or postal address and/ or telephonic details, the applicant must notify the Department as soon as the new details become known to the applicant.
- e) Authorisation for the activity is granted in terms of the Environment Conservation Act, 1989 (Act 73 of 1989) only and does not exempt the holder from compliance with other relevant legislation.
- f) The applicant shall be responsible for ensuring compliance with the conditions contained in this letter by any person acting on his behalf, including but not limited to, an agent, servant, or employee or any person rendering a service to the applicant in respect the activity, including but not limited to, contractors and consultants.
- g) Departmental officials shall be given access to the property referred to in 1 above for the purpose of assessing and/ or monitoring compliance with the conditions contained in this document at all reasonable times.
- h) The applicant must notify the Department within 24 (twenty four) hours if any condition of this authorisation cannot, or is not, adhered to. The notification must be supplemented with reasons for non-compliance.

### 3.4. Duration of authorisation

If the activity authorised by this letter does not commence within 2 (two) years from the date of signature of this letter, the authorisation will lapse and the applicant will need to reapply for exemption or authorisation in terms of the above legislation or any amendments thereto.

#### 4. CONSEQUENCES OF NON-COMPLIANCE

The applicant must comply with the conditions set out in this letter. Failure to comply with any of the above conditions may result in, *inter alia*, the Department withdrawing the authorisation, issuing directives to address the non-compliance – including an order to cease the activity – as well as instituting criminal and/or civil proceedings to enforce compliance.

#### 5. APPEALS:

Appeals in respect of this decision must be directed to the MEC, Mr Khabisi Mosunkutu, Agriculture, Conservation and Environment, Gauteng Provincial Government within 30 (Thirty) days of the date of this decision. Appeals can be submitted utilizing one of the following methods:

By facsimile: (011) 333 0620;  
 By post: P.O. Box 8769, Johannesburg 2000;  
 By hand: 11th Floor, Diamond Corner Building, 68 Eloff Street, Johannesburg.

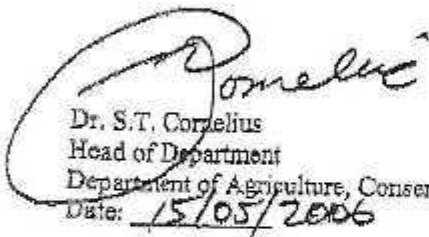
Please note that all appeals must comply with Section 35 of the Environment Conservation Act, Act No 73 of 1989, read together with Regulations R1182 and R1183 of 5 September 1997. In terms of the above section and regulations, your appeal must set out all the facts as well as the grounds of appeal. Furthermore, all the relevant documents or copies thereof must accompany the appeal and a commissioner of oaths must certify them as true.

The applicant is required to inform all registered interested and affected parties of the decision contained in this Record of Decisions as well as the process for appeal described above within 7 (Seven) calendar days of the date of signature of this Record of Decision. Failure to inform interested and affected parties within the stipulated time period will constitute non-compliance with this Record of Decision.

Should the applicant wish to appeal any aspect of this decision, the applicant must notify all registered interested and affected parties of the intended appeal, and furnish them with copies of the appeal on request. Proof of such notification must be submitted to the MEC with the appeal. Failure to comply with this provision may result in the MEC refusing to consider the appeal.

Please note that any development that commences prior to the expiry of the time period allowed for the submission of appeals, or before the MEC has reached a decision on an appeal submitted, is done so solely at the applicant's risk.

Yours faithfully

  
 Dr. S.T. Cornelius  
 Head of Department  
 Department of Agriculture, Conservation and Environment  
 Date: 15/05/2006

CC: Bokamoso Landscape Architects & Environmental Consultants  
 Kungwini Local Municipality  
 Attn: Lizelle Gregory  
 Fax: (012) 460 7079  
 Attn: Lynn Feneysey  
 Fax: (012) 809 0871



## AGRICULTURE, CONSERVATION AND ENVIRONMENT

Office of the Head of Department

Diamond Corner Building, 58 Eloff & Market Street, Johannesburg  
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Email: [steven.cornellus@gauteng.gov.za](mailto:steven.cornellus@gauteng.gov.za)

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

Reference: Gaut 002/03-04/185

Enquiries: Tinyko Malungani

Telephone: 011 355 1675

E-mail: [Tinyko.malungani@gauteng.gov.za](mailto:Tinyko.malungani@gauteng.gov.za)

Andre Wright  
Runtogo (Pty) Ltd  
P. O. Box 12516  
HATFIELD  
0028

Fax: (012) 346 8687

### BY FACSIMILE / REGISTERED MAIL

Dear Sir/Madam

#### AMENDMENT OF THE RECORD OF DECISION ISSUED ON 15 MAY 2006 GRANTING AUTHORISATION FOR PROJECT REFERENCE GAUT002/03-04/185: PROPOSED RESIDENTIAL DEVELOPMENT ON PORTION 5 OF THE FARM TYGER VALLEY 334 JR: GRAYSTONE ESTATE

The above-mentioned project and the letter from Bokamoso Landscape Architects and Environmental Consultants, dated 16 December 2006 refer.

In terms of section 28 A (5) of the Environment Conservation Act, 1989 (Act 73 of 1989) ("the Act") the competent authority is entitled, as the case may be, may from time to time review any authorisation issued or condition determined and if it deems it necessary, withdraw such authorisation or delete or amend such condition.

In light of the above, condition 3.2 (2) of the Record of Decision (RoD) issued on 15 May 2006, which read "no further development will be allowed on the property due to its ecological and biodiversity characteristics" is hereby amended to read as follows:

- Only limited development on the less sensitive part of the site would be considered taking into account the applicable departmental policies and guidelines including the Ridges guidelines and the Red List Plant and Animal Species guidelines.

Relative to the layout plan submitted for the proposed Phase 2 development, please note that:

- Development will only be considered within the disturbed area and to the south of the road. No development will be allowed north of the road, i.e. stands 2 – 13 as indicated in your accompanying layout plan. A revised layout plan taking into account the restrictions on the development area must be submitted to the Department for approval.

Should you have queries pertaining to this letter, please contact the responsible official at the number mentioned above.

Yours faithfully



Dr S. T. Cornelius  
Head of Department  
Department of Agriculture, Conservation and Environment

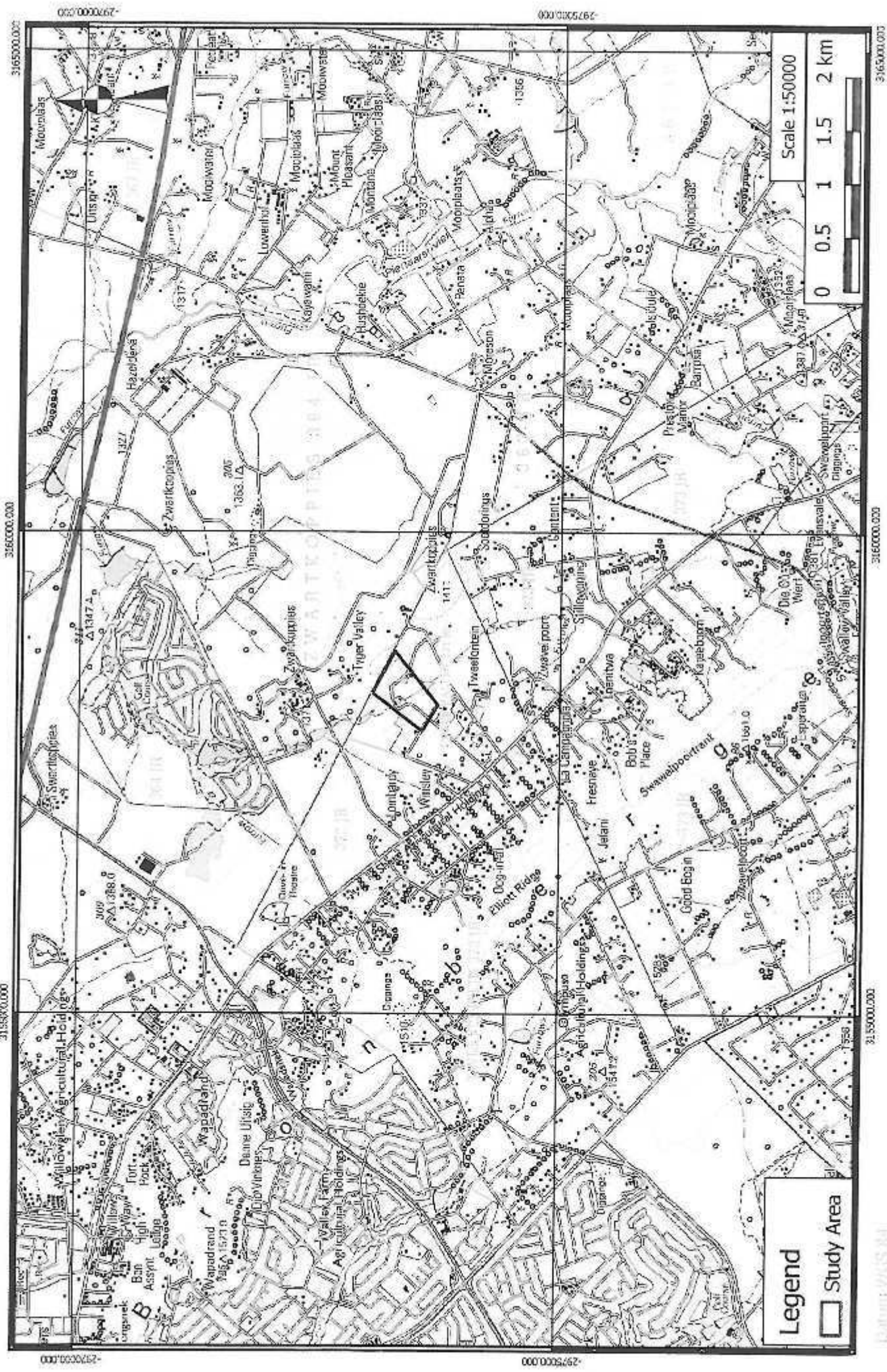
Date: 03/04/2007

CC: Bokamoso Landscape Architects &  
Environmental Consultants  
  
Kungwini Local Municipality

Attn: Lizele Gregory  
Tel: (012) 346 3810  
Fax: (012) 460 7079  
Attn: Lynn Schindler  
Tel: (012) 809 0563  
Fax: (012) 809 0871

**Annexure 13: Locality Map**





**Legend**

□ Study Area

Scale 1:50000

0 0.5 1 1.5 2 km

Cartoon: WGS 84

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**Acknowledgement Letter  
From GDARD**



## **agriculture and rural development**

Department: Agriculture and Rural Development  
**GAUTENG PROVINCE**

11 Diagonal Street, Diamond Building, Newtown, Johannesburg  
P O Box 8769, Johannesburg, 2000

Telephone: (011) 240-2500

Fax: (011) 240-2700

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

Reference:	Gaut: 002/14-15/0091
Enquiries:	Faith Mlambo
Telephone:	(011) 240-3053
Email:	<a href="mailto:Faith.mlambo@gauteng.gov.za">Faith.mlambo@gauteng.gov.za</a>

### **Bokamoso Landscape Architects & Environmental Consultants**

Email/Fax. [lizelleg@mweb.co.za](mailto:lizelleg@mweb.co.za)

Dear Sir / Madam

### **Application for Environmental Authorisation: Tijger Valley Extension 14 & 34**

The Department acknowledges having received the application form for environmental authorisation of the above-mentioned project on 22/07/2014, but final amendments were made on 20/08/2014.

The application has been assigned the reference number Gaut: 002/14-15/0091. 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.

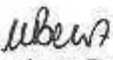
In order to determine whether a biodiversity assessment is required and, if so, which specialist studies are required, please send a shapefile (WGS84 datum; geographic co-ordinate system) of the application site to our biodiversity information service ([GDACE\\_BiodiversityInfo@gauteng.gov.za](mailto:GDACE_BiodiversityInfo@gauteng.gov.za)), 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](mailto: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

  
Boniswa Belot  
Deputy Director: Strategic Administration Support  
Date: 21/08/2014

CC: André Wright

Att: A Wright  
Email/Fax: [andrew@boogertmanpta.co.za](mailto:andrew@boogertmanpta.co.za)

## Bianca

---

**From:** Bianca <user11@bokamoso.net>  
**Sent:** 13 February 2015 08:18 AM  
**To:** Faith.Mlambo@gauteng.gov.za  
**Subject:** TUGER VALLEY X 14 & 34  
**Attachments:** Tijger valley extention.pdf

**RE: PROPOSED RESIDENTIAL TOWNSHIP DEVELOPMENT ON PART OF PORTION 5 OF THE FARM TYGERVALLEY 334  
JR: GAUT: 002/14-15/0091**

Good day Faith,

Attached please find a formal letter of request for an extension of time of three months before we submit the DRAFT BAR REPORT, of the above mentioned Project to your Department. Please confirm receipt of this attached document as well as this e-mail. The formal letter of request will be hand delivered to your Office on the 16<sup>th</sup> February 2015 by the Company ARAMEX.

**Kind Regards**

*Bianca Reyneke*

*Junior Environmental Assessment Practitioner*

---



**Landscape Architects &  
Environmental Consultants**

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

LEBOMBO GARDENS BUILDING  
36 LEBOMBO ROAD  
ASHLEA GARDENS  
0081

P.O. BOX 11375  
MAROELANA  
0161

Tel: (012) 346 3810  
Fax: 086 570 5059  
E-mail: lizelleg@mweb.co.za  
Website: www.Bokamoso.biz



Landscape Architects, Environmental Consultants,  
Environmental Auditing, Water License Applications

**GAUTENG DEPARTMENT OF  
AGRICULTURE AND RURAL DEVELOPMENT  
DIAMOND CORNER BUILDING  
11 DIAGONAL STREET  
JOHANNESBURG  
2000**

**ATTENTION: FAITH MLAMBO**

**13 February 2015**

**RE: PROPOSED RESIDENTIAL TOWNSHIP DEVELOPMENT ON PART OF PORTION  
5 OF THE FARM TYGERVALLEY 334 JR.**  
**GAUT: 002/14-15/0091**

We kindly request an extension of **3 months' time** to complete and submit this above mentioned project's draft BAR. We are waiting on information and will finalize the report as soon as the information is available.

Kindly review our request for an extension of time and it would be much appreciated if you can confirm whether this extension of time had been granted, by formal letter of confirmation.

*Please do not hesitate to contact us should you need any additional information.*

Kind regards

*P.P. Heyneke*  
Anè Agenbacht

## Bianca

---

**From:** Bianca <user11@bokamoso.net>  
**Sent:** 13 February 2015 08:18 AM  
**To:** Faith.Mlambo@gauteng.gov.za  
**Subject:** TIJGER VALLEY X 14 & 34  
**Attachments:** Tijger valley extention.pdf

**RE: PROPOSED RESIDENTIAL TOWNSHIP DEVELOPMENT ON PART OF PORTION 5 OF THE FARM TYGERVALLEY 334  
JR: GAUT: 002/14-15/0091**

Good day Faith,

Attached please find a formal letter of request for an extension of time of three months before we submit the DRAFT BAR REPORT, of the above mentioned Project to your Department. Please confirm receipt of this attached document as well as this e-mail. The formal letter of request will be hand delivered to your Office on the 16<sup>th</sup> February 2015 by the Company ARAMEX.

**Kind Regards**

*Bianca Reyneke*

*Junior Environmental Assessment Practitioner*

---



**Landscape Architects &  
Environmental Consultants**

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

## Bianca

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**From:** Bianca <user11@bokamoso.net>  
**Sent:** 13 March 2015 12:34 PM  
**To:** Faith.Mlambo@gauteng.gov.za  
**Cc:** user2@bokamoso.net  
**Subject:** FW: TIJGER VALLEY X 14 & 34  
**Attachments:** Tijger valley extention.pdf; doc00484620150313122740.pdf

**RE: PROPOSED RESIDENTIAL TOWNSHIP DEVELOPMENT ON PART OF PORTION 5 OF THE FARM TYGERVALLEY 334  
JR: GAUT: 002/14-15/0091**

Good day Faith

I trust that you are well.

As per our telephonic conversation today (13/03/2015) I would like to confirm that I arranged with you to submit the Draft BAR for the above mentioned project on Monday the **16th of March**. Please confirm the receipt of the email.

Kindly find attached a formal letter of request for an extension of time of three months that was sent to your Department on the 13<sup>th</sup> of February 2015. Also please find attached the signed acknowledgment of receipt letter.

Hope this finds you well.

*Please do not hesitate to contact us should you have any questions in this regard*

**Kind Regards**

*Bianca Reyneke*

*Junior Environmental Assessment Practitioner*

---



**Landscape Architects &  
Environmental Consultants**

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**Subject:** TIJGER VALLEY X 14 & 34



RE: PROPOSED RESIDENTIAL TOWNSHIP DEVELOPMENT ON PART OF PORTION 5 OF THE FARM TYGERVALLEY 334  
JR: GAUT: 002/14-15/0091

Good day Faith,

Attached please find a formal letter of request for an extension of time of three months before we submit the DRAFT BAR REPORT, of the above mentioned Project to your Department. Please confirm receipt of this attached document as well as this e-mail. The formal letter of request will be hand delivered to your Office on the 16<sup>th</sup> February 2015 by the Company ARAMEX.

**Kind Regards**

*Bianca Reyneke*

*Junior Environmental Assessment Practitioner*

---



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Tel: (012) 346 3810  
Fax: 086 570 5659  
E-mail: lizelleg@mweb.co.za  
Website: www.Bokamoso.net



Landscape Architects, Environmental Consultants,  
Environmental Auditing, Water License Applications

## Acknowledgement of Receipt

GAUTNEG DEPARTMENT OF  
AGRICULTURE AND RURAL DEVELOPMENT  
11 DIAGONAL STREET  
JOHANNESBURG  
2000  
Tel: 011 240 3396

ATTENTION: FAITH MLAMBO

13 February 2015

RE: PROPOSED RESIDENTIAL TOWNSHIP DEVELOPMENT ON PART OF PORTION  
5 OF THE FARM TYGERVALLEY 334 JR.  
GAUT: 002/14-15/0091

Please find the **request for extension of time** for the Draft Basic Assessment Report for the proposed **Tyger Valley Residential Development**.

### By Hand

Name and Surname : J Cham  
(Receiver)

Date: 19/02/15

Where: JLB

Signature: [Signature]

Sender: Anè Agenbacht



REG NO: CK 2010/087490/23  
VAT REG NO: 4080260872

BOKAMOSO LANDSCAPE ARCHITECTS AND ENVIRONMENTAL CONSULTANTS CC

MEMBER: Lizelle Gregory

# **Basic Assessment**



## 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  
18<sup>th</sup> 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)

<b>File Reference Number:</b>						
<b>Application Number:</b>						
<b>Date Received:</b>						

(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.

[Empty text box for reasons]

SECTION A: ACTIVITY INFORMATION

1. ACTIVITY DESCRIPTION

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

**Tijger Valley Extension 14 & 34**

Select the appropriate box

The application is for an upgrade of an existing development

The application is for a new development

Other, specify

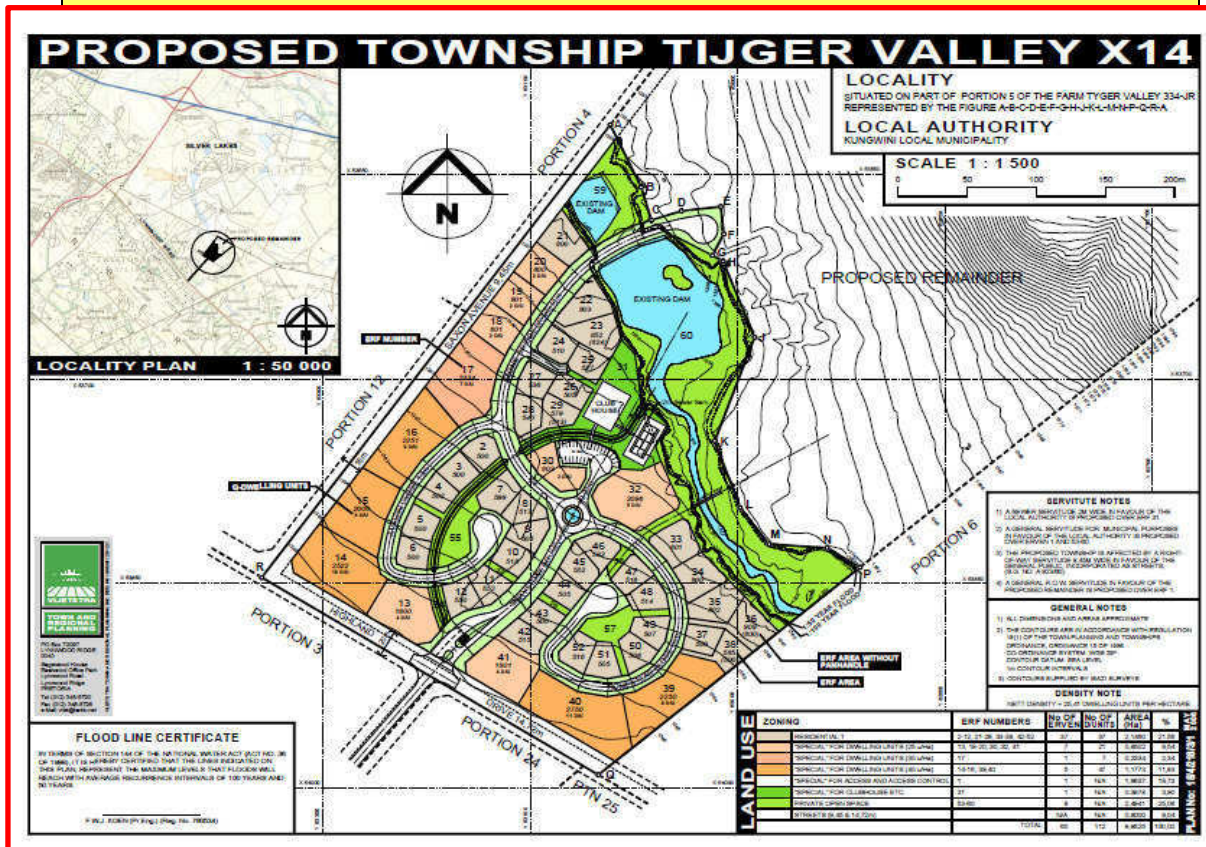
Describe the activity and associated infrastructure, which is being applied for, in detail

The proposed development is for the establishment of a residential township. This proposed township will have the following zonings:

- 37 erven zoned as **Residential 1** - For the erection of one dwelling unit per erf with no limitation on coverage and FSR (floor space ratio);
- 13 erven zoned as **Special** - For dwelling units at different densities:
  - Erven 13, 18-20, 30, 32 and 41 - maximum density of 25 dwelling units per hectare;
  - Erf 17 – maximum density of 30 dwelling units per hectare;
  - Erven 14-16, 39 and 40 – maximum density of 40 dwelling units per hectare.
- 1 erf zoned as **Special** - For access and access control;

- 1 erf zoned as **Special** – For clubhouse, open space, sport and recreational facilities and for such other uses as the Local Authority may permit. The clubhouse is intended to be built on erf 31 for use by the proposed township's inhabitants, which will consist of sport facilities such as tennis courts.
- 8 erven zoned as **Private Open Space** – This will be for an area of 2.4941 hectare;
- **Streets.**

It is important to note that an EIA Authorisation was already issued for the proposed residential development (with the same layout) on 15 May 2006. Appendix Ci represents the layout as approved in the original Decision issued by GDARD and Appendix Cii represents an amended layout as approved by GDARD after an Amendment Application was submitted. The amended layout as approved allows for some development to the north of the watercourse and within the ridge buffer. This application is for the re-approval of the Layout in Appendix Cii. Refer to Appendix Kiii for the RoD Issued for the application referred to and Refer to Appendix Kiv for the Amendment Granted by GDARD.



Appendix Ci: Layout as approved in the original RoD issued by GDARD



**Appendix Cii: Layout as approved in the Amendment that was granted by GDARD (take note GDARD approved some additional development to the north of the watercourse) – IT IS REQUESTED THAT GDARD RE-APPROVE THIS LAYOUT WHICH IS REGARDED AS THE PREFERRED LAYOUT**

Due to the economic crisis, which commenced in 2006, the construction of the proposed development did not go-ahead and the authorisation eventually lapsed. The applicant is however of the opinion that the market changed and that there is a need in the area for residential developments and it was therefore decided to re-apply for the proposed residential development and to keep the layout originally approved, because such layout is the product of multi-disciplinary workshops and negotiations with GDARD.

The new EIA application was submitted in 2014, before the amended 2014 NEMA EIA Regulations came into effect and therefore the 2010 EIA Regulations will still be applicable for this application. The GDARD reference number for the newly submitted application is **Gaut: 002/14-15/0091**.

Please take note that another developer is applying for a local link road (on behalf of the City of Tshwane Metropolitan Municipality (CTMM)) across the study area and one of the alignment alternatives for the proposed road includes an alignment across the sensitive ridge area on the property. The GDARD reference number for the road, which cuts across the property of the applicant is **Gaut 002/14 – 15/0020**.

The most preferred alternative for the proposed link road is however an alignment which avoids the ridge area and which stretches to the east of the ridge, across the eastern lower lying section of the study area. This road alignment has however not been approved by GDARD yet. The Final EIA Report has recently been submitted and the applicant is awaiting the GDARD decision. If GDARD approve the alignment across the eastern portion of the study area, the applicant for this development will submit an EIA amendment application. **Refer to Appendix Kii for Preferred Alignment for the Proposed Hazeldean Road**

It is therefore requested that GDARD approve the development layout as proposed in this application.

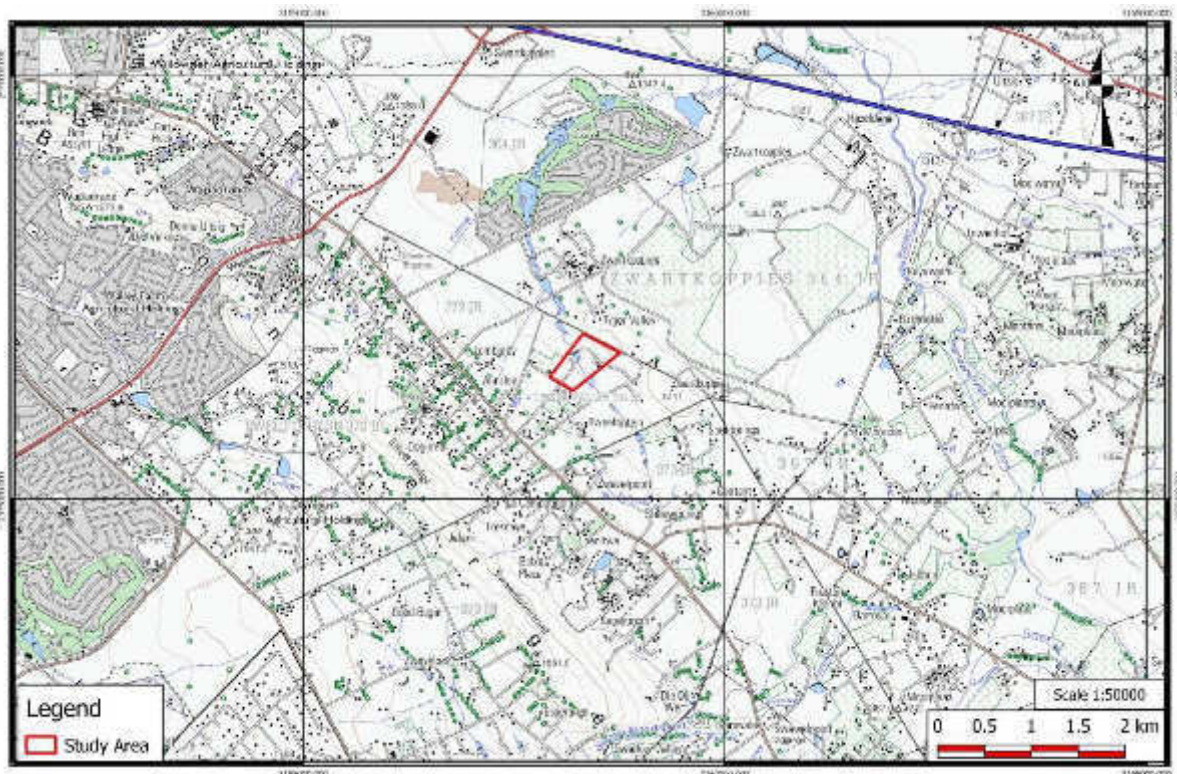


Figure 1: Locality Map



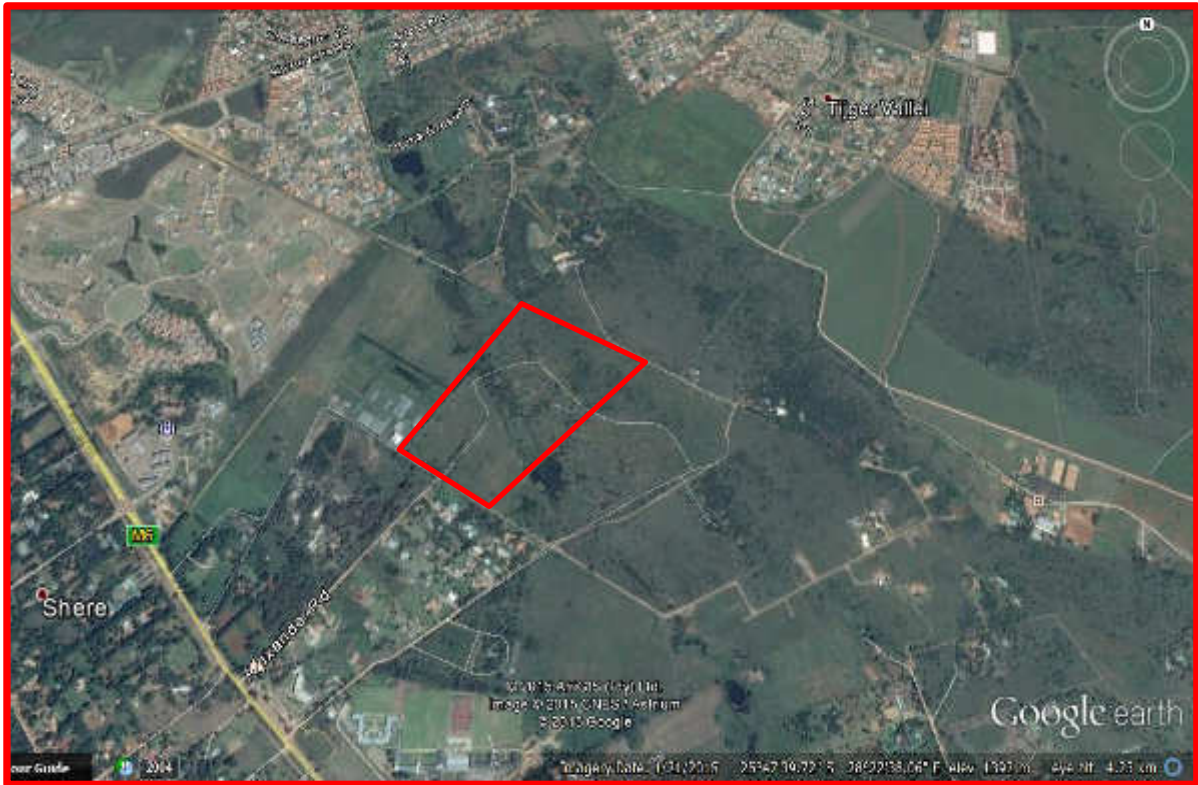


Figure 2: Aerial Map

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:
Listing Notice 1, R544, 18 June 2010	Activity 9	<p>The construction of facilities or infrastructure exceeding 1000metres in length for the bulk transportation of water, sewage or storm water:</p> <ul style="list-style-type: none"> <li>(i) With an internal diameter of 0.36metres or more; or</li> <li>(ii) with a peak throughput of 120m litres per second or more,</li> </ul> <p>excluding where:</p> <ul style="list-style-type: none"> <li>a) such facilities or infrastructure are for bulk transportation of water, sewage or storm water drainage inside a road reserve; or</li> <li>b) where such construction will occur within urban areas but further than 32 metres of a watercourse, measured from the edge of a watercourse.</li> </ul>

**BASIC ASSESSMENT REPORT [REGULATION 22(1)]**

<p>R544, of 18 June 2010</p>	<p>Listing No. 1, Activity 10</p>	<p>The construction of facilities or infrastructure for the transmission and distribution of electricity-</p> <ul style="list-style-type: none"> <li>(i) outside urban area or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or</li> <li>(ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more.</li> </ul>
<p>Listing Notice 1, R544, 18 June 2010</p>	<p>Activity 11</p>	<p>The construction of:</p> <ul style="list-style-type: none"> <li>(i) Canals;</li> <li>(ii) Channels;</li> <li>(iii) Bridges;</li> <li>(iv) Dams</li> <li>(v) Weirs;</li> <li>(vi) Bulk storm water outlet structures;</li> <li>(vii) Marinas;</li> <li>(viii) Jetties exceeding 50 square metres in size;</li> <li>(ix) Slipways exceeding 50 square metres in size;</li> <li>(x) Buildings exceeding 50 square metres in size; or</li> <li>(xi) Infrastructure or structures covering 50 square metres or more</li> </ul> <p>Where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p>
<p>Listing Notice 1, R544, 18 June 2010</p>	<p>Activity 18</p>	<p>The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from:</p> <ul style="list-style-type: none"> <li>(i) A watercourse;</li> <li>(ii) The sea</li> <li>(iii) The seashore;</li> <li>(iv) The littoral active zone, an estuary or a distance of 100 metres inland of the highwater mark of the sea or an estuary, whichever distance is the greater-</li> </ul> <p>But excluding where such infilling, depositing, dredging, excavation, removal</p>

**BASIC ASSESSMENT REPORT [REGULATION 22(1)]**

		<p>or moving:</p> <p>(a) Is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or</p> <p>(b) Occurs behind the development setback line</p>	
R. 544, of 18 June 2010	Listing No. 1, Activity 22	<p>The construction of a road, outside urban areas,</p> <p>(i) With a reserve wider than 13.5 meters, or</p> <p>(ii) Where no reserve exists where the road is wider than 8 meters, or</p> <p>(iii) For which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Notice 545 of 2010</p>	
R. 544, of 18 June 2010	Listing No. 1, Activity 23	<p>The transformation of undeveloped, vacant or derelict land to-</p> <p>(i) Residential, retail, commercial, recreational, Industrial or institutional use, inside an urban area, and where the total area to be transformed to 5 hectares or more, but less than 20 hectare; or</p> <p>(ii) Residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares-</p> <p>Except where such transformational takes place –</p> <p>(i) for linear activities; or</p> <p>(ii) for purposes of agriculture or afforestation, in which case Activity 16 of Notice No. R. 545 applies.</p>	
R. 544, of 18 June 2010	Listing Notice 1, Activity 26	<p>Any process or activity identified in term of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No.10 of 2004).</p>	
R. 546, of 18 June 2010	Listing Notice 3, Activity 4	<p>The construction of a road wider than 4 metres with a reserve less than 13, 5 metres.</p>	<p>(b) In Gauteng: v. Sites identified as irreplaceable or important in the Gauteng</p>

**BASIC ASSESSMENT REPORT [REGULATION 22(1)]**

			Conservation plan
R. 546, of 18 June 2010	Listing Notice 3, Activity 12	The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation.	(b) Within critical biodiversity areas identified in bioregional plans;
R. 546. of 18 June 2010	Listing Notice 3, Activity 13	<p>The clearance of an area of 1 hectare of more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for:</p> <ol style="list-style-type: none"> <li>1. The undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste act, 2008 (Act No. 59 of 2008), in which case the activity is regarded to be excluded from this list.</li> <li>2. The undertaking of a linear activity failing below the thresholds mentioned in Listing Notice 1 in terms of GN No.544 of 2010.</li> </ol>	<p>d. In Gauteng:</p> <ol style="list-style-type: none"> <li>(i) A protected area identified in terms of NEMPAA, excluding conservancies;</li> <li>(ii) National Protected Area Expansion Strategy Focus areas;</li> <li>(iii) Any declared protected area including Municipal or Provincial Nature Reserves as contemplated area including Municipal or Provincial Nature Reserves as contemplated by the Environment Conservation Act 1989 (Act No. 73 of 1989), the Nature conservation Ordinance (Ordinance 12 of 1983);</li> <li>(v) Sensitive area as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</li> <li>(iv) sites or areas identified in terms of an International</li> </ol>

			Convention; <b>(v) Sites identified as irreplaceable or important in the Gauteng Conservation Plan.</b>
Listing Notice 3, R546, 18 June 2010	Activity 16	<p>The construction of:</p> <ul style="list-style-type: none"> <li>i. Jetties exceeding 10 square meters in size;</li> <li>ii. Slipways exceeding 10 square meters in size;</li> <li>iii. Building with a footprint exceeding 10 square meters in size; or</li> <li>iv. Infrastructure covering 10 square meters or more</li> </ul> <p>Where such construction occurs within a watercourse or within 32 meters of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p>	<p>In Gauteng:</p> <ul style="list-style-type: none"> <li>i. A protected area identified in terms of NEMPAA, excluding conservancies;</li> <li>ii. National Protected Area Expansion Strategy Focus areas;</li> <li>iii. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</li> <li>iv. Sites or areas identified in terms of an International Convention;</li> <li>v. <b>Sites identified as irreplaceable or important in the Gauteng Conservation Plan;</b></li> <li>vi. Any declared protected area including Municipal or Provincial nature Reserves as contemplated by the Environment Conservation</li> </ul>

			Act, 1989 (Act No. 73 of 1989) and the Nature Conservation Ordinance (Ordinance 12 of 1983); vii. Areas zoned for a conservation purpose.
--	--	--	--

**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:
<b>National Environmental Management Act No. 107 of 1998 (as amended)</b>	<b>National &amp; Provincial</b>	<b>27 November 1998</b>

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.

This application was made in terms of the 2010 Amended NEMA EIA Regulations. The 2010 EIA Regulations include three listing notices that identify activities that could be detrimental to the environment and which require that either a Basic Assessment (BA) Process or a Full EIA Process be followed.

Notice **No. R 544, R 545 and R 546** of the 2010 EIA Regulations list the activities that indicate the type of EIA 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 (a full EIA Process) be followed. Notice No. 546 has been introduced to make provision for Activities in certain geographical and sensitive areas. Activities listed in Listing Notice (R. 546) also requires that a Basic Assessment (BA) Process be followed.

**Take Note:** *The Amended 2010 NEMA EIA Regulations have been replaced by the 2014 Amended EIA Regulations on 4 December 2014. Due to the fact that the application for this development has been made in terms of the 2010 EIA Regulations, the 2014 EIA Regulations require that this pending application be*

*dealt with in terms of the 2010 EIA Regulations.*

*Regulation 54 (3) and (4) of the 2014 Amended EIA Regulations state the following:*

(Act No. 59 of 2008), and where a decision on an application submitted under the previous NEMA regulations is still pending, the competent authority will consider such application to be withdrawn.

(3) Where an application submitted in terms of the previous NEMA regulations, is pending in relation to an activity of which a component of the same activity was not identified under the previous NEMA notices, but is now identified in terms of section 24(2) of the Act, the competent authority must dispense of such application in terms of the previous NEMA regulations and may authorise the activity identified in terms of section 24(2) as if it was applied for, on condition that all impacts of the newly identified activity and requirements of these Regulations have also been considered and adequately assessed.

(4) An appeal lodged in terms of the previous NEMA regulations, and which is pending when these Regulations take effect must despite the repeal of those previous NEMA regulations be dispensed with in terms thereof as if those previous NEMA regulations were not repealed.

**Implications for the development:**

Significant – The application for the proposed residential township consist of activities listed under Notice R. 544 (Listing No. 1) and R. 546 (Listing No. 3) according to the 2010 NEMA EIA Regulations and therefore a Basic Assessment Report will be submitted to GDARD for consideration.

Similar activities that were not triggered in terms of the 2010 Regulations and that have been considered in this BAR are the following:

**Activity 27, Listing Notice 1 of the 2014 Amended NEMA EIA Regulations:**

27.	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.
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- *The impacts associated with the clearance of indigenous vegetation have been considered and addressed.*

*Based on the above, it is requested that GDARD also approve this activity.*

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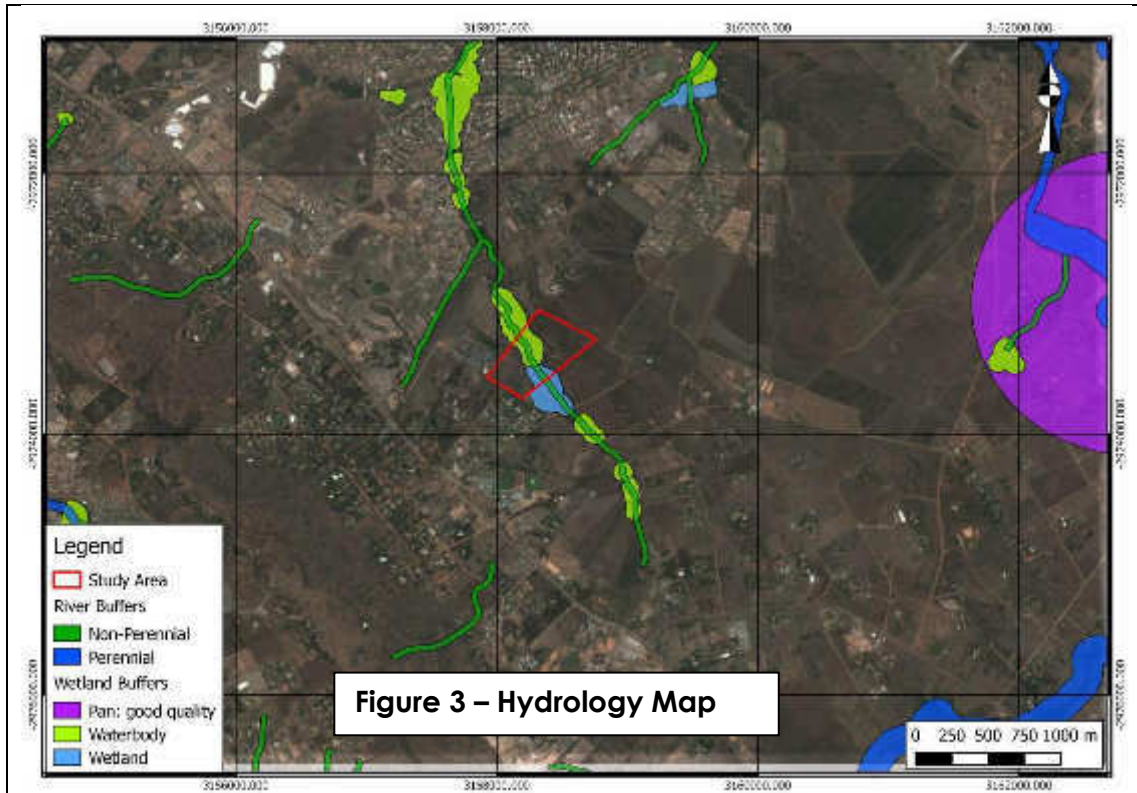
The purpose of this Act is to ensure that the Nation's water resources are protected, used, developed, conserved, managed and controlled in ways that take into account, amongst other factors, the following:

- 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.





**Figure 3 – Hydrology Map**

The National Water Act also requires that (where applicable) the 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 study area for the proposed residential development incorporates floodlines and wetland areas and therefore it will be necessary to apply for Section 21 (c) and (i) water-use licenses.

It is furthermore important to note that Section 144 of the National Water Act requires that the 1:100 year flood line be indicated on all development layout plans. The areas below the 1:100 year flood line/ outside the wetland buffer area (whichever line is the furthest) will be zoned private open space. There will however be some storm water discharge and road and services crossings across the drainage line, but Section 21 Water-Use license applications will be submitted for such activities within the wetland and flood line areas. The storm water management will furthermore be in line with the storm water standards and specifications of the local authority. **(Refer to Figure 3 – Hydrology Map)**

<b>National Environmental Management: Air Quality Act (Act 39 of 2004)</b>	<b>National &amp; Provincial</b>	<b>2004</b>
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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.

On 22 November 2013 the list of activities which result in atmospheric emissions that have or may have a detrimental effect on the environment, was amended.

**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 township's contribution to air pollution and the generation of air pollution can become less significant. None of the listed

activities, according to this Act, have been triggered.

<b>National Heritage Resources Act (Act No. 25 of 1999)</b>	<b>National &amp; Provincial</b>	<b>1999</b>
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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:**

According to the available information, there are no cultural and historical features on the study area. SAHRA was notified of the proposed development (during the former application process and during this new EIA application process) and no mention was made by SAHRA of any such features. This report was also made available to SAHRA for comment.

If any such features are discovered during construction activities and clearing of the application site, the correct "procedures for an Environmental incident" **(at the end of EMP, Appendix H)** must be followed.

<b>National Environmental Management Protected Areas Act (Act No. 57 of 2003)</b>	<b>National</b>	<b>2003</b>
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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.

**Implications for the development:**

The study area is not situated within any protected areas.



**Figure 4 – Protected areas**

<b>National Environmental Management: Biodiversity Act, (Act 10 of 2004)</b>	<b>National</b>	<b>2004</b>
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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 National 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;**

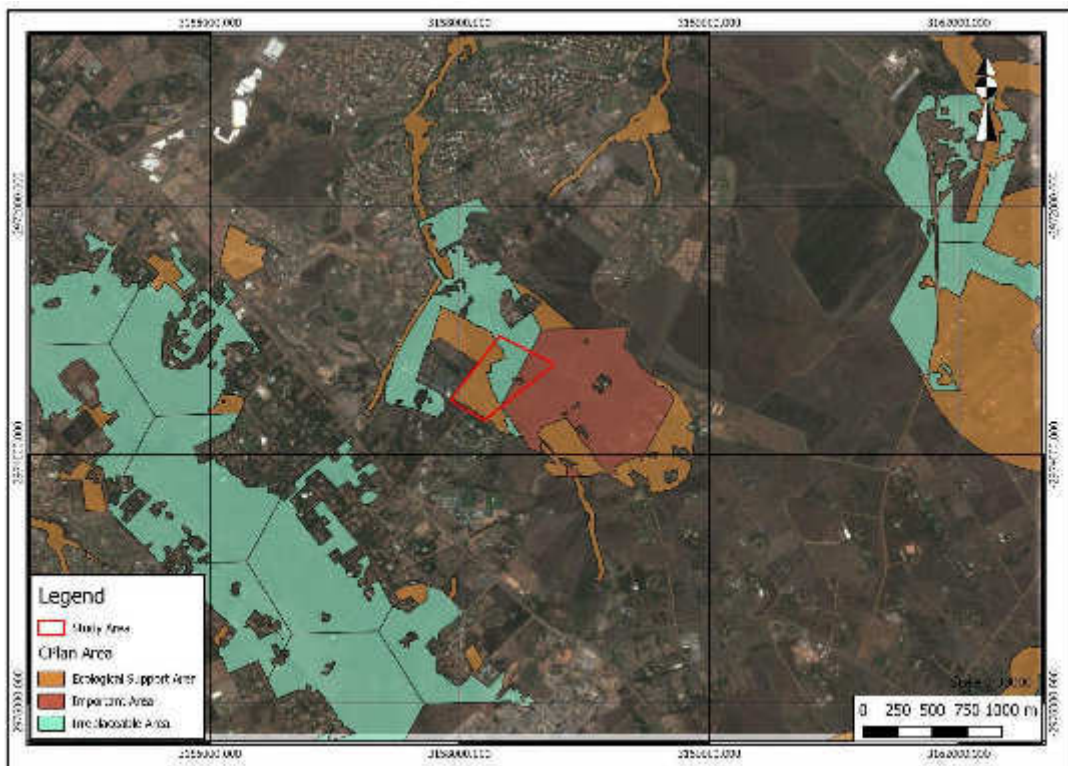
**(c) To provide for co-operative governance in biodiversity management and conservation; and**

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

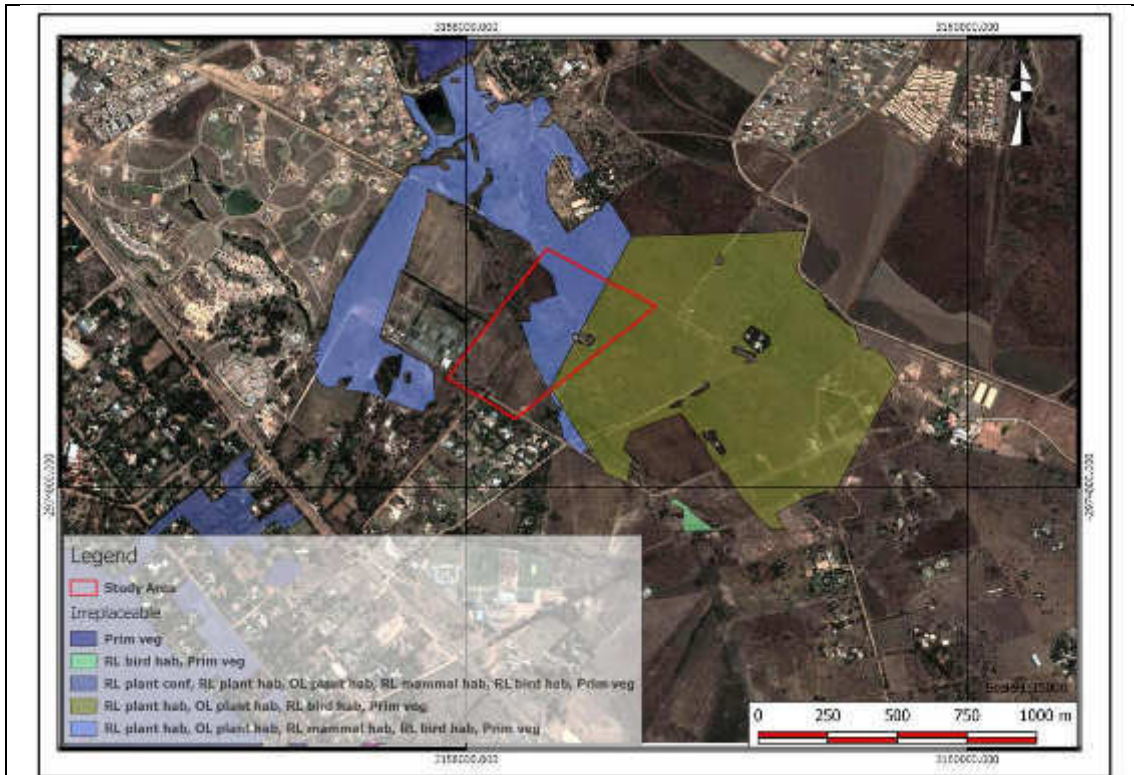
Under this Act notices are published in terms of alien and invasive species or threatened ecosystems in order to promote the biodiversity of natural resources and protect species endemic to South Africa.

**Implications for the development:**

The proposed development is situated within the Marikana Thornveld vegetation type according to Mucina and Rutherford (2006). The area south-west of the Degraded Drainage Line was identified as a Disturbed Moist Secondary Grassland and not considered sensitive. The drainage line was not considered sensitive during the specialist assessment. The orange-listed plant species, *Hypoxis hemerocallidea*, occur on the site and the specialist recommended that they be relocated to an area where they can be preserved.



**Figure 5 – GDARD C-Plan Areas**



**Figure 6 – Irreplaceable Areas**

<b>GDARD Draft Ridges Policy</b>	<b>Provincial</b>	<b>2001</b>
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The biodiversity and socio-cultural value of ridges and their essential role in ecosystem processes will be established in order to show why it is absolutely imperative that the Department adopts a no-go development policy for the ridges of Gauteng. It is important to remember that the quartzite ridges of Gauteng, together with the Drakensberg Escarpment, should be regarded as one of the most important natural assets in the entire region of the northern provinces of South Africa. They are characterized by a unique plant species composition that is found nowhere else in South Africa or the world (Bredenkamp & Brown, 1998). Ridges are important for biodiversity hotspots, red data/threatened species, invertebrates, wildlife corridors, ecosystem processes and socio-cultural value (aesthetic value).

A ridge is defined as any topographic feature in the landscape that is characterized by slopes of 5° or more, as determined by means of a GIS digital elevation model.

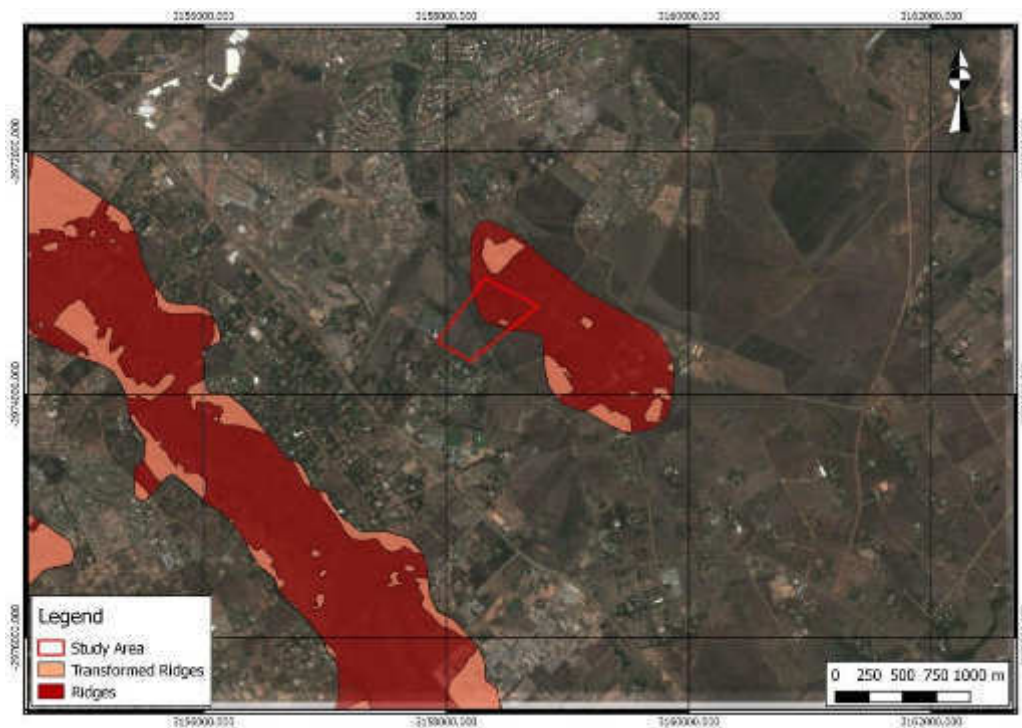
**Implications for the development:**

There is a ridge situated on the north-eastern section of the larger study area. During the former application process GDARD requested that a ridges study, which includes fauna and flora studies be conducted in order to determine the sensitivity of the ridge area. The layout was amended during an

amendment application, which was submitted to GDARD and such new layout proposed some residential development on the less sensitive ridge buffer areas.

GDARD approved the original layout and the amended layout. The GDARD approval of such amended layout is attached hereto as **Appendix Kiv**. As mentioned, this new application is for the amended layout as approved by GDARD.

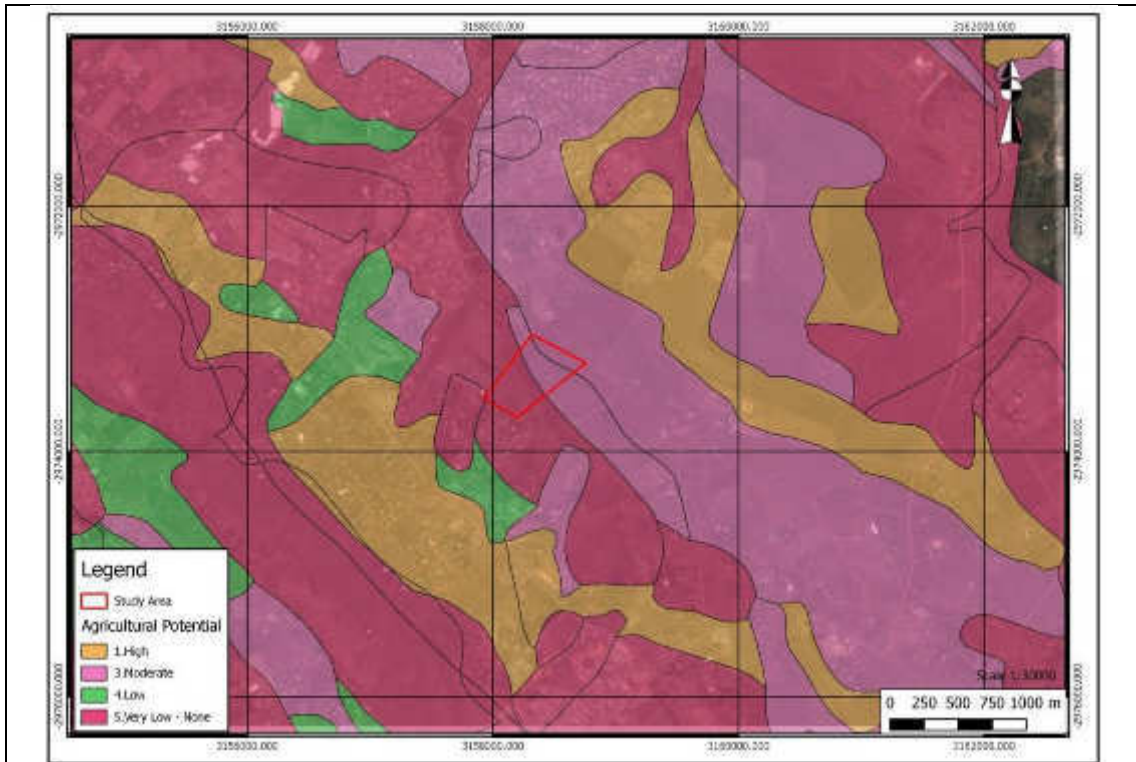
Another developer is however applying for a local link road (on behalf of the City of Tshwane Metropolitan Municipality (CTMM)) across the study area. One of the layout alternatives for the road incorporates an alignment across the more sensitive sections of the ridge. Refer to **Appendix Ki and Kii** for road alignment alternatives applied for in the Hazeldean Road application. SEF confirmed that Alternative 3 (the alternative, which avoids the ridge is the preferred alternative).



**Figure 7 – Ridges**

<b>Conservation of Agricultural Resources Act (Act No. 43 of 1983)</b>	<b>National</b>	<b>1 June 1983</b>
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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.



**Figure 8 – Agricultural Potential**

**Implications for the development:**

Not Significant – According to the Gauteng Agricultural Potential Atlas (GAPA 3), Tijger Valley Extension 14 and 34 is located on land with very low agricultural potential. The study area does not fall within any of the Seven Agriculture Hubs identified for the Gauteng province.

<b>GDARD Agricultural Hub Policy</b>	<b>Provincial</b>	<b>2006</b>
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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.





**Figure 9 – Agricultural Hubs**

**Implications for the development:**

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

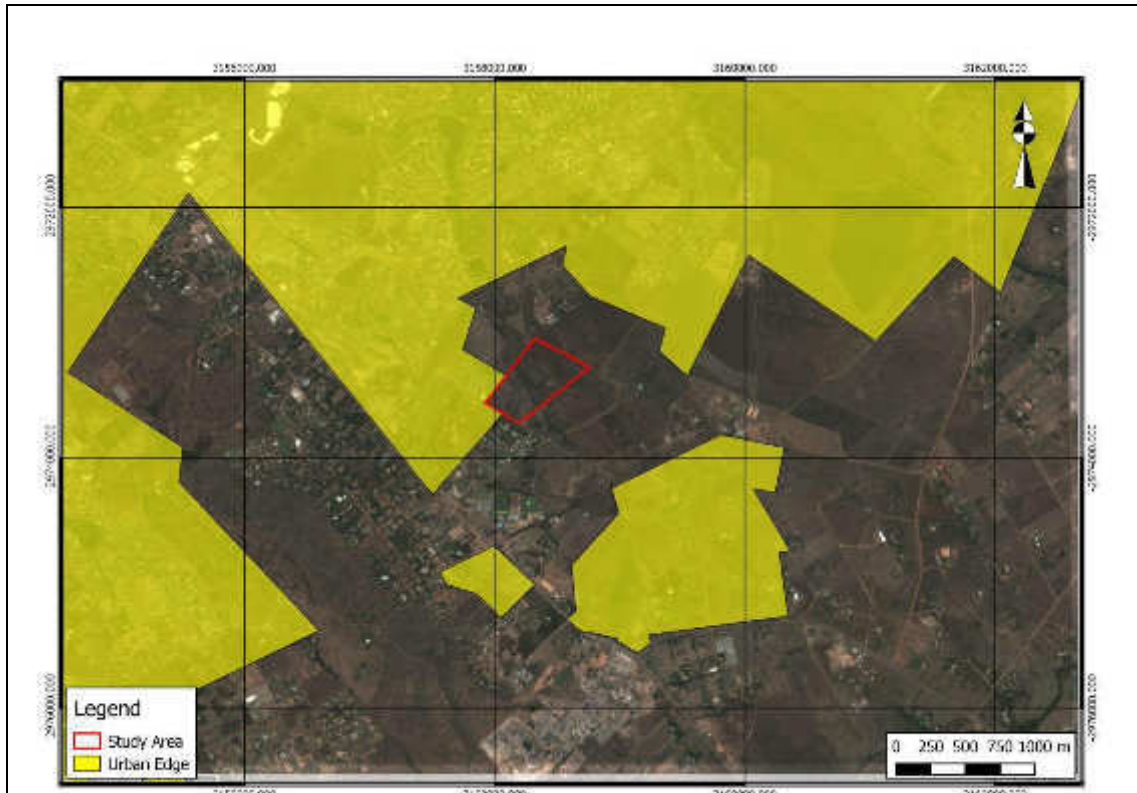
Gauteng Urban Edge	Provincial	2010
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According to Mr. Neels du Toit of the Gauteng Department of Economic Development the urban edge is now delineated on a yearly basis and it is the responsibility of the local authorities to request for a yearly amendment to the urban edge.

According to Mr. Loyiso Makwana it was decided by GDARD not to adopt the urban development boundaries of the “urban edges” as delineated in Gauteng Province and therefore the urban edge as delineated and as indicated on the GDARD data maps is not applicable.

**Implication for the development:**

The proposed study area is not included into the urban edge as indicated on the spatial development framework, the 2007 provincial urban edge and into the revised 2010 urban edge. The development is however now almost surrounded by urban developments.



**Figure 10 – Urban Edge**

<b>National Environmental Management: Waste Act (Act 59 of 2008)</b>	<b>National</b>	<b>2008</b>
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This Act 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.

On 29 November 2013 the Minister of Environmental Affairs and Tourism

amended the list of waste management activities that might have a detrimental effect on the environment.

**Implication for the development:**

Not significant – No waste management license will be required during the construction or operational phases of the proposed residential township. Due to the fact that a small 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.

<b>Red List Plant Species Guidelines</b>	<b>Provincial</b>	<b>26 June 2006</b>
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The purpose of these guidelines is to promote the conservation of Red List Plant Species in Gauteng, which are species of flora that face risk of extinction in the wild. By protecting Red List Plant Species, conservation of diverse landscapes is promoted which forms part of the overall environmental preservation of diverse ecosystems, habitats, communities, populations, species and genes in Gauteng.

These Guidelines are intended to provide a decision-making support tool to any person or organization that is responsible for managing, or whose actions affect, areas in Gauteng where populations of Red List Plant Species grow, whether such person or organization be an organ of state or private entity or individual; thereby enabling the conservation of the Red List Plant Species that occur in Gauteng.

**Implication for the development:**

The proposed area to be developed has no Orange-Listed plant species habitat according to the map (Figure 11). The Degraded drainage line however could be suitable for some of these species, this area will however be zoned as private open space in the proposed development.

No Red Listed Plant species have been encountered during the specialist's assessments and none are expected to occur due to the high level of disturbance. The Orange-Listed plant species, *Hypoxis hemerocallidea*, was found on the proposed development area and it was recommended that the species be relocated to an area where it can be preserved. This proposal was supported by GDARD when the Department approved the layout as part of the former application, which has been approved.

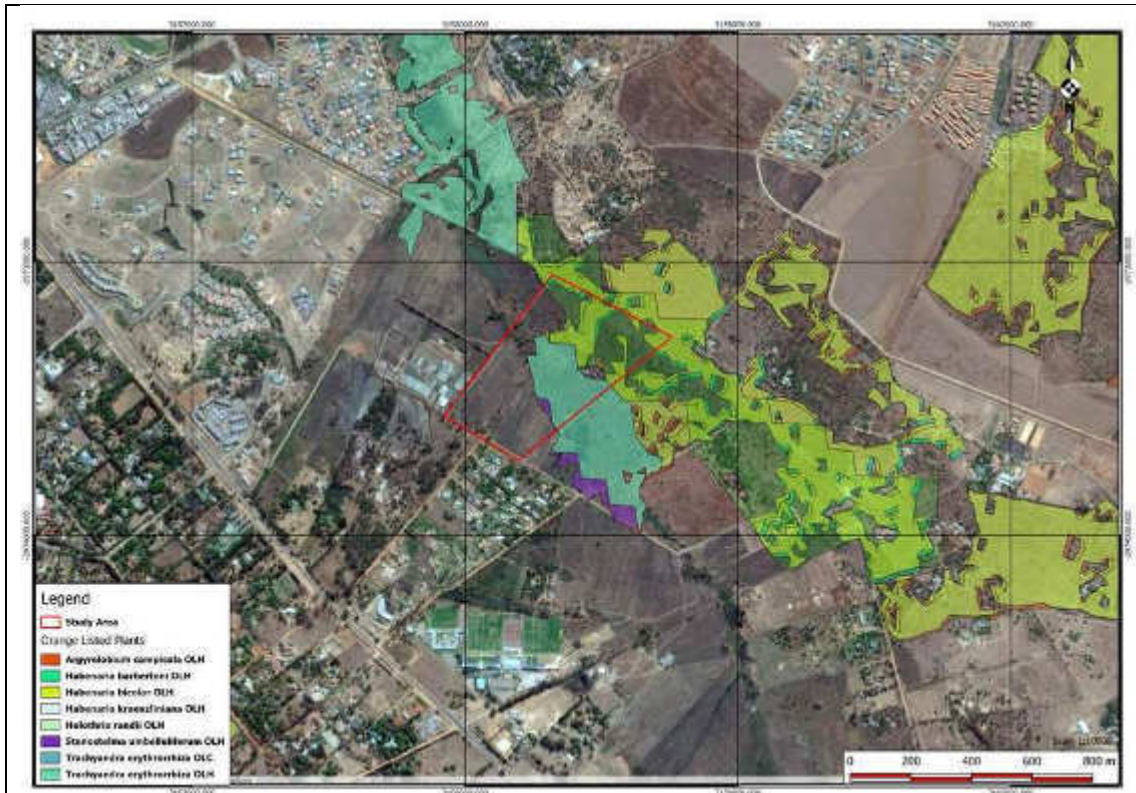


Figure 11 – Orange Listed Plants

<b>Gauteng Noise Control Regulations</b>	<b>Provincial</b>	<b>1999</b>
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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.

**Implication 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. During the operational phase, there will be no noise impacts. **(Please Refer to Appendix H (EMP) for a list of suitable guidelines and mitigation measures)**

<b>The Gauteng Transport Infrastructure Act</b>	<b>Provincial</b>	<b>2001</b>
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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.

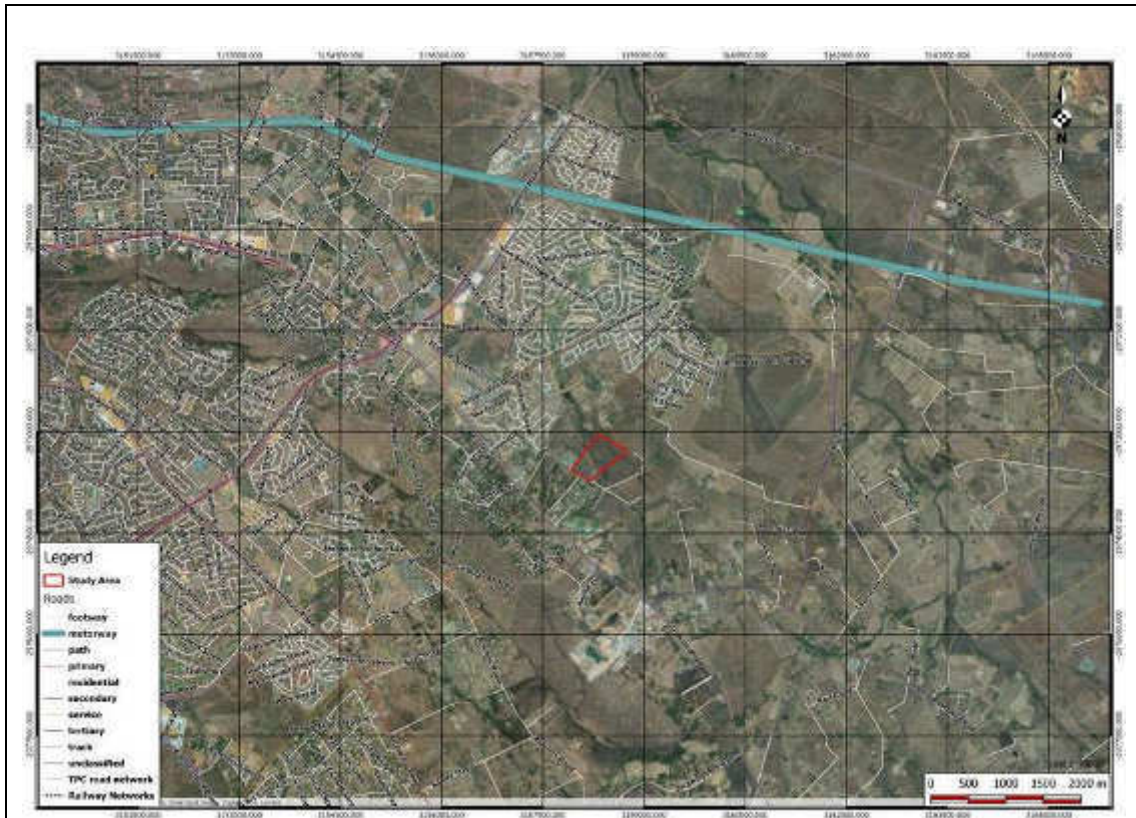


Figure 12 – Roads and Railways

**Implication for the 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.

**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

BASIC ASSESSMENT REPORT [REGULATION 22(1)]

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No.	Alternative type, either alternative: site on property, properties, activity, design, technology, operational or other (provide details of "other")	Description
1	Proposal	Residential 1 with "Special" and "Private Open Spaces"
2	Alternative 2	None

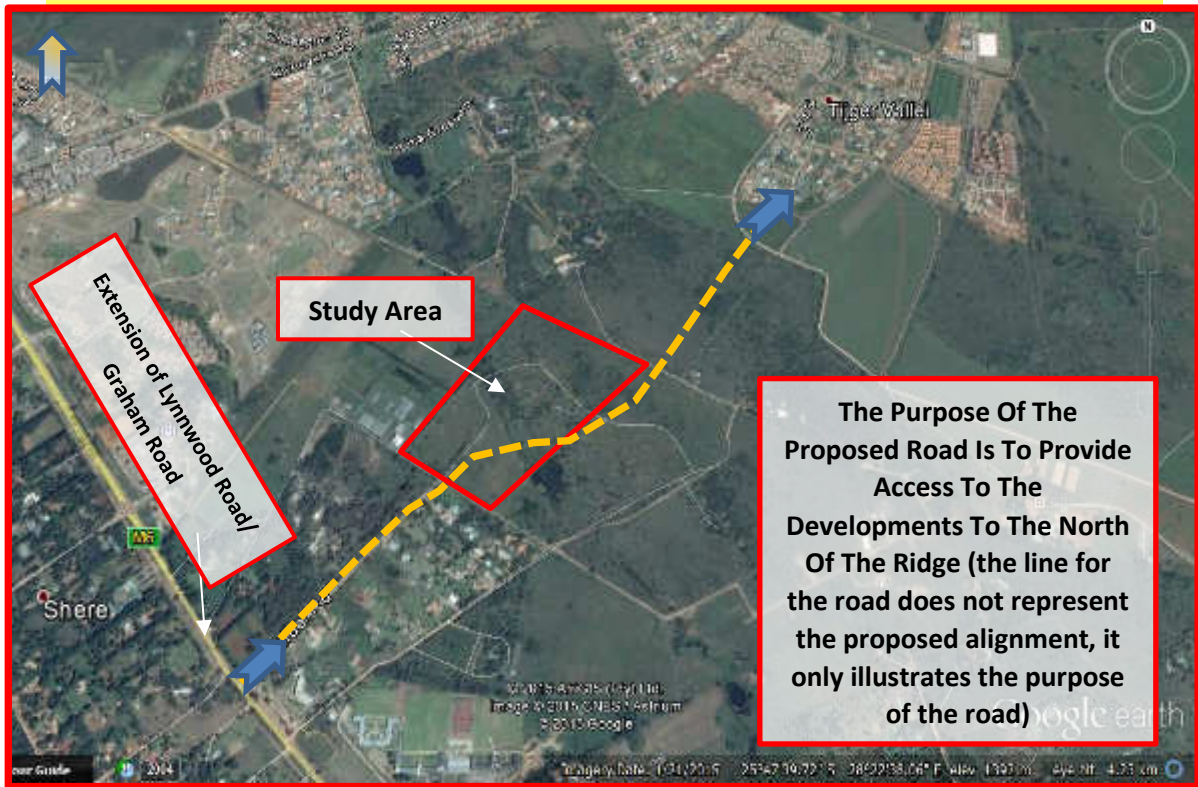
**NOTE: The numbering in the above table must be consistently applied throughout the application report and process**

**Please note!!** There is no alternative for the proposed development as the proposed layout has already received an Authorisation from GDARD in 2006. The exercise of considering alternative layouts already took place during the former EIA and EIA Amendment application process. As mentioned the authorisation lapsed and the developer only wants to re-instate the authorisation already issued.

If the link road across the eastern corner of the study area is approved by GDARD, the applicant will amend the development layout and apply for an amendment of the authorisation in order to accommodate the proposed road. The road has not been approved by GDARD yet and therefore it was not regarded as necessary (at this stage) to incur the costs to amend the layout as approved.

**Very Important!!**

During a meeting that was held at GDARD on 4 May 2015 between Mr. Steven Mhukola, Mr. Tebogo Leku of GDARD, Mr. Andre Wright (representative of the developer) and Mrs. Lizelle Gregory (EAP – Bokamoso) it was mentioned that SEF Environmental Consultants applied for a local authority road, namely Hazeldean Road in the area (**Project Reference Number: Gaut 002/14 – 15/0020**). **Refer to Appendix Kii for the Preferred Alignment for the Hazeldean Road and Refer to Appendix Ki for the original alignment alternative that traversed the Ridge** The purpose of this road will be to provide an alternative access to the high density township developments of (mainly the Sable Homes Developments) to the north of the study area. This road cuts through the study area of the applicant and it will have a significant negative impact on the proposed development layout of the applicant. SEF indicated that they considered 3 alignment alternatives for the proposed road and the preferred alternative for the proposed road was the alignment that cuts across the eastern section of the study area and that avoids the higher sections of the ridge (it runs to the east of the ridge).



GDARD requested that we also include an alternative development layout for the proposed development, which must be considered if GDARD decides to approve the proposed local road. **The Alternative layout is attached hereto as Appendix Ciii.** This layout allows for a higher density development adjacent to the proposed road, because the proposed road will have a detrimental impact on the "Sense of Place" and the tranquil atmosphere of the area and the original development concept with "Residential 1" stands that will enjoy the tranquil setting will be destroyed by the road. It is furthermore anticipated that the noise levels of the road will be higher than 55dBa and therefore the higher density residential units and other land-uses adjacent to the road (in the new layout) will be orientated and designed to accommodate the higher noise levels and the change from an area with a rural to an urban character.

Mr. Tebogo Leku confirmed that they will not consider the Hazeldean Road EIA in isolation. The Basic Assessment Report for this development will be read in conjunction with the Hazeldean Road application.

We also informed GDARD that the EIA for the Hazeldean Road was made available for scrutiny during the Easter holidays and that we requested to meet with the applicant and SEF regarding the final alignment prior to the submission of the Final EIA. SEF never replied to this request. The only reason

why the applicant requested a meeting was to confirm the alignment of the final alignment for the Hazeldean Road. This is unacceptable, because it was never the intention of the applicant to delay the process or to object to the road. The applicant only wanted to ensure that the two applications dovetail. After the meeting at GDARD the applicant was informed of the fact that the final alignment of the road as approved by the Local Authority differs significantly from the alternative as provided to the applicant during the EIA process. The proposed road is much wider than the road alignment that was described in the EIA and the alignment differs from Alternative 3 (the preferred alignment which took the issues raised by the I&APs into consideration). The alignment as approved by the local authority also differs significantly from the other alignment alternatives that were described in the EIA.

We informed SEF (in writing) of the discrepancies between the alignments as described in the EIA and the alignment as approved by the local authority and we requested to meet with them regarding this important matter. SEF once again refused to reply to our request to discuss the impact of the alignment on the study area and the surrounding areas. **Refer to Appendix Kv for correspondence that was forwarded to SEF after the EIA was made available for comment. Take note, Bokamoso requested a meeting however SEF did not consider it necessary that a meeting should be held. SEF felt that everything was discussed in the report and that a meeting will not be fruitful. It later became evident that the alignment was amended.**

The road as approved by the local authority will have more significant social, ecological and economical impacts and will have far reaching implications for the affected land-owners.

We therefore feel that the EIA process must be repeated and the EAP must be instructed to also assess the road alignment as approved by the local authority. The detailed engineering drawings are available.

**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)

Alternative 3 (if any)

**Size of the activity:**

<b>± 15 ha</b>

Ha

or, for linear activities:

**Alternative:**

Alternative 1 (Proposed activity)

Alternative 2 (if any)

**Length of the activity:**




# BASIC ASSESSMENT REPORT [REGULATION 22(1)]

Alternative 3 (if any)

m/km
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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:**

<b>± 15 ha</b>
Ha/m <sup>2</sup>

## 5. SITE ACCESS

**Alternative 1 (Proposal)**

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

<b>YES</b>	NO
<b>X</b>	
m	

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

Describe the type of access road planned:

The proposed residential development will gain access from Alexander Road (currently a gravel road) via Graham Road (M6).

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

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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 cannot 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:

**Part of Portion 5 of the Farm Tyger Valley 334 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):

**S25.793674°**

**E28.370159°**

# BASIC ASSESSMENT REPORT [REGULATION 22(1)]

**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	<b>1:50 – 1:20</b>	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	--------------------	-------------	-------------	--------------	-------------	------------------

### 4. LOCATION IN LANDSCAPE

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

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

### 5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

**REFER TO APPENDIX A: FIGURE 13 – SOILS MAP AND FIGURE 14 – DOLOMITE MAP**

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%)

YES	<b>NO</b> maybe
YES	<b>NO</b> <b>X</b>
<b>YES</b> There is a possibility	NO
YES	<b>NO</b> <b>X</b>
YES	<b>NO</b> <b>X</b>
<b>YES</b> Some of the soils in the area have high clay content.	NO

**BASIC ASSESSMENT REPORT [REGULATION 22(1)]**

Any other unstable soil or geological feature

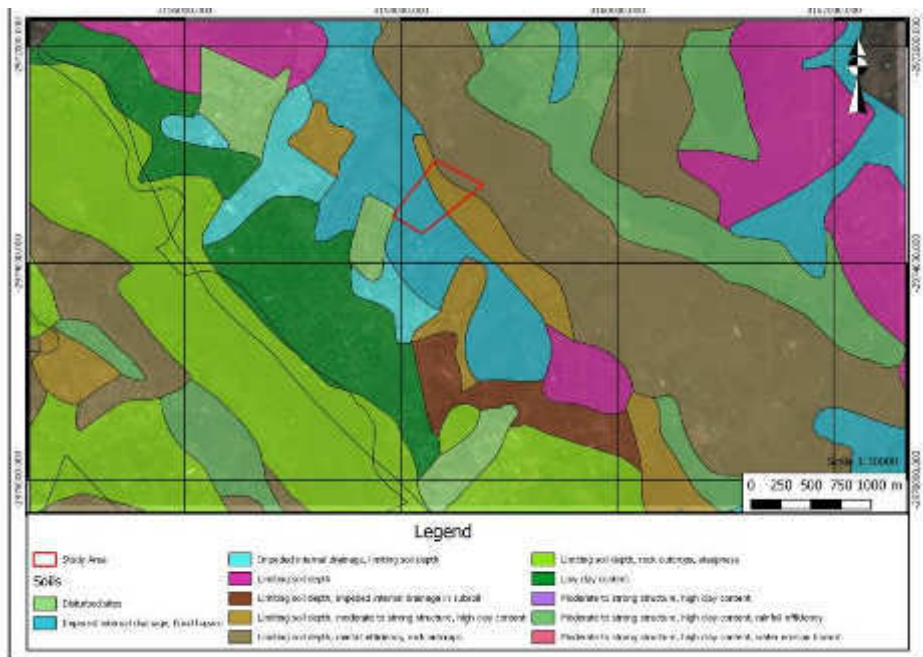
YES	<b>NO</b> <b>X</b>
-----	-----------------------

An area sensitive to erosion

<b>YES</b> The banks of the drainage line and the steeper slopes of the site to the north of the drainage line	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).

**Please note for clarity purposes all figures within the Basic Assessment for this proposed development is in a larger format at the back of the Report as Appendix I.**



**Figure 13 – Soils**



**Figure 14 – No Dolomite on the Study Area**

b) are any caves located on the site(s)

YES	<b>NO</b>
	<b>X</b>

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	<b>NO</b>
	<b>X</b>

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	<b>NO</b>
	<b>X</b>

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

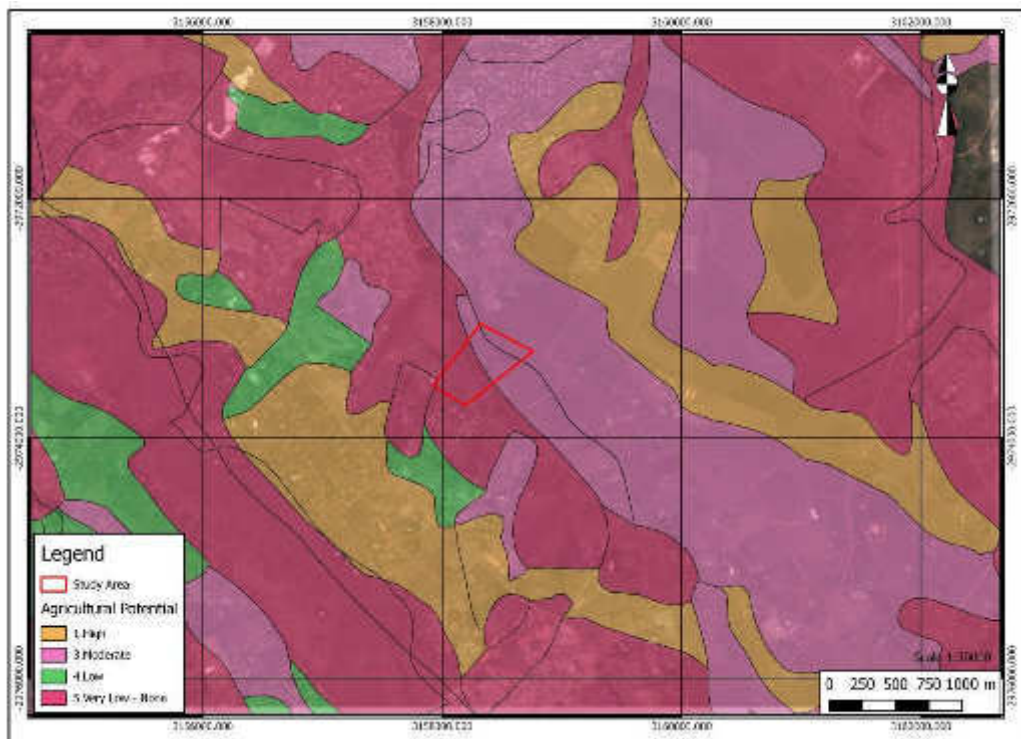
The site is underlain by alluvial and colluvial clayey soils overlying residual soils and shale bedrock. These belong to the Silverton Shale Formation, Pretoria Group, Transvaal Supergroup. It is not anticipated that there would be any problems with excavations on the alluvial clayey soils. The water table was not encountered during the investigation; however, seasonal perched water conditions and marshy conditions might occur. Some unstable sidewall conditions can be expected. The area proposed for development consists of the Sepane soils. Around the drainage line area there are dark fine structured clayey top soils. The soils on the site have low to moderate agricultural potential.

The proposed residential development will not be affected by dolomitic conditions.

The drainage line and the steeper slopes to the north of the drainage line have some erosion potential. As mentioned there is a possibility of perched water/ wetter conditions in close proximity of the drainage line and there is also a possibility of clayish conditions on the site. Many of the houses and buildings in this area are constructed on raft foundations. The geotechnical engineer must conduct more detailed geotechnical studies and must supply foundation and construction guidelines for the wetter areas and the areas underlain by clayish soils.

**6. AGRICULTURE**

**REFER TO APPENDIX A: FIGURE 8 – AGRICULTURAL POTENTIAL MAP**



**Figure 8 – Agricultural Potential**

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

YES	<b>NO</b> <b>X</b>
-----	-----------------------

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

**Implications for the development**

No Agricultural Potential Study was conducted for the proposed development due to the following:

- The proposed development site is situated in close proximity of residential areas and education facilities with limited agricultural activities in the surrounding area;
- The proposed application site is not regarded as large enough to function as an economical agricultural unit. It is also important to note that the areas regarded as the most suitable for agricultural activities (the lower lying areas) are regarded as the most sensitive areas from an ecological and hydrological point of view;
- The Agricultural Potential of the proposed application site according to GAPA version 3 indicates a Very Low Agricultural Potential;
- The proposed development site is not located within any of the seven Agriculture Hubs identified for the Gauteng Province. (Please refer to figure 10 – Urban Edge Map)

**7. GROUNDCOVER**

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 % =	Veld dominated by alien species % = <b>20</b>	Landscaped (vegetation) % =
Sport field % =	<b>Cultivated land</b> % = <b>80</b>	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.

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

YES	<b>NO</b> <b>X</b>
-----	-----------------------

If YES, specify and explain:

In this application it is requested that the layout as approved in the amendment application referred to, be approved. The amended layout was based on detailed investigations (including a detailed assessment of the fauna and flora on the ridge area) conducted by Galago ventures. To follow is a summary of the findings:

**Also Refer to Appendix Civ for the Approved layout superimposed over the environmental sensitivities.**





**Appendix Cii: Layout as approved in the Amendment that was granted by GDARD (take note GDARD approved some additional development to the north of the watercourse) – IT IS REQUESTED THAT GDARD RE-APPROVE THIS LAYOUT WHICH IS REGARDED AS THE PREFERRED LAYOUT**

Flora

The proposed study area falls within the Marikana Thornveld, which forms part of the Savannah biome. Six plant communities were identified on the larger study area and these include:

- *Acacia karoo* – *Rhus lancea* bushveld
- Plateau savannah
- Moist *Acacia karoo* savannah
- Disturbed moist secondary grassland
- Degraded drainage line
- Disturbed alien and indigenous vegetation

However, the proposed development will only take place on the less sensitive areas of the study area. The Orange-Listed plant species, *Hypoxis hemerocallidea*, which was identified on site, was found within the disturbed moist secondary grassland areas. It is recommended by the specialist that this plant species be relocated to an area where it can be preserved. No Red-Listed plant species were found on site.

The *Acacia karroo* – *Rhus lancea* bushveld vegetation and Plateau savannah, which occurs on the study area is regarded as sensitive. The layout was however designed to avoid these sensitive areas. The disturbed moist secondary grassland and the degraded drainage line are deemed not sensitive. The degraded drainage line will however not be affected by the proposed development. Only a road crossing will cut across the drainage line and the areas below the flood line will be rehabilitated (as part of an on-going rehabilitation plan). As mentioned, the areas below the flood line will be zoned private open space.

Please refer to **Appendix G7** for the Flora and Fauna Habitat Assessment.

### Fauna

#### *Mammals:*

The study area was surveyed for mammal species. The following mammals were identified during the fauna survey:

- Scrub hare (*Lepus saxatilis*)
- Jameson's red rock rabbit (*Pronolagus randensis*)
- Cape porcupine (*Hystrix africaeaustralis*)

These mammal species which were identified on the study area are common and widespread and have a high ability to co-exist in close proximity of humans and their associated activities.

#### *Birds:*

Twenty-three bird species were recorded during the site visit by the specialist. The habitat south-west of the drainage line is considered less sensitive in terms of avifaunal habitat. The ridge slope and plateau is considered sensitive for bird species. This is the only area where possible red listed bird species are likely to occur. The drainage line is also sensitive bird habitat however, this drainage line does not retain water for a long time and is only likely to attract more common bird species.

#### *Reptiles and Amphibians:*

The study area was assessed for reptile and amphibian species. On the area to be developed no termitaria was found and the substrate is regarded as hard clayey, there is also dense accumulation of dry grass. There is some indication that this area was ploughed in the past. It was concluded that this area might have less specialised terrestrial reptile species that utilise the area and no amphibians are expected to occur here. The Degraded drainage line might be suitable for the reproduction of some toads and sand frogs.

Please refer to **Appendix G7** for the Flora and Fauna Habitat Assessment.

**BASIC ASSESSMENT REPORT [REGULATION 22(1)]**

The sensitive and species-rich areas are towards the north-east of the larger study area and the proposed layout avoids such areas.

The drainage line is degraded and utilised by some fauna species but it is important to note that the drainage line will not be developed but be zoned as private open space.

**Note:** It was not regarded as necessary to conduct another fauna and flora assessment, because the layout as approved by GDARD in the Amendment that was granted, was based on the results of x2 fauna and flora studies. SEF also conducted a fauna and flora study of the study area in 2014 in the Hazeldean Road application and the results of the SEF study were similar to the original fauna and flora results of the study area on which the final layout was based. **Refer to Appendix Kviii for confirmation that the Graystone study area was included in the SEF fauna and flora assessments for the proposed Hazeldean Road.** The ecological assessment of SEF is attached as **Appendix Kvi** of this report. The report confirmed that the Juliana Golden Mole was not found on the study area. Refer to **Appendix Kvii** for the SEF map, which indicates the areas regarded as suitable for the Juliana Golden Mole.

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	<b>YES</b>	<b>NO X</b>
---	------------	-----------------

If YES, specify and explain:

Are there any special or sensitive habitats or other natural features present on the site?	YES	<b>NO X</b>
--	-----	-----------------

If YES, specify and explain:

Was a specialist consulted to assist with completing this section	<b>YES X</b>	NO
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If yes complete specialist details:

Name of the specialist:	Dr I.L. Rautenbach		
Qualification(s) of the specialist: Professional Registration	Pri.Sci.Nat: Ph.D. T.H.E.D.		
Postal address:	-		
Postal code:	-		
Telephone:	012 345 4891	Cell:	-
E-mail:	vanessam@lantic.net	Fax:	086 675 6136
Are any further specialist studies recommended by the specialist?	YES	<b>NO X</b>	

If YES, specify:

If YES, is such a report(s) attached?	YES	NO
If YES list the specialist reports attached below		

Signature of specialist:		Date:	November 2006
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If yes complete specialist details:

Name of the specialist:	Mr. W.D. Haacke		
Qualification(s) of the specialist: Professional Registration	Pri.Sci.Nat: M.Sc		
Postal address:	-		
Postal code:	-		
Telephone:	012 345 4891	Cell:	-
E-mail:	vanessam@lantic.net	Fax:	086 675 6136

**BASIC ASSESSMENT REPORT [REGULATION 22(1)]**

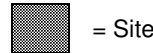
Are any further specialist studies recommended by the specialist?		YES	<b>NO X</b>
If YES, specify:			
If YES, is such a report(s) attached?		YES	NO
If YES list the specialist reports attached below			
Signature of specialist:		Date:	November 2006

<b>If yes complete specialist details:</b>			
Name of the specialist:	Mr. R.F. Geysler		
Qualification(s) of the specialist: Professional Registration	-		
Postal address:	-		
Postal code:	-		
Telephone:	012 345 4891	Cell:	-
E-mail:	vanessam@lantic.net	Fax:	086 675 6136
Are any further specialist studies recommended by the specialist?		YES	<b>NO X</b>
If YES, specify:			
If YES, is such a report(s) attached?		YES	NO
If YES list the specialist reports attached below			
Signature of specialist:		Date:	November 2006

<b>If yes complete specialist details:</b>			
Name of the specialist:	Mrs. P. Lemmer		
Qualification(s) of the specialist: Professional Registration	Cert.Sci.Nat: B.Sc		
Postal address:	-		
Postal code:	-		
Telephone:	012 345 4891	Cell:	-
E-mail:	vanessam@lantic.net	Fax:	086 675 6136
Are any further specialist studies recommended by the specialist?		YES	<b>NO X</b>
If YES, specify:			
If YES, is such a report(s) attached?		YES	NO
If YES list the specialist reports attached below			
Signature of specialist:		Date:	November 2006

**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





**Note:** More than one (1) Land-use may be indicated in a block

**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	<b>NO</b> <b>X</b>
-----	-----------------------

If yes indicate the type of reports below

**N/A**

**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 growth in the residential market in this area has been considerable in recent years. This is evident from the popularity of newly proclaimed townships in the study area's vicinity. This proposed township is considered necessary as it will provide in this demand for economical, medium density, secure housing, which is currently popular under home buyers. The sales figures of similar residential estates in the area are evidence of this.

The following design principles were adhered to in order to ensure desirability:

- Single controlled entrance;
- Provision of a site for a clubhouse;
- Traffic distribution;
- Provision of Open Space System;
- Road safety;
- Densities;
- Storm water drainage;
- Existing right-of-way servitude;
- Natural character;
- Total number of dwelling units;
- Installation of cost effective services;
- Dominance of space.

This development can be of economic importance to the surrounding community and the area as a whole thereby increasing the economic base of the Municipality. The proposed development will contribute by means of job opportunities during construction phase for construction related workers (skilled, semi-skilled and un-skilled individuals) and the operational phase for cleaning and gardening services.

**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 alternatives, 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?

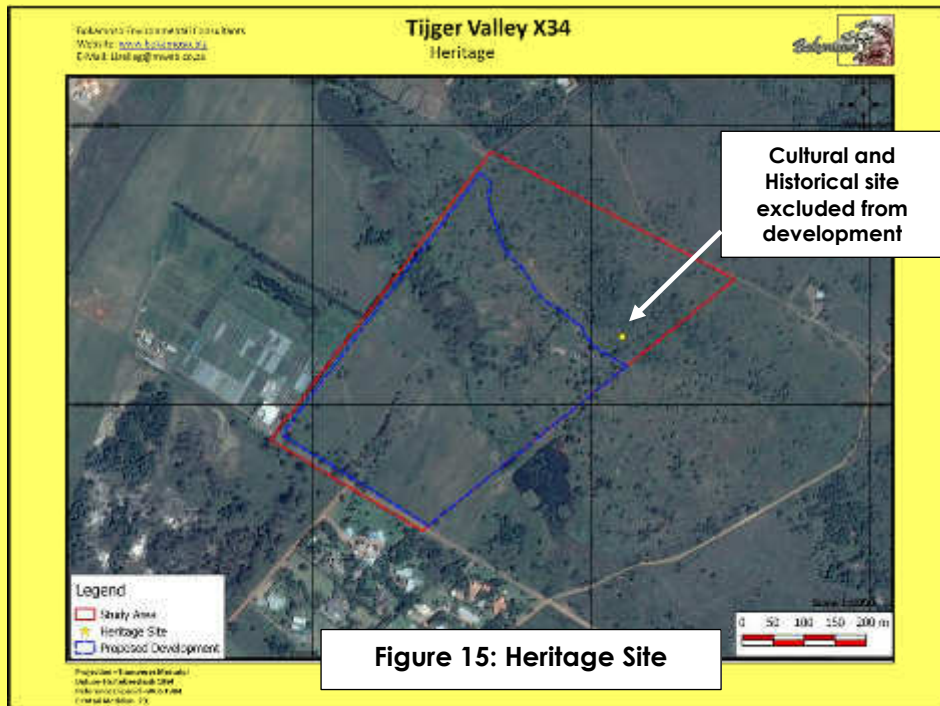
YES	<b>NO</b> <b>X</b>
-----	-----------------------

If YES, explain:

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:

A heritage impact assessment was conducted for the proposed development on the larger study area. One site of heritage importance was found on this larger study area. This site consisted of a number of smaller stone circles. There is a possibility that these relate to the Late Iron Age habitation that was found east of the site. This important site centres around the coordinates S-25.79229; E28.37379. The specialist recommended that a 25m buffer zone be established around the site. The site is excluded from the proposed development – it lies within the ridge area.



**Figure 15: Heritage Site**

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

YES	<b>NO</b> <b>X</b>
-----	-----------------------

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

YES	<b>NO</b> <b>X</b>
-----	-----------------------

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	<b>NO</b>
	<b>X</b>

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

City of Tshwane did comment on the Draft Basic Assessment Report. Their comments were responded to in the Comments and Issues Report that can be found in **Appendix E**.

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

### 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	<b>NO</b>
	<b>X</b>

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

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

Most of the surrounding land-owners are also planning to develop their properties. The surrounding land-owners support development in the area. We did notify SEF of the proposed development on the study area, because



SEF applied for a local authority road across a portion of the study area. As mentioned, the road application was submitted on behalf of the local authority and the local authority was registered as I&AP and received all the necessary correspondence regarding this application.

#### **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?

<b>YES</b> <b>X</b>	NO
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.

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?

<b>YES</b> <b>X</b>	NO
± 210 m <sup>3</sup>	

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

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

The local municipality will be responsible for solid waste disposal.

## BASIC ASSESSMENT REPORT [REGULATION 22(1)]

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	<b>NO</b> Not confirmed yet. The study area now falls within the area of jurisdiction of the CTMM and the local authority must still confirm that they have the capacity to receive the waste of the proposed development.
-----	---

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.

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

YES	<b>NO</b> 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	<b>NO</b> 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:

It is recommended that all construction waste materials be sorted into recyclable materials and non-recyclable materials and the recyclable materials should be re-used or disposed of 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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:

# BASIC ASSESSMENT REPORT [REGULATION 22(1)]

Not Applicable

**Liquid effluent (domestic sewage)**

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

<b>YES</b> <b>X</b>	NO
------------------------	----

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

± 4410 kℓ (147 kℓ/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)?

<b>YES</b> <b>X</b>	NO
------------------------	----

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

YES	<b>NO</b> <b>X</b>
-----	-----------------------

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	<b>NO</b> <b>X</b>
-----	-----------------------

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

Not Applicable	
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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. Some additional vehicle/truck traffic during the construction phase may have an influence but this can be regarded as insignificant.

## 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	
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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
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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
-----	----

If yes, list the permits required

Due to the fact that the proposed development will affect a watercourse on the study area, the proposed development will require Section 21 (c) and (i) licenses. A separate Section 21 (c) and (i) license application will be submitted to DWS for consideration.

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

NO
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If yes, have you received approval(s)? (attached in appropriate appendix)

Not Applicable
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## 3. POWER SUPPLY

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

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 could be considered:

- Residential 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.

The public participation for the Tijger Valley Extension 14 & 34 was done in order to ensure that all Interested and Affected Parties register.

The proposed project was advertised in the Beeld newspaper on Wednesday, 3 September 2014 (**Refer to Appendix Ei – Proof of Newspaper advertisement**). Site notices were also erected at prominent points adjacent to the application site on 3 September 2014. (**Refer to Appendix Eii – Proof of Site Notice**). Furthermore, flyers were also distributed to residents, land owners, tenants and stakeholders in the surrounding area (**Refer to Appendix Eiii – Written Notices**).

It is the opinion of Bokamoso that the Public participation was extensive and transparent enough to ensure any comments or issues in regards to the proposed development to be addressed and to suggest possible mitigation measures.

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):

Please refer to Appendix E (iv) for the Comments and Issues Register.

### 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:

- |                          |                    |   |  |
|--------------------------|--------------------|---|--|
| <input type="checkbox"/> | Improbable         | - | Low possibility of impact to occur either because of design or historic experience.      |
| <input type="checkbox"/> | Probable           | - | Distinct possibility that impact will occur.   |
| <input type="checkbox"/> | Highly probability | - | Most likely that impact will occur.  |
| <input type="checkbox"/> | Definite           | - | Impact will occur, in the case of adverse impacts regardless of any prevention measures. |

<b>B).Intensity factor:</b>			
<input type="checkbox"/>	Low intensity	-	natural and man made functions not affected
<input type="checkbox"/>	Medium intensity	-	environment affected but natural and man made functions and processes continue
<input type="checkbox"/>	High intensity	-	environment affected to the extent that natural or man made functions are altered to the extent that it will temporarily or permanently cease
<b>C). Duration:</b>			
<input type="checkbox"/>	Short term	-	<1 to 5 years - Factor 2
<input type="checkbox"/>	Medium term	-	5 to 15 years - Factor 3
<input type="checkbox"/>	Long term	-	impact will only cease after the operational life of the activity, either because of natural process or by human intervention
<input type="checkbox"/>	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 (Preferred Alternative – Appendix Cii)**

Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>CONSTRUCTION PHASE</b>			
<b>Beneficial Impacts</b>			
<b>Institutional Environment</b>			
The proposed development will be in line with the current and proposed developments in the vicinity.	<b>High</b>	Not applicable	<b>High</b>
<b>Fauna &amp; Flora</b>			
Eradication of invasive species.	<b>High</b>	Eradication of invasive species during the construction phase	<b>High</b>



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		would benefit the biophysical environment. Not necessary to mitigate.	
<b>Social &amp; Economic Environment</b>			
Creation of Job opportunities.	<b>Medium</b>	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.	<b>Medium</b>
Reduction of areas that have potential for informal settlements and illegal dumping.	<b>High</b>	The proposed township development will prevent informal settlements and illegal dumping on the proposed development areas.	<b>High</b>
Increase in the rates and taxes payable to the City of Tshwane Metropolitan Municipality.	<b>Medium</b>	More rates and taxes will be paid to the City of Tshwane Metropolitan Municipality.	<b>Medium</b>
<b>Services</b>			
Upgrading of existing services and the construction of new services.	<b>High</b>	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.	<b>High</b>
Optimum utilization of services.	<b>High</b>	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.	<b>High</b>
<b>Adverse Impacts</b>			
<b>Flora &amp; Fauna</b>			
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.	<b>Low</b>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Before the removal of vegetation takes place, the area to be cleared must be clearly marked.</li> <li>• 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.</li> <li>• 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.</li> </ul>	<b>None</b>
Uncontrolled fires may cause	<b>Low</b>	<ul style="list-style-type: none"> <li>• If fires are required for cooking</li> </ul>	<b>None</b>

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damage and loss to vegetation and fauna in the area.		and heating purposes, these fires will only be permitted in designated areas on site.	
Possible spreading of invaders into the natural surrounding areas.	<b>Low</b>	<ul style="list-style-type: none"> <li>No plants, not indigenous to the area, or exotic plant species should be introduced into the landscaping of the proposed development.</li> </ul>	<b>None</b>
The Orange-Listed plant species, <i>Hypoxis hemerocallidea</i> , was identified on site, within the Disturbed moist secondary grassland.	<b>Medium</b>	<ul style="list-style-type: none"> <li>It is recommended by the specialist that this plant species be relocated to an area where it can be preserved.</li> </ul>	<b>Low</b>
<b>Geology &amp; Soils</b>			
<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>	<b>Medium</b>	<ul style="list-style-type: none"> <li>Only the identified areas should be cleared of vegetation. This should be done in stages as construction works progress;</li> <li>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;</li> <li>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;</li> <li>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 channeled;</li> <li>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;</li> <li>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;</li> <li>Trees may not be planted any closer to services than 1.5 times their mature height.</li> </ul>	<b>None</b>
If not planned and managed correctly topsoil will be lost.	<b>Medium</b>	<ul style="list-style-type: none"> <li>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;</li> <li>The layout of the construction site</li> </ul>	<b>Low</b>

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		<p>should be planned before any 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;</p> <ul style="list-style-type: none"> <li>• 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;</li> <li>• 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;</li> <li>• 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;</li> <li>• 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.</li> </ul>	
Excavations are not kept dry.	<b>Medium</b>	<ul style="list-style-type: none"> <li>• Construction works and bulk earth works which involve the construction of excavations must be proposed for the drier season.</li> </ul>	<b>Low</b>
<b>Climate</b>			
Construction during the rainy season can cause delays and damage to the environment.	<b>Low</b>	<ul style="list-style-type: none"> <li>• 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;</li> <li>• It is also recommended that the precautionary measures be taken</li> </ul>	<b>None</b>

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		<p>in order to prevent the extensive loss of soil during rainstorms. Large exposed areas should adequately be protected against erosion by matting or cladding;</p> <ul style="list-style-type: none"> <li>Measures should be implemented during the rainy season to channel storm water away from open excavations and foundations;</li> <li>No construction vehicles should move across wet areas or within the watercourse zone during wet conditions</li> </ul>	
Construction during the dry and windy season could cause excessive dust pollution during construction works.	<b>Low</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<b>None</b>
<b>Hydrology &amp; groundwater</b>			
The use of insufficient drainage systems.	<b>Medium</b>	<ul style="list-style-type: none"> <li>A storm water management plan should be designed by an engineer to ensure sufficient drainage on site.</li> </ul>	<b>None</b>
Excavated materials that are stockpiled in wrong areas can interfere with the natural drainage.	<b>Medium</b>	<ul style="list-style-type: none"> <li>An area must be allocated for stockpiling of topsoil before any construction takes 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.</li> </ul>	<b>Low</b>
<b>Cultural and Archaeology</b>			
Occurrence of cultural historical assets on the proposed development site.	<b>Medium</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<b>None</b>
<b>Localized Vibration</b>			
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.	<b>Medium</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<b>Low</b>
<b>Air pollution</b>			
Nuisance to neighbours in terms of dust generation due to construction during the dry and windy season.	<b>Medium</b>	<ul style="list-style-type: none"> <li>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</li> </ul>	<b>Low</b>

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		be used if possible.	
<b>Roads and Traffic</b>			
Heavy vehicle traffic increase could disrupt the surrounding landowners' daily routines.	<b>Medium</b>	Heavy vehicles must be instructed to only use the main roads during off-peak hours.	<b>Low</b>
Restrictions of access to surrounding properties and the study area during construction phases.	<b>Medium</b>	<ul style="list-style-type: none"> <li>• To minimize the impacts or risks, heavy construction vehicles should avoid using the local road network during peak traffic times;</li> <li>• 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</li> <li>• Warning signs should be erected on the roads that these vehicles will use, at big crossings/ access roads and on the site if needed.</li> </ul>	<b>Low</b>
Damage to roads.	<b>Medium</b>	<ul style="list-style-type: none"> <li>• Specific roads must be allocated for the use by construction vehicles.</li> </ul>	<b>Low</b>
<b>Safety and Security</b>			
During the construction phase safety and security problems (especially for the surrounding residents) are likely to occur.	<b>Medium</b>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	<b>Low</b>
Any proposed development offers the potential for unplanned informal settlement (squatting) before construction commences or after construction.	<b>Medium</b>	<ul style="list-style-type: none"> <li>• No construction worker, friend or relative may settle/ reside on site. Only security may be present on site after construction hours.</li> </ul>	<b>Low</b>
Construction activities could cause danger to children and animals of the surrounding residents.	<b>Low</b>	<ul style="list-style-type: none"> <li>• 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;</li> <li>• 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;</li> <li>• A barrier should be established around dangerous excavation areas;</li> <li>• With the exception of appointed security personnel, no other worker, friend or relatives will be</li> </ul>	<b>None</b>

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		<p>allowed to sleep on the construction site (weekends included), in the public open space or on adjacent properties; and</p> <ul style="list-style-type: none"> <li>• No worker should be allowed to enter adjacent private properties without written consent of the legal owners to the contractor.</li> </ul>	
<b>Visual Impact</b>			
Dumping of builder's rubble on neighbouring properties.	<b>Medium</b>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	<b>Low</b>
Stockpile areas for construction materials.	<b>Medium</b>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	<b>Low</b>
Veld fires may cause damage to infrastructure, vegetation and neighbouring properties.	<b>Low</b>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	<b>Low</b>
The construction vehicles, the site camp and other construction related facilities will have a negative visual impact during the construction phase.	<b>Medium</b>	<ul style="list-style-type: none"> <li>• Before any construction commence on site, an area on site must be demarcated for a site camp.</li> </ul>	<b>Low</b>
<b>Waste Management</b>			
Site office, camp and associated waste (visual, air and soil pollution)	<b>Medium</b>	<ul style="list-style-type: none"> <li>• Temporary waste storage points on site shall be determined. These storage points shall be accessible by waste removal trucks;</li> <li>• 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;</li> <li>• The site camp and the rest of the study area should appear neat at all times;</li> <li>• Waste materials should be removed from the site on a regular basis, to a registered dumping site; and</li> <li>• The site camp should not be located in a highly visual area on the study area, or a screen or</li> </ul>	<b>Low</b>

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		barrier should be erected as not have a negative impact on the sense of place.	
Disposal of building waste & liquids	<b>Medium</b>	<ul style="list-style-type: none"> <li>• 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;</li> <li>• THESE AREAS SHALL BE PREDETERMINED AND LOCATED IN AREAS THAT ARE ALREADY DISTURBED;</li> <li>• Small lightweight waste items should be contained in skips with lids to prevent wind littering;</li> <li>• 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;</li> <li>• 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</li> <li>• Keep records of waste reuse, recycling and disposal for future reference.</li> </ul>	<b>Low</b>
<b>OPERATIONAL PHASE</b>			
<b>Beneficial Impacts</b>			
<b>Social &amp; Economic Environment</b>			
Creation of temporary and permanent jobs.	<b>Medium</b>	During the operational phase numerous permanent jobs will be created on various levels (house, garden, maintenance, etc.).	<b>Medium</b>
Increasing security in the area.	<b>High</b>	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.	<b>High</b>
Higher quality of livelihoods.	<b>High</b>	The community's quality of life will increase and more people will be economically active.	<b>High</b>
Reduction of areas that have potential for informal settlements and illegal dumping.	<b>High</b>	The proposed township development will prevent informal settlements and illegal dumping on the proposed development area.	<b>High</b>
Increase in rates and taxes payable to the City of Tshwane Metropolitan Municipality.	<b>Medium</b>	More rates and taxes will be paid to the CTMM.	<b>Medium</b>
Increase in surrounding property values.	<b>High</b>	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.	<b>High</b>
Visibility and accessibility of study area.	<b>High</b>	The visibility and accessibility of the study area contributes to the study area's ideal suitability for the proposed land use.	<b>High</b>

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<b>Adverse Impacts</b>			
<b>Hydrology</b>			
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.	<b>Low</b>	<ul style="list-style-type: none"> <li>• Storm water through the site should be managed to accommodate the higher quantities of runoff;</li> <li>• Sheet flow should be encouraged as far as possible, and channels should be designed sufficiently to address the problem or erosion; and</li> <li>• 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.</li> </ul>	<b>Low</b>
Leaking pipes could cause ground water pollution risks.	<b>Low</b>	<ul style="list-style-type: none"> <li>• Pipes should be inspected on a regular basis.</li> </ul>	<b>None</b>
<b>Light pollution</b>			
The proposed development could cause a significant level of light pollution as the light industrial development will need some security lighting.	<b>Low</b>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	<b>None</b>
<b>Pollution</b>			
The generation of Air pollution.	<b>Low</b>	The proposed development is located within an area that is characterized by residential developments. It is therefore that one can consider the fact that the study area is surrounded by activities that will contribute to the same level air pollution as the proposed development. 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.	<b>Low</b>
The generation of noise pollution –  Additional traffic generated by	<b>Low</b>	As mentioned previously, one has to note that the study area is wedged between many Provincial and National Roads which already	<b>Low</b>



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the proposed development will have some impact on the ambient noise levels within the area.		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.	
<b>Roads &amp; Traffic</b>			
Additional vehicle traffic could have a detrimental impact on the existing roads with in the vicinity of proposed development.	<b>Medium</b>	If required, the road network which surrounds the proposed development will have to be correctly maintained/ upgraded in order to support additional traffic generated.	<b>Low</b>
<b>Visual Impact</b>			
The proposed development will have some visual impact on the surrounding areas.	<b>Medium</b>	<ul style="list-style-type: none"> <li>• Due to the development control measures and the fact that residential uses will be developed, it is anticipated that the proposed development will have a great visual impact on the surrounding environment,</li> <li>• It is important that the roofs of all the buildings within the proposed development should not reflect any sunlight;</li> <li>• The colour scheme for the buildings should be taken from the palette of colours in the natural surroundings;</li> <li>• 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;</li> <li>• 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.</li> </ul>	<b>Low</b>
Impact on the sense of place.	<b>Low</b>	<p>If not managed correctly, the proposed 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</p>	<b>None</b>

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

<b>Civil Services Report (Appendix G1)</b>
<b>Geotechnical Report (Appendix G2)</b>
<b>Soil Investigation (Appendix G3)</b>
<b>Heritage Study (Appendix G4)</b>
<b>Golden Mole Habitat Suitability (Appendix G5)</b>
<b>Wetland Delineation (Appendix G6)</b>
<b>Fauna &amp; Flora (Appendix G7)</b>
<b>Visual impact Assessment (Appendix G8)</b>

### 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 (Preferred Alternative – Appendix Cii)**

Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>Geology &amp; Soils</b>			
Soil erosion, siltation and gully formation.	<b>Low</b>	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.	<b>Low</b>

**BASIC ASSESSMENT REPORT [REGULATION 22(1)]**

<p>If not planned and managed correctly, topsoil will be lost.</p>	<p align="center"><b>Low</b></p>	<ul style="list-style-type: none"> <li>▪ 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;</li> <li>▪ 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 the topsoil should be removed;</li> <li>▪ 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;</li> <li>▪ 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</li> <li>▪ Rehabilitation works must be done immediately after the involved works in an area is completed to prevent erosion.</li> </ul>	<p align="center"><b>Low</b></p>
<p>Water seepage at shallow depth could cause instability of soil or water pollution.</p>	<p align="center"><b>Medium</b></p>	<p>Geotechnical and civil engineers must supply mitigation measures and guidelines to prevent problems.</p>	<p align="center"><b>Low</b></p>
<p><b>Hydrology &amp; Groundwater</b></p>			
<p>Vehicle maintenance.</p>	<p align="center"><b>Medium</b></p>	<p>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.</p>	<p align="center"><b>None</b></p>
<p>Excavated materials that are stockpiled in the wrong areas can interfere with the natural drainage.</p>	<p align="center"><b>Medium</b></p>	<p>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</p>	<p align="center"><b>Low</b></p>

**BASIC ASSESSMENT REPORT [REGULATION 22(1)]**

		channels. A sediment fence or barrier must be constructed around the stockpile to prevent soil from washing away by rain or any water.	
Surface water flows will be altered during the decommissioning phase.	<b>Low</b>	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.	<b>Low</b>
<b>Climate</b>			
Demolition works during the rainy season can cause unnecessary delays and damage to the environment, especially damage to existing roads in the area.	<b>Low</b>	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.	<b>Low</b>
Demolition works during the dry and windy season.	<b>Low</b>	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.	<b>None</b>
<b>Fauna &amp; Flora</b>			
Uncontrolled fires may cause damage or loss to vegetation and fauna in the area.	<b>Medium</b>	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.	<b>None</b>
Uncontrolled activities and access to sensitive areas in the vicinity.	<b>Medium</b>	<ul style="list-style-type: none"> <li>▪ Dumping of building rubble and other waste on these areas is strictly prohibited; and</li> <li>▪ No vehicles must be allowed to move in or across the sensitive areas.</li> </ul>	<b>Low</b>

**BASIC ASSESSMENT REPORT [REGULATION 22(1)]**

		This leaves visible scars and destroys habitat.	
<b>Visual Impact</b>			
Dumping of builder's rubble on neighbouring properties.	<b>Medium</b>	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.	<b>None</b>
<b>Localised Vibrations</b>			
Noise pollution.	<b>Medium</b>	The activities related with the decommissioning phase will generate noise. Therefore, it must be restricted during working hours.	<b>Low</b>
<b>Roads &amp; Traffic</b>			
Heavy vehicle traffic increase could disrupt the surrounding landowners' daily routines.	<b>Medium</b>	Heavy vehicles must be instructed to only use the main roads during off-peak hours.	<b>Low</b>
Restrictions of access to surrounding properties.	<b>Low</b>	<ul style="list-style-type: none"> <li>▪ To minimize this impacts or risks, heavy vehicles (trucks, bull dowsers, etc.) should avoid using the local road network during peak traffic times;</li> <li>▪ 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</li> <li>▪ Warning signs should be erected on the roads that these vehicles will use, at big crossings/access roads and on the site if needed.</li> </ul>	<b>None</b>
Damage to roads.	<b>Medium</b>	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.	<b>None</b>
<b>Safety &amp; Security</b>			
During the decommissioning phase safety and security problems (especially for the surrounding residents) are likely to occur.	<b>Low</b>	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 day's work. A security guard should be appointed on site to prevent any security problems.	<b>Low</b>
Decommissioning activities could cause danger to children and animals of the surrounding	<b>Medium</b>	<ul style="list-style-type: none"> <li>▪ Although regarded as a normal practice, it is important to erect proper</li> </ul>	<b>Low</b>

**BASIC ASSESSMENT REPORT [REGULATION 22(1)]**

residents.		<p>signs indicating the operations of heavy vehicles in the vicinity of dangerous crossings and access roads or even on the site if necessary;</p> <ul style="list-style-type: none"> <li>▪ 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;</li> <li>▪ A barrier should be established around dangerous excavation areas;</li> <li>▪ 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</li> <li>▪ No workers should be allowed to enter adjacent private properties without written consent of the legal owners to the contractor.</li> </ul>	
<b>Waste Management</b>			
Site office, camp and associated waste (visual, air and soil pollution)	<b>Medium</b>	<ul style="list-style-type: none"> <li>▪ Temporary waste storage points on site shall be determined. These storage points shall be accessible by waste removal trucks;</li> <li>▪ 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;</li> <li>▪ The site camp and the rest of the area should appear neat at all times;</li> <li>▪ Waste materials should be removed from the site on a regular basis, to a registered dumping site; and</li> <li>▪ 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.</li> </ul>	<b>Low</b>
Disposal of building waste & liquids.	<b>Medium</b>	<ul style="list-style-type: none"> <li>▪ All waste generated must be dumped at a pre-selected area on site to be</li> </ul>	<b>Low</b>

		<p>carted to a registered landfill site. THESE AREAS SHALL BE PREDETERMINED;</p> <ul style="list-style-type: none"> <li>▪ Small lightweight waste items should be contained in skips with lids to prevent wind littering;</li> <li>▪ 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;</li> <li>▪ 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</li> <li>▪ Keep records of waste reuse, recycling and disposal for future reference.</li> </ul>	
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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.

**N/A**

**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 residential development;
- 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 to be allowed to sleep on the construction site at night and provision for adequate security/ site supervision must be made during the day;
- Loss of flora and fauna and potential invasion of exotic plant species.

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.

## 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 (Preferred Alternative – Appendix Cii)

**The major impacts that is likely to occur during the construction and operational phase:**

- **Biodiversity**

The environment will be temporarily affected by the moving of large construction vehicles and the excavations for the installation of services and infrastructure and construction of residential units. The river system might be impacted upon through erosion and sedimentation and the spreading of alien and invasive plant species. A drainage line traverses the site but would be kept as private open space for the proposed development.

- **Geology and Soils**

The study area is not underlain by dolomite. The drainage line do has some erosion potential and possible high content on the development area.

The site is underlain by alluvial and colluvial clayey soils overlying residual soils and shale bedrock. It is not anticipated that there would be any problems with excavations on the alluvial clayey soils. The water table was not encountered during the investigation; however, seasonal perched water conditions and marshy conditions might occur.

Valuable topsoil may also be lost during the construction process. The loss of topsoil can however be minimised through the storage of topsoil in designated stockpiles on site and the re-use thereof within the landscape component of the development.

- **The Social Environment**



The public participation were done by means of a newspaper notice, site notices placed on prominent points on the application site, hand delivered notices to surrounding tenants and landowners and the distributing of notices to stakeholders such as the Local Authorities, Councillors by means of faxes and e-mails.

Dangerous excavations can cause injury/ even death to people if proper precautions are not taken. Crime can also impact the surrounding community from the temporary workers. Social importance, new human activity in the area.

Construction vehicles and equipment can be temporarily visually unpleasant for residents.

The proposed residential development will contribute to storm water management, road safety, traffic distribution etc.

- **Economic Environment**

Installation of services for the proposed development as well as construction of dwelling units will create a significant number of employment opportunities for skilled and un-skilled workers. During the operational phase of the residential development the job opportunities in the surrounding environment will be increased.

- **Noise**

The construction phase will cause noise pollution and disturb the receiving community, but can be mitigated with the limitation construction hours from 8:00 to 18:00 to cause minimal disturbance to the community.

- **Visual**

Construction vehicles and equipment can be visually unpleasant for residents.

**Alternative 2**

N/A

**No-go (compulsory)**

The no-go option entails that the development area stay in the current state and no new services is installed and no residential units will developed.

The proposed development will not have a significant impact on the Bio-physical

environment, as the majority of the site is already disturbed and degraded.

The locality of the site in an area filled with new developments and with water resources available makes it rather susceptible for informal settlements for individuals with no formal residence in particular those working in the vicinity. Informal settlements also bring about petty crime that could possibly escalate to major crimes. Informal settlements on the site will increase the level of littering on the site and water pollution of the drainage line.

## 6. IMPACT SUMMARY OF PREFERRED PROPOSAL

Identify preferred proposal

### Alternative 1 (Proposal)

Having assessed the significance of impacts of the proposal and various alternatives, please provide an overall summary and reasons for selecting the preferred project proposal.

It is evident that based on the biophysical and sociological characteristics, the site is suitable for the proposed development of a residential township (only if the project is planned and managed in accordance with an approved Environmental Management Plan). The development will fit in with the surrounding area and create job opportunities during the constructional phase.

As already indicated, most of the construction related activities could be mitigated to an acceptable level. The proposed development on the site will contribute to the biodiversity as alien and invasive plant species will be eradicated and monitored.

The proposed development will create several job opportunities during the construction and operational phase.

If managed correctly, the proposed project could have a significant positive impact on the social and economical environments. The proposed development could also have a positive impact on the ecological environment (especially through the upgrade and protection of the drainage line area and the removal of exotic invaders and weeds from the site).

In the long term the impact of the proposed development will be more positive than negative for the Bio-physical, Social and Economic environments:

#### Biophysical

- The exotic invaders and weeds will be removed from the site on a continuous basis;
- Apart from the proposed road crossing, storm water management

measures and rehabilitation works, no construction is planned within the drainage line area.

Social

- Noise and dust problems during the construction phase;
- Dangerous excavations can cause injury to people in the surrounding environment.

Economic

- Creation of job opportunities during the construction and operational phase;
- Increased rates and taxes to the local municipality.

The mitigations and adaptive monitoring outlined in this Basic Assessment and the EMP with respect to potential adverse impacts should result in limited adverse impacts on local and regional, natural and socio-economic resources. No "fatal flaws" or adverse impacts that cannot be mitigated are anticipated to be associated with the proposed residential development.

As a result of the above mentioned information, Bokamoso is of the opinion that the proposed development (only if planned, implemented and managed correctly) will in the long term have a significant positive impact on the larger regional system to which it is linked.

It is therefore requested that the proposed township development be allowed to proceed, so long as the mitigation measures contained in this report and in the Environmental Management Plan (**Appendix H**) are implemented, so as to achieve maximum advantage from beneficial impacts, and sufficient mitigation of adverse impacts.

If GDARD approve Alignment Alternative 3 of Hazeldean Road, the "Sense of Place" of the study area and the tranquil atmosphere will be compromised. The Residential 1 stands proposed for the ridge area and adjacent to the watercourse will lose their value.

The applicant therefore provided for an alternative development layout that incorporates Road Alignment Alternative 3, which runs to the east of the ridge on the study area.

This option was mentioned to GDARD during the meeting of 4 May 2015. This amended layout incorporates land-uses that are more compatible with the proposed new busy road. Such new land-uses include commercial, retail and higher density residential uses adjacent to the road. The buildings and structures will be orientated and designed to absorb and screen the noise and visual impacts of the proposed new road. **Refer to Appendix Ciii for the**

layout alternative that accommodates the proposed new Hazeldean Road.

It is requested that GDARD approve the Layout alternative in Appendix Ciii if Alternative 3 of the proposed Hazeldean Road is approved. Take note the ecological impacts will be similar to the impacts as the preferred layout, because the amended layout does not deviate from the development lines as approved by GDARD in the Amendment that was granted, which authorised the layout attached as Appendix cii (the Preferred Layout for this application)

**Appendix Ciii: Proposed Layout if Alternative 3 of Hazeldean Road is approved**

Sensitive Ridge Area will still be conserved and proposed amended layout will not deviate from development lines as approved in the amendment that was granted by GDARD

50 Full Title Residential Stands

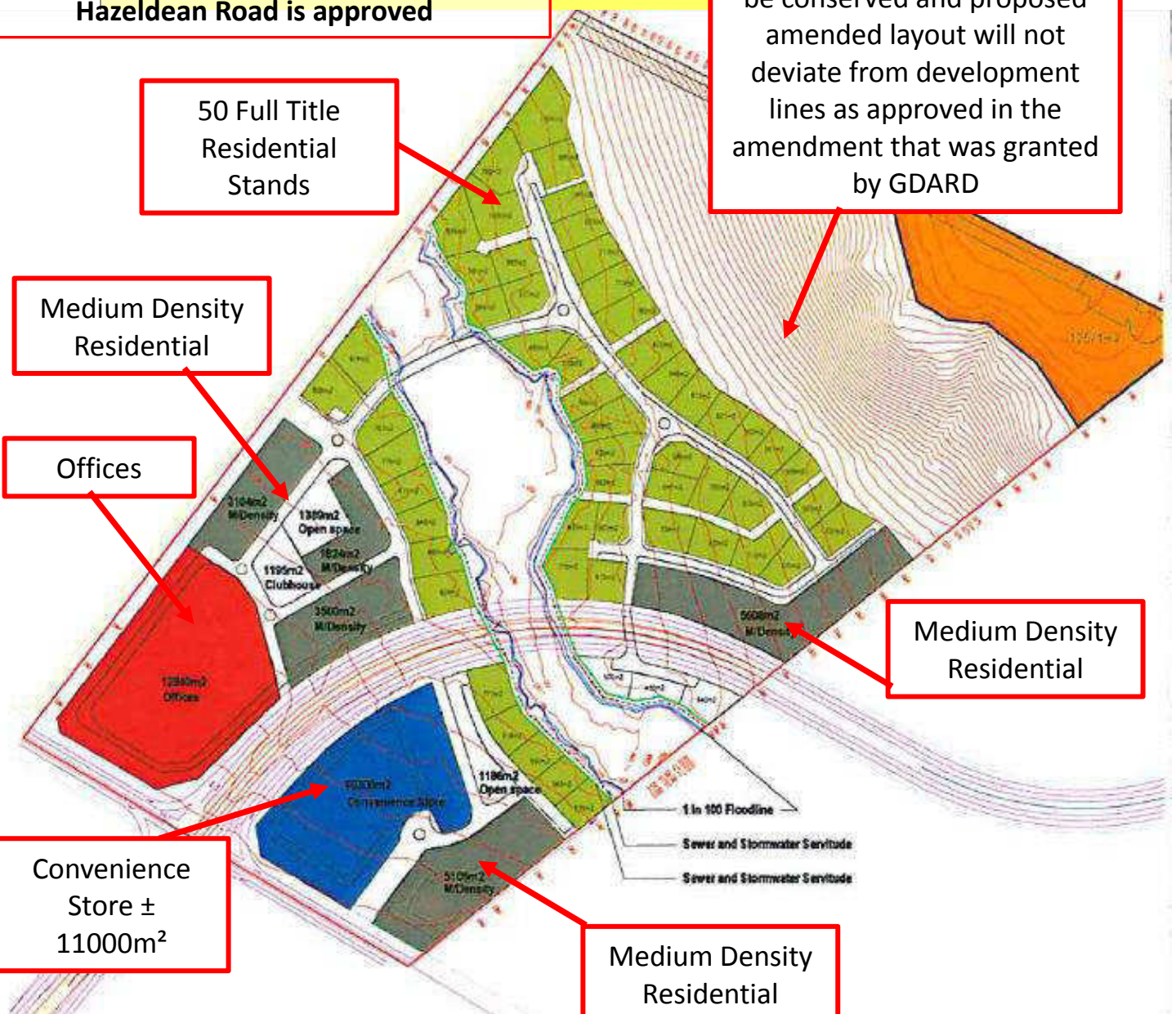
Medium Density Residential

Offices

Convenience Store ± 11000m<sup>2</sup>

Medium Density Residential

Medium Density Residential



**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).

<b>YES</b> <b>X</b>	NO
------------------------	----

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:

Based on the information above, it is recommended that the proposed development (**Layout in Appendix Cii**) be approved, subject to the following conditions:

- All recommendations as part of the attached Fauna and Flora Habitat Assessment must be adhered to;
- Recommendations in the Geotechnical Report needs to be incorporated in the planning and designing phase of this development;
- The EMP attached must be adhered to at all times and the appointed ECO must ensure the developer comply with the EMP.

If GDARD decide to approve Alternative 3 of the Proposed Hazeldean Road, the layout included in Appendix Ciii becomes the preferred alternative.

If GDARD approve Alternative 3 of Hazeldean Road after the issuing of the approval for this project. The applicant will compile and submit an amendment application (Part 2 Amendment Application) to accommodate the proposed Hazeldean Road as approved in the GDARD Decision.

**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

<b>YES</b> <b>X</b>
------------------------

## 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: Letters from authorities

Appendix G: Specialist reports

Appendix H: EMP

Appendix I: Enlarged Figures

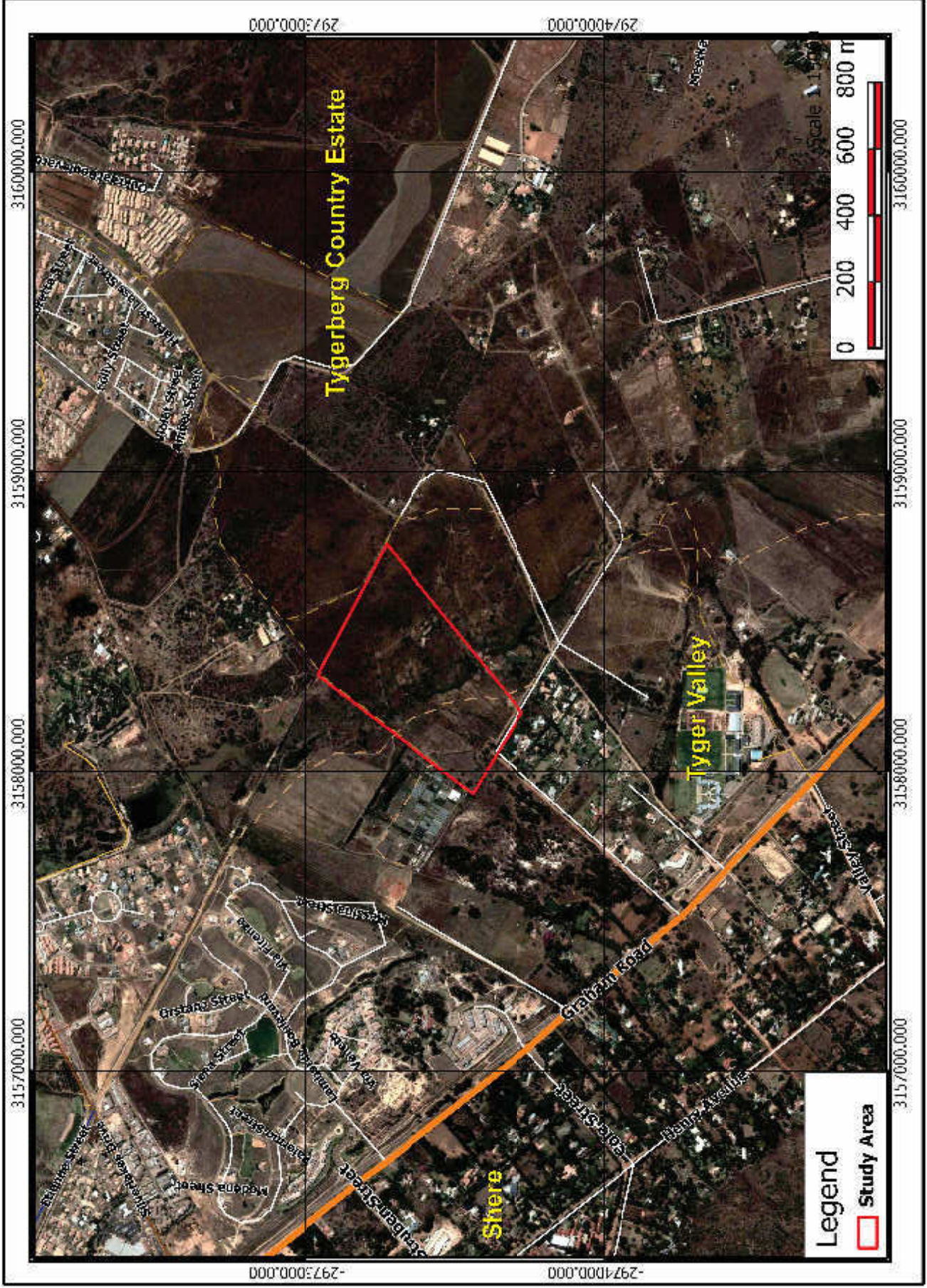
Appendix J: Company Profile and CV

Appendix K: Other information

**Site plan(s)**



**Appendix A**





# Photographs

Not available



Appendix B

## Facility Illustration(s)



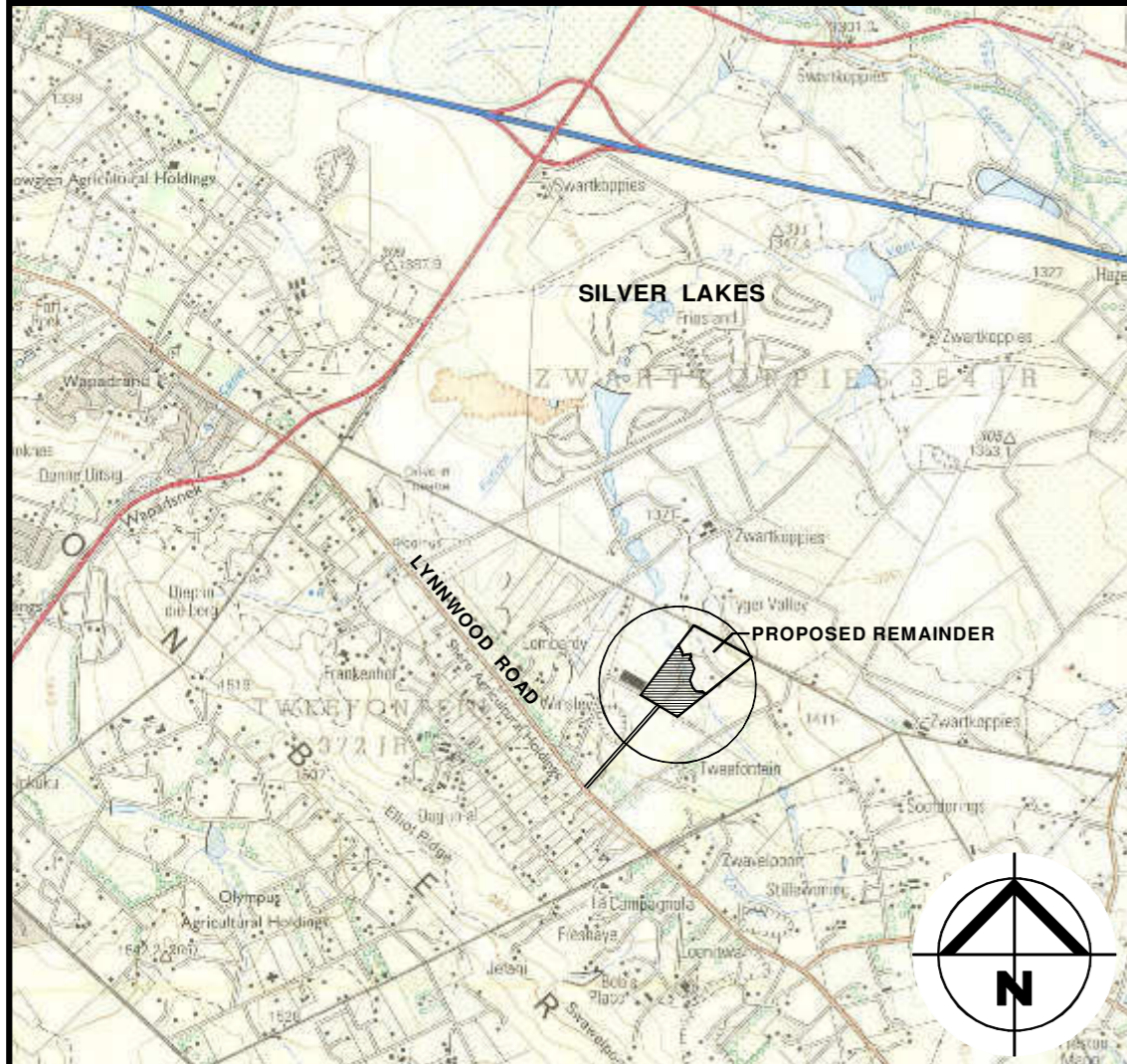
Appendix C

**Original Layout approved in Original RoD**



**Appendix Ci**

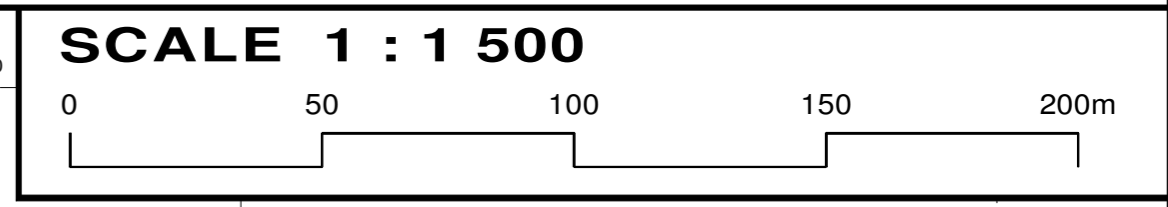
# PROPOSED TOWNSHIP TIJGER VALLEY X14



**LOCALITY PLAN 1 : 50 000**

**LOCALITY**  
SITUATED ON PART OF PORTION 5 OF THE FARM TYGER VALLEY 334-JR REPRESENTED BY THE FIGURE A-B-C-D-E-F-G-H-J-K-L-M-N-P-Q-R-A

**LOCAL AUTHORITY**  
KUNGWINI LOCAL MUNICIPALITY



**VLIETSTRA**  
TOWN AND REGIONAL PLANNING

PO Box 72097  
LYNWOOD RIDGE  
0040

Sagewood House  
Eastwood Office Park  
Lynnwood Road  
Lynnwood Ridge  
PRETORIA

Tel (012) 348-5720  
Fax (012) 348-5726  
e-Mail: vliet@lantic.net

VLIETSTRA TOWN AND REGIONAL PLANNING INC REG NO 1985/011261/21

**FLOOD LINE CERTIFICATE**

IN TERMS OF SECTION 144 OF THE NATIONAL WATER ACT (ACT NO. 36 OF 1998), IT IS HEREBY CERTIFIED THAT THE LINES INDICATED ON THIS PLAN, REPRESENT THE MAXIMUM LEVELS THAT FLOODS WILL REACH WITH AVERAGE RECURRENCE INTERVALS OF 100 YEARS AND 50 YEARS.

F.W.J. KOEN (Pr.Eng.) (Reg. No. 760534)

- SERVITUDE NOTES**
- 1) A SEWER SERVITUDE 2M WIDE IN FAVOUR OF THE LOCAL AUTHORITY IS PROPOSED OVER ERF 31.
  - 2) A GENERAL SERVITUDE FOR MUNICIPAL PURPOSES IN FAVOUR OF THE LOCAL AUTHORITY IS PROPOSED OVER ERVEN 1 AND 53-60.
  - 3) THE PROPOSED TOWNSHIP IS AFFECTED BY A RIGHT-OF-WAY SERVITUDE 9,45M WIDE IN FAVOUR OF THE GENERAL PUBLIC, INCORPORATED AS STREETS, (S.G. NO. A 923/60).
  - 4) A GENERAL R.O.W. SERVITUDE IN FAVOUR OF THE PROPOSED REMAINDER IS PROPOSED OVER ERF 1.

- GENERAL NOTES**
- 1) ALL DIMENSIONS AND AREAS APPROXIMATE
  - 2) THE CONTOURS ARE IN ACCORDANCE WITH REGULATION 18(1) OF THE TOWN-PLANNING AND TOWNSHIPS ORDINANCE, ORDINANCE 15 OF 1986  
CO-ORDINANCE SYSTEM: WGS 29°  
CONTOUR DATUM: SEA LEVEL  
1m CONTOUR INTERVALS
  - 3) CONTOURS SUPPLIED BY ISAZI SURVEYS

**DENSITY NOTE**  
NETT DENSITY = 25,41 DWELLING UNITS PER HECTARE

LAND USE	ZONING	ERF NUMBERS	No OF ERVEN	No OF D/UNITS	AREA (Ha)	%	MAY 2006
	RESIDENTIAL 1	2-12, 21-29, 33-38, 42-52	37	37	2,1460	21,56	
	"SPECIAL" FOR DWELLING UNITS (25 u/Ha)	13, 18-20, 30, 32, 41	7	21	0,8502	8,54	
	"SPECIAL" FOR DWELLING UNITS (30 u/Ha)	17	1	7	0,2334	2,34	
	"SPECIAL" FOR DWELLING UNITS (40 u/Ha)	14-16, 39,40	5	47	1,1773	11,83	
	"SPECIAL" FOR ACCESS AND ACCESS CONTROL	1	1	N/A	1,8637	18,73	
	"SPECIAL" FOR CLUBHOUSE ETC.	31	1	N/A	0,3878	3,90	
	PRIVATE OPEN SPACE	53-60	8	N/A	2,4941	25,06	
	STREETS (9,45 & 14,72m)		N/A	N/A	0,8000	8,04	
	TOTAL		60	112	9,9525	100,00	

**Layout as Approved in the Amendment  
granted by GDARD (The Preferred Alternative  
for this Application)**



**Appendix Cii**

# PROPOSED GRAYSTONE RESIDENTIAL ESTATE



**Layout that accommodated Alternative 3 of  
the Proposed Hazeldean Road (Preferred  
layout if Alternative 3 of Hazeldean Road is  
approved by GDARD)**



**Appendix Ciii**



NO	DESCRIPTION	Area	NO	DESCRIPTION	Area
1	Office	1500m²	1	Open space	1000m²
2	Clubhouse	1390m²	2	Open space	1000m²
3	Open space	1380m²	3	Open space	1000m²
4	Open space	2000m²	4	Open space	1000m²
5	Open space	124m²	5	Open space	1000m²
6	Open space	1000m²	6	Open space	1000m²
7	Open space	1000m²	7	Open space	1000m²
8	Open space	1000m²	8	Open space	1000m²
9	Open space	1000m²	9	Open space	1000m²
10	Open space	1000m²	10	Open space	1000m²
11	Open space	1000m²	11	Open space	1000m²
12	Open space	1000m²	12	Open space	1000m²
13	Open space	1000m²	13	Open space	1000m²
14	Open space	1000m²	14	Open space	1000m²
15	Open space	1000m²	15	Open space	1000m²
16	Open space	1000m²	16	Open space	1000m²
17	Open space	1000m²	17	Open space	1000m²
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19	Open space	1000m²	19	Open space	1000m²
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21	Open space	1000m²	21	Open space	1000m²
22	Open space	1000m²	22	Open space	1000m²
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24	Open space	1000m²	24	Open space	1000m²
25	Open space	1000m²	25	Open space	1000m²
26	Open space	1000m²	26	Open space	1000m²
27	Open space	1000m²	27	Open space	1000m²
28	Open space	1000m²	28	Open space	1000m²
29	Open space	1000m²	29	Open space	1000m²
30	Open space	1000m²	30	Open space	1000m²
31	Open space	1000m²	31	Open space	1000m²
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36	Open space	1000m²	36	Open space	1000m²
37	Open space	1000m²	37	Open space	1000m²
38	Open space	1000m²	38	Open space	1000m²
39	Open space	1000m²	39	Open space	1000m²
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43	Open space	1000m²	43	Open space	1000m²
44	Open space	1000m²	44	Open space	1000m²
45	Open space	1000m²	45	Open space	1000m²
46	Open space	1000m²	46	Open space	1000m²
47	Open space	1000m²	47	Open space	1000m²
48	Open space	1000m²	48	Open space	1000m²
49	Open space	1000m²	49	Open space	1000m²
50	Open space	1000m²	50	Open space	1000m²

**PROJECT INFORMATION**

**PROJECT NAME:** 2013 Skyline Lodge

**CLIENT:** M. Conroy

**LOCATION:** Pretoria

**DATE:** 2013

**SCALE:** 1:1000

**DRAWN BY:** [Name]

**CHECKED BY:** [Name]

**DATE:** [Date]

**PROJECT NO.:** [Number]

**REVISIONS:**

NO.	DESCRIPTION	DATE
1	Issue for approval	2013/08/01
2	Revised	2013/08/15
3	Final	2013/08/30

**BOGERTMAN + PARTNERS**

**2013 Skyline Lodge**

**M. Conroy**

**Pretoria**

**Scale: 1:1000**

**DATE: 2013/08/01**



# Approved layout superimposed over the environmental sensitivities



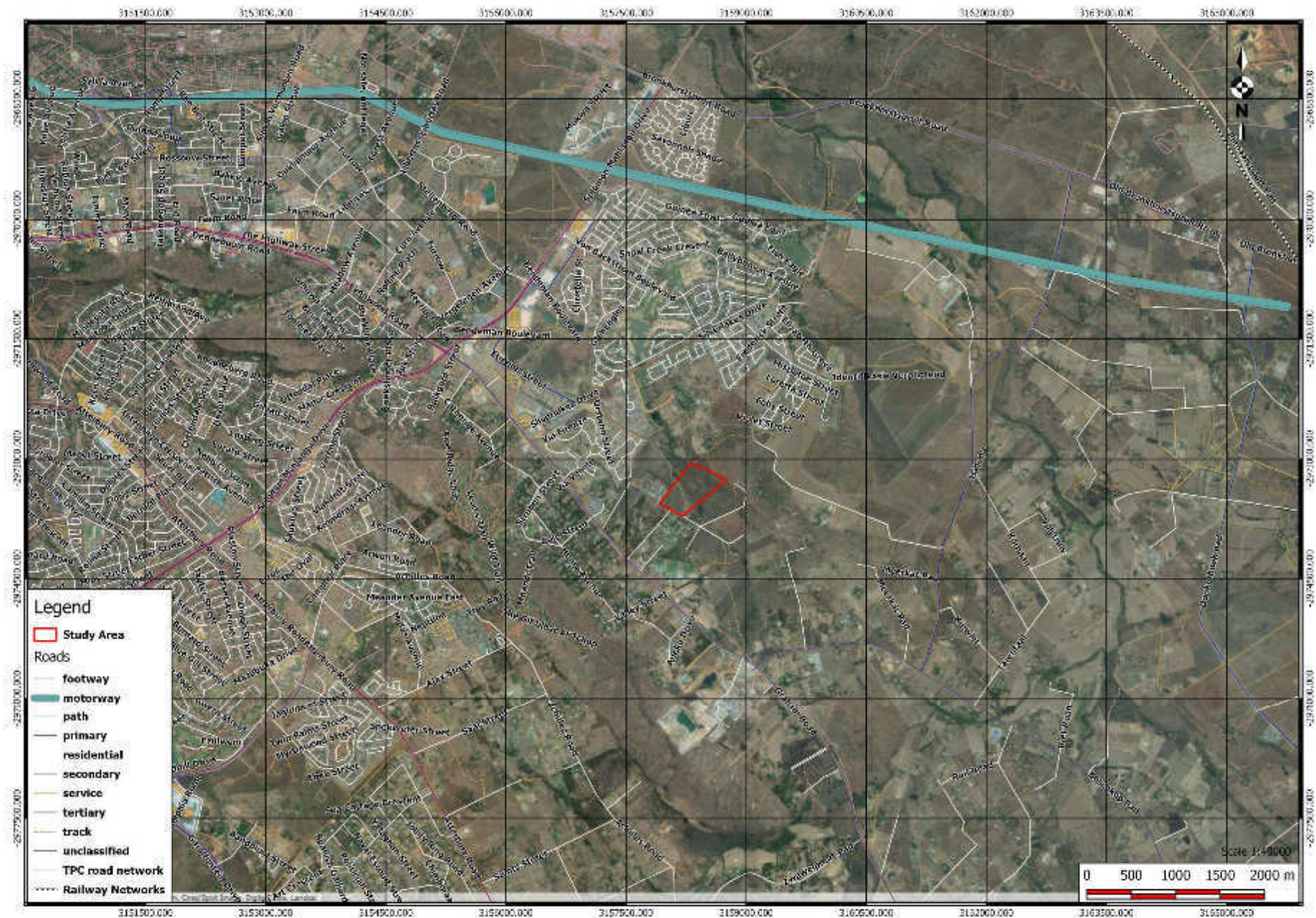


Figure 1. Vegetation communities

# Route Position Information



Appendix D



# Public Participation Information



Appendix E

# Proof of Site Notice



Appendix E1

# 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 and 3 – Government Notice R544 & R546)** for the following activity:

**Reference No:** Gaut 002/14-15/0091

**Project Name:** Tjger Valley Extension 14 & 34

**Project & Property Description:** The proposed development is a Residential Township that is situated on Part of Portion 5 of the Farm Tygervalley 334 JR

**Listing Activities Applied for:**

GNR 544 (Listing Notice 1), 18 June 2010	Activity 9
GNR 544 (Listing Notice 1), 18 June 2010	Activity 10
GNR 544 (Listing Notice 1), 18 June 2010	Activity 11
GNR 544 (Listing Notice 1), 18 June 2010	Activity 18
GNR 544 (Listing Notice 1), 18 June 2010	Activity 22
GNR 544 (Listing Notice 1), 18 June 2010	Activity 23
GNR 544 (Listing Notice 1), 18 June 2010	Activity 26
GNR 546 (Listing Notice 3), 18 June 2010	Activity 13
GNR 546 (Listing Notice 3), 18 June 2010	Activity 16

**Proponent Name:** André Wright

**Location:** The proposed study area is located approximately 1km North-East of Graham Road (Lynnwood Rd) and approximately 1km East of Lombardy Estate.

**Date of Notice:** 3 September 2014 – 13 October 2014

**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

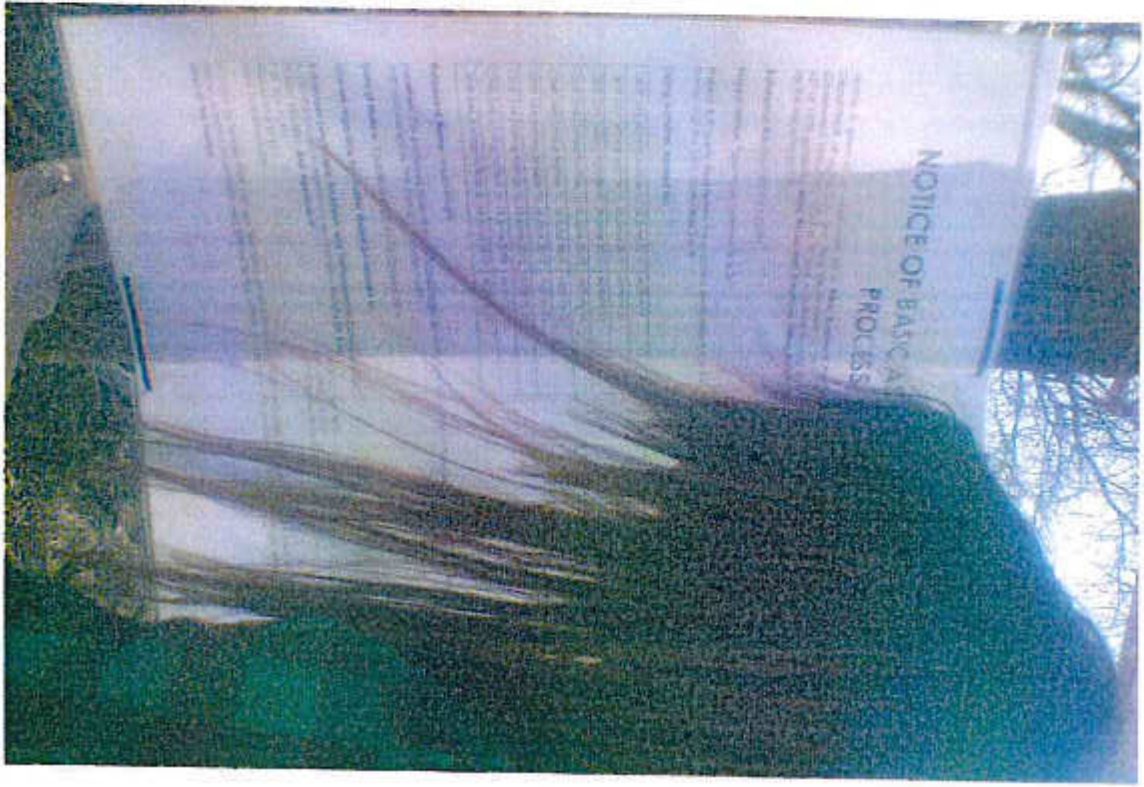
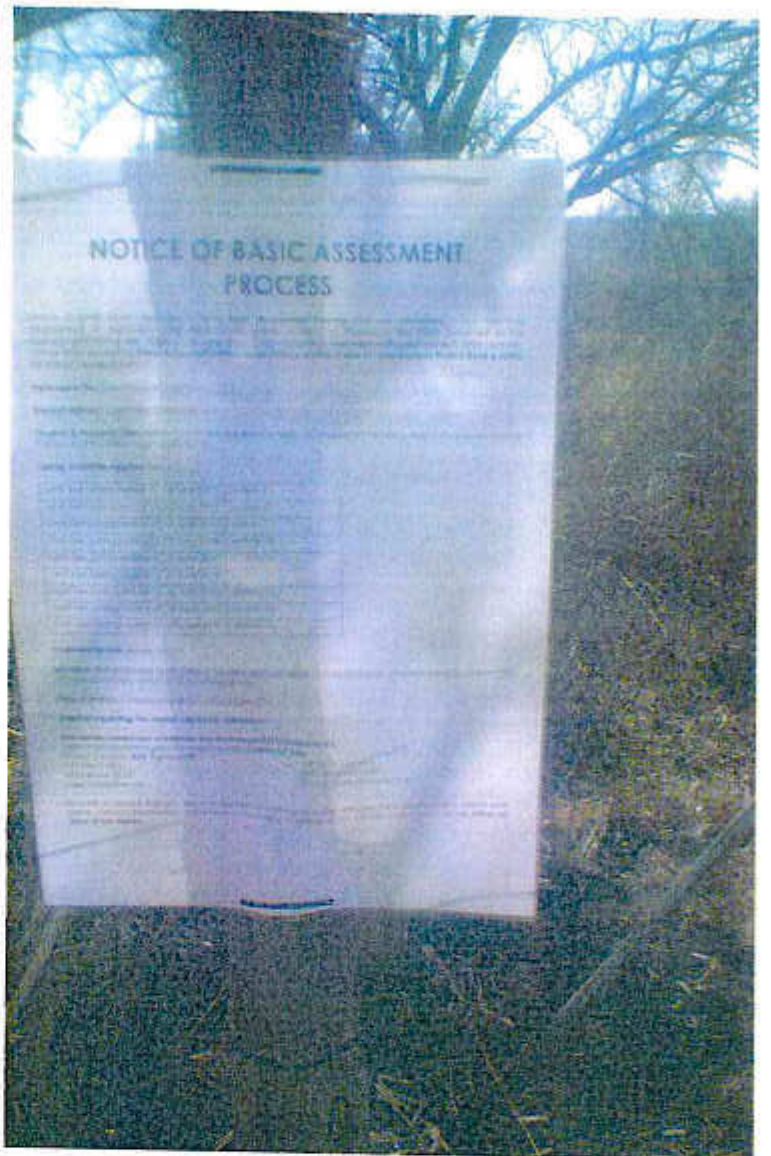
www.bokamoso.biz

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**.





**Written Notices Issued to Those Persons  
Detailed in 1(b) to 1(f) above**



**Appendix E2**

LEBOMBO GARDEN BUILDING  
38 LEBOMBO ROAD  
ASHLEA GARDENS  
0081

P.O. BOX 11375  
MAROELANA  
0161

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



**Dear Landowner/Tenant**

**3 September 2014**

You are hereby informed that Bokamoso Environmental Consultants were appointed (as EAP) by André Wright to conduct the Basic Assessment Process in terms of the amended 2010 NEMA EIA Regulations for the proposed Tijger Valley Extension 14 & 34 on Part of Portion 5 of the Farm Tygervally 334 JR

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

Residential Township

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

REG NO: CK 2010/087490/23  
VAT REG NO: 4080260872

BOKAMOSO LANDSCAPE ARCHITECTS AND ENVIRONMENTAL CONSULTANTS CC TRADING AS BOKAMOSO ENVIRONMENTAL

MEMBER: Lizelle Gregory

# Tijger Valley X14 & X34



**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 and 3 – Government Notice R544 & R546)** for the following activity:

**Reference No:** Gaut 002/14-15/0091

**Project Name:** Tijger Valley Extension 14 & 34

**Project & Property Description:** The proposed development is a Residential Township that is situated on Part of Portion 5 of the Farm Tygervally 334 JR

**Proponent Name:** André Wright

**Listing Activities Applied:** GNR 544 (Listing Notice 1), 18 June 2010 – Activity 9, 10, 11, 18, 22, 23 & 26 and GNR 546 (Listing Notice 3), 18 June 2010 – Activity 13 & 16

**Location:** The proposed study area is located approximately 1km North-East of Graham Road (Lynnwood Rd) and approximately 1km East of Lombardy Estate.

**Date of Notice:** 3 September 2014 – 13 October 2014

**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](http://www.bokamoso.biz)

Tel: (012) 346 3810

Fax: (086) 570 5659

E-mail: [lizelleg@mweb.co.za](mailto: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.**

LEBOMBO GARDEN BUILDING  
36 LEBOMBO ROAD  
ASHLEA GARDENS  
0081

P.O. BOX 11375  
MARDELANA  
0181

Tel: (012) 346 3810  
Fax: 086 570 5659  
E-mail: [lizelleg@mweb.co.za](mailto:lizelleg@mweb.co.za)  
Website: [www.bokamoso.biz](http://www.bokamoso.biz)



Dear Landowner

30 June 2014

**Basic Assessment Process 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) for the proposed Residential Township Development on Part of Portion 5 of the Farm Tygervalley 334 JR**

We hereby confirm that André Wright, appointed Bokamoso Landscape Architects and Environmental Consultants cc, to undertake a Basic Assessment Process in terms of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment (EIA) Regulations, 2010 (Version 1) for the proposed Residential Township Development on Part of Portion 5 of the Farm Tygervalley 334 JR as listed above.

In terms of the 2010 amended NEMA EIA Regulations, the applicant, if not the land-owner, must notify the land-owner and tenants of a proposed development planned on a property occupied by the land-owner/tenant. In the case of this application the property occupied by you (as the land-owner/ tenant) forms part of the land-parcel earmarked for the above-mentioned project.

This notification therefore represents the formal notification of land-owners and/or tenants of the proposed project on Part of Portion 5 of the Farm Tygervalley 334 JR. This notification letter will be submitted as part of the formal application to be submitted to the Gauteng Department of Agriculture and Rural Development (GDARD).

This notification also affords you the opportunity to register (at an early stage) as an Interested and Affected Party (I&AP) in the Basic Assessment Process. In order to register you are requested to fill in your full details on the form supplied below and to fax or e-mail your details to Juanita de Beer (public participation co-ordinator of Bokamoso) for the inclusion of your details onto our public participation database.

Once you are registered as an interested and affected party, we will keep you informed of the progress with the application and we will make all correspondence, documents and other information regarding the application available to you throughout the application process.

Registration as Interested and Affected Party	
Farm Name:	
Erf /Portion Number:	
Street Address:	
Landowner:	Name & Surname: Email address: Telephone: Cell phone: Fax Number: Postal Address:
Tenant Details: (if applicable)	Name & Surname: Email address: Telephone: Cell phone: Fax Number: Postal Address:

Sincerely,

**Lizelle Gregory**  
**Bokamoso Landscape Architects and Environmental Consultants cc**

## Contact Information



TAMMA, PASQUA

### GENERAL INFORMATION

Date Requested 2014/06/30 08:53  
Reference -

### PERSON INFORMATION

Surname TAMMA  
Forename(s) PASQUA  
Date of Birth 1935/02/26  
ID Number(s) 3502260037082

### CONTACT INFORMATION

Phone (home) NOT SPECIFIED  
Phone (work) NOT AVAILABLE  
Mobile Number NOT AVAILABLE  
Residential Address 650 SIBELIUS STREET, LUKASRAND, 0181  
(Last updated: 2009/01/01)  
Postal Address NOT AVAILABLE

### DISCLAIMER

This report contains information gathered from our suppliers and we do not make any representations about the accuracy of the data displayed nor do we accept responsibility for inaccurate data. WinDeed will not be liable for any damage caused by reliance on this report. This report is subject to the terms and conditions of the [WinDeed End User Licence Agreement \(EULA\)](#).

**List of REGISTERED LETTERS**  
**Lys van GEREGISTREERDE BRIEWE**  
 (With an insurance option/met 'n versekeringsopsie)



**Full tracking and tracing/Volledige volg en spoor**

Enquiries/Vrae  
 Toll-free number  
 Tolvry nommer  
**0800 111 502**

Name and address of sender  
 Naam en adres van afsender: Bobamase PO Box 11375,  
Marcelana 0161,  
Graystone

No	Name and address of addressee Naam en adres van geadresseerde	Insured amount Versekerde bedrag	Insurance fee Versekeringsgeld	Postage Posgeld	Service fee Diensgeld	Affix Track and Trace customer copy Plak Volg-en-Spoor-kliëntafskrif
1	Pasqua Tammd 650 Sibellus street, Luskansd, 0181					<small>(with a domestic insurance option, ShareCall 0800 111 502 www.spoor.co.za)</small> RD 885 058 677 ZA CUSTOMER COPY 101028R
2						
3						
4						
5						
6						
7						
8						
9						
10						

Number of letters posted  
 Getal briewe gepos: 1

Total  
 Totaal: R      R      R      R

Signature of client  
 Handtekening van kliënt: [Signature]

Signature of accepting officer  
 Handtekening van aanneembeampte: [Signature]

The value of the contents of these letters is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100,00. No compensation is payable without documentary proof. Optional insurance of up to R2 000,00 is available and applies to domestic registered letters only.

Die waarde van die inhoud van hierdie briewe is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat sonder voorbehoud ontvang word nie. Vergoeding is beperk tot R100,00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering van tot R2 000,00 is beskikbaar en is slegs op binnelandse geregistreerde briewe van toepassing.



# Graystone Draft Basic Assessment Report for Review



All interested and affected parties are invited to review the development information and to register any issues and concerns to be included and addressed in the Final Basic Assessment Report.

**Date:** 9 April – 20 May 2015

**Available on our Website:**

**www.bokamoso.biz**

Please do not hesitate to contact us if there are any questions in connection with the abovementioned development.

Contact person: **Juanita De Beer**

Tel: 012 346 3810 Fax: 086 570 5659


E-mail: [lizelleg@mweb.co.za](mailto:lizelleg@mweb.co.za)





# Tijger Valley X14 & X34 Land owner Notification

Acknowledgement of Receipt of land owner notification concerning the proposed Tijger Valley X14 & X34 project.

	Name	Address	Contact Details	Signature
1	Nancy	Salt cut Roses	Email: Fax: Tel: 012 819 2099	
2	Stuart Devennevil	farm 11m	Email: Fax: Tel: 012 309 0266	
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



Appendix E3

## VOERTUIG GESOEK OM TE KOOP

3075

# 00001



Voer enige voertuig,  
enige plek.

Skryf e-pos, middellik, kontant.

Telefoon: 076 100 7754,  
012 543 3286

Hoewe 532R, Midoto

Kies/motors in enige  
dorp vir dadelike kontant.  
**ONS KOM NA U.**  
SMS ons heel laaste.  
076-939-7300.

**OOP Probleme?** Voertuie  
skikbaar. 084 794 3204.

## Wetenskaplike kennisgewings



Wetenskaplike kennisgewings:

Werkswaardig  
of publikasie  
om 9:00

## KENNISGEWINGS & TENDERS

7. TYPE OF LICENCE APPLIED FOR: RESTAURANT LICENSE  
8. NAMES AND NATURE OF EDUCATIONAL INSTITUTIONS WITHIN A RADIUS OF 1 KILOMETER FROM THE PREMISES IN PARAGRAPH 4: NIL  
9. NAMES AND DISTANCES TO SIMILAR LICENSED PREMISES WITHIN A RADIUS OF 1 KILOMETER FROM THE PREMISES IN PARAGRAPH 4: NIL  
10. PLACES OF WORSHIP WITHIN A RADIUS OF 1 KILOMETER FROM THE PREMISES IN PARAGRAPH 4: NIL  
SIGNED AT NIGEL ON THIS 5TH DAY OF SEPTEMBER 2014  
SIGNED BY APPLICANT OR AN AUTHORIZED PERSON  
JD1425 SEP 3(DBA)4035

## OIS OMGEWINGSIMPAKSTUDIE

4045



### TIJGER VALLEY X14 & X34 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 and 3 - Government Notice R544 & R546) for the following activity: Reference No: Gaut 002/14-15/0091. Project Name: Tiger Valley Extension 14 & 34. Project & Property Description: The proposed development is a Residential Township that is situated on Part of Portion 5 of the Farm Tygervalley 334 JR. Listing Activities Applied for: GNR 544 (Listing Notice 1), 18 June 2010 - Activity 9, 10, 11, 18, 22, 23 & 26 and GNR 546 (Listing Notice 3), 18 June 2010 - Activity 13 & 16. Proponent Name: André Wright. Location: The proposed study area is located approximately 1km North-East of Graham Road (Lynnwood Rd) and approximately 1km East of Lombardy Estate. Date of Notice: 3 September 2014 - 13 October 2014. 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: Ané Agenbach; P.O. Box 11375 Maroelana 0161; Tel: (012) 346 3810. Fax: (086) 570 5659; E-mail: lizelle@bweb.co.za. www.bokamoso.biz. 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.  
002/14-15/0091 SEP 3(B)4045

## HERREGISTRASIES

4085

NJP CONSULTING CC  
APPLICATION FOR RE-INSTATEMENT  
OF A DEREGISTERED CLOSE  
CORPORATION  
I, NICOLAAS JOHANNES POTGIETER -  
600318 5053 087, hereby give notice that I  
will be applying to the Companies and Intel-  
lectual Properties Commission for the resto-  
ration of the Close Corporation, **NJP CON-  
SULTING CC**, Registration no

perk van 28 dae vanaf 05/09/2014  
en in tweevoud by of tot die Area: E  
der by bovermelde adres of by Post  
Kempton Park, 1620 ingedien of ge

BYLAE

Naam van dorp: KEMPTON PARK  
UITBREIDING 22.  
Volle naam van aansoeker: Terraple  
Gauteng BK  
Aantal erwe in voorgestelde dorp:  
4 "Kommersieel" erwe onderhewig  
sekere voorwaardes. Beskrywing vi  
waarop dorp gestig staan te word:  
van Gedeelte R/102 van die plaas  
Zuurfontein 33 I.R.  
Ligging van voorgestelde dorp: Gelyk  
aangrensend aan Pomonaweg (K68)  
Hoëveldweg T-aansluiting. (DP 79:  
DP797 SEPT 3,10(T)4030

## MOGALE UITBR 5

SKEDULE 11  
KENNISGEWING VAN 'N AANSOEK  
STIGTING VAN 'N DORP: VOORGESTELDE  
MOGALE UITBREIDING 5  
Die Sted. Mogale Plaaslike Munisip  
gees hiermee ingevolge artikel 69(6)  
die Ordinasie op Dorpsbeplanning  
1986 (Ordinasie 15 van 1986), ker  
n aansoek om die dorp in die bylae  
genoem, te stig, deur hom ontvang  
Die aansoek is ter insae gedurende  
kantoorure by die kantoor van die h  
Bestuurder, Stedelike Ontwikkeling  
Bemarking, Eerste Vloer, Furniture  
Gebou, op die hoek van Human- en  
Monumentstraat, Krugersdorp, vir  
perk van 28 dae vanaf 03 Septemb  
Enige persoon wat beswaar wil ma  
die aansoek of wil vertoë rig ten op  
die aansoek moet sodanige beswa  
vertoë skriftelik by of tot die Muni  
Bestuurder, Sted. Mogale (Mogale C  
Plaaslike Munisipaliteit, by die bov  
adres of by Postbus 94, Krugersdorp  
binne 'n tydperk van 28 dae vanaf  
03 September 2014.

BYLAE

NAAM VAN DORP: VOORGESTELDE  
MOGALE UITBREIDING 5.  
VOLLE NAAM VAN AANSOEKER: T  
BEZUIDENHOUT EN MEDEWERKE  
NAMENS CRANLE GATE (PTY) LTD  
AANTAL ERWE IN VOORGESTELDE  
14 ERWE  
ERWE 1 TOT 8: "SPESIAAL" VIR  
RESIDENSIELE, KOMMERSIELE, LI  
INDUSTRIELE (INSLUITEND PRODT  
KLEINHANDEL, KANTORE EN GEM  
EN SOSIALE FASILITEITE.  
ERWE 9 EN 10: "SPESIAAL" VIR  
TOEGANGSBOEIEINDES, MUNISIP  
DIENSTE EN TOEGANGSBEHEER  
ERWE 11 EN 14: "PRIVAAT OOP R  
BESKRYWING VAN GROND WAAR  
OPGERIG STAAN TE WORD:  
GEDEELTE 162, RESTANT VAN GEL  
EN RESTANT VAN GEDEELTE 196 V  
PLAAS NOOTGEDACHT 534 JO.  
LIGGING VAN VOORGESTELDE DO  
OP DIE SUIDWESTELIKE EN NOOR  
LIKE KWADRANTE VAN DIE KRUIS  
TUSSEN DIE N14 HOOFWEG EN DI  
PROVINSIALE PAD.  
MOGALE SEPT 03,10(T)4030



MONAVONI UITBR 66  
KENNISGEWING .....VA  
STAD VAN TSHWANE METROPOL  
MUNISIPALITEIT  
SKEDULE 11 (Dorpsbeplanning)



**Communications to and from Persons  
Detailed in Point 2 and 3 above**



## Juanita

---

**From:** Juanita <user3@bokamoso.net>  
**Sent:** 03 September 2014 01:55 PM  
**To:** 'jgrobler@geoscience.org.za'; asalomon@sahra.org.za;  
'maphata.ramphele@gauteng.gov.za'; justicem@dwaf.gov.za; keetm@dwaf.gov.za;  
siwelanel@dwa.gov.za; tshifaror@dwa.gov.za; MathebeT@dwa.gov.za;  
'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;  
loveous.tampane@transnet.net; 'casperm@tshwane.gov.za'; 'andre@ward101.co.za'  
**Subject:** Graystone - Tijger Valley X14 & X34 - Public Participation  
**Attachments:** Public Notice BA.pdf

Dear Interested and/or Affected Party Member,

Please refer to the attached Public Notice regarding the proposed Tijger Valley X14 & X34 Project.

Hope this finds you well.

Kind Regards

*Juanita De Beer*

*Public Participation Consultant*

---



**Landscape Architects &  
Environmental Consultants**

T: (+27)12 348 3810 | F: (+27) 85 571 8859 | E: [info@bokamoso.co.za](mailto:info@bokamoso.co.za) | [www.bokamoso.net](http://www.bokamoso.net)  
38 Labomoos Street, Ashlea Gardens, Pretoria | P.O. Box 11375 Maroelana 0161

## Juanita

---

**From:** Juanita <user3@bokamoso.net>  
**Sent:** 04 September 2014 11:59 AM  
**To:** 'carl@soleil.ludwigsroses.co.za'  
**Subject:** RE: ASSESSMENT PROCESS REF GAUT 002/14-15/0091 DEVELOPMENT OF TIJGER VALLEY EXTENSION 14 & 34

Dear Carl Coetzee,

Thank you for your response, I have registered you as Interested and/or Affected Party Member for the proposed **Tijger Valley X14 & X34** Project.

We will keep you updated regarding the process in the future.

Hope this finds you well.

Kind Regards

*Juanita De Beer*

*Public Participation Consultant*

---



Landscape Architects &  
Environmental Consultants

T: (+27)12 340 3810 | F: (+27) 66 570 5699 | E: [lizelle@nwweb.co.za](mailto:lizelle@nwweb.co.za) | [www.ludwigsroses.net](http://www.ludwigsroses.net)  
38 Lebamba Street, Ashika Gardens, Pretoria | P.O. Box 11375 Marofane 0181

**From:** Carl Coetzee [<mailto:carl@soleil.ludwigsroses.co.za>]  
**Sent:** 04 September 2014 11:47 AM  
**To:** [lizelle@nwweb.co.za](mailto:lizelle@nwweb.co.za)  
**Cc:** 'Ludwig Taschner'; [halmar@ludwigsroses.co.za](mailto:halmar@ludwigsroses.co.za); 'Bernd Mewald'  
**Subject:** ASSESSMENT PROCESS REF GAUT 002/14-15/0091 DEVELOPMENT OF TIJGER VALLEY EXTENSION 14 & 34

Dear Sirs,  
We would like to register as an affected party in the above process.

Physical Address;  
Plot 4 Tygervalley  
Tyger St  
SHERE

Pretoria.

Postal Address;  
PO Box 72183.  
Lynnwood Ridge  
0040

We are situated on portion 12 of Tygervalley, which is adjacent to the proposed development. Our contact details are as below.

Please confirm receipt of this email.

Carl Coetsee

general manager

tel: +27 (0) 12 817 2099 / 2101

fax: 086 624 3973

cell: 082 909 1107

email: [carl@peterjacobson.co.za](mailto:carl@peterjacobson.co.za)

web: [www.jedwiproses.com](http://www.jedwiproses.com)

[Catalogue](#) | [Maps](#) | [Events](#) | [Rose 8001 Venue](#) | [Restaurant](#) | [Things n Things](#)



## Letter

In terms of Section 38 of the National Heritage Resources Act (Act 25 of 1999)

Attention: André Wright

The proposed development is a Residential Township that is situated on Part of Portion 5 of the Farm Tygervalley 334 JR

Thank you for your notification regarding this development.

In terms of the National Heritage Resources Act, no 25 of 1999, heritage resources, including archaeological or palaeontological sites over 100 years old, graves older than 60 years, structures older than 60 years are protected. They may not be disturbed without a permit from the relevant heritage resources authority. This means that prior to development it is incumbent on the developer to ensure that a **Heritage Impact Assessment** is done. This must include the archaeological component (Phase 1) and any other applicable heritage components. Appropriate (Phase 2) mitigation, which involves recording, sampling and dating sites that are to be destroyed, must be done as required.

The quickest process to follow for the archaeological component is to contract an accredited specialist (see the web site of the Association of Southern African Professional Archaeologists [www.asapa.org.za](http://www.asapa.org.za)) to provide a Phase 1 Archaeological Impact Assessment Report. This must be done before any large development takes place.

The Phase 1 Impact Assessment Report will identify the archaeological sites and assess their significance. It should also make recommendations (as indicated in section 38) about the process to be followed. For example, there may need to be a mitigation phase (Phase 2) where the specialist will collect or excavate material and date the site. At the end of the process the heritage authority may give permission for destruction of the sites.

Where bedrock is to be affected, or where there are coastal sediments, or marine or river terraces and in potentially fossiliferous superficial deposits, a Palaeontological Desk Top study must be undertaken to assess whether or not the development will impact upon palaeontological resources - or at least a letter of exemption from a Palaeontologist is needed to indicate that this is unnecessary. If the area is deemed sensitive, a full Phase 1 Palaeontological Impact Assessment will be required and if necessary a Phase 2 rescue operation might be necessary. Please consult the SA Fossil Sensitivity Map that is part of SAHRIS for guidance with this.

If the property is very small or disturbed and there is no significant site the heritage specialist may choose to send a letter to the heritage authority to indicate that there is no necessity for any further assessment.





Any other heritage resources that may be impacted such as built structures over 60 years old, sites of cultural significance associated with oral histories, burial grounds and graves, graves of victims of conflict, and cultural landscapes or viewscapes must also be assessed.

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

Andrew Salomon  
Heritage Officer: Archaeology  
South African Heritage Resources Agency

**ADMIN:**

Direct URL to case: <http://www.sahra.org.za/node/174504>  
(GDARD, Ref: Gaut 002/14-15/0091)



The South African Heritage Resources Agency

Street Address: 111 Harrington Street, Cape Town 8000 \* Postal Address: PO Box 4637, Cape Town 8000  
\* Tel: +27 21 462 4802 \* Fax: +27 21 462 4509 \* Web: <http://www.sahra.org.za>

## Juanita

---

**From:** Juanita <user3@bokamoso.net>  
**Sent:** 09 April 2015 09:45 AM  
**To:** andre@ward101.co.za; carl@soleil.ludwigsroses.co.za;  
elana.orsmond@propcobrokers.co.za; Drikus.Swanepoel@aurecongroup.com  
**Subject:** Graystone - Draft Basic Assessment Review Invitation Notice  
**Attachments:** Review Notice.pdf

Dear Interested and/or Affected Parties,

Please refer to the attached Review Invitation Notice regarding the proposed **Graystone** Project.

The Draft Basic Assessment Report is available on our website: [www.bokamoso.biz](http://www.bokamoso.biz)

Kind Regards/Vriendelike Groete

*Juanita De Beer*

*Public Participation Consultant*

---



**Landscape Architects &  
Environmental Consultants**

T. (+27)112 346 3810 | F. (+27) 85 570 6650 | E. [info@bokamoso.co.za](mailto:info@bokamoso.co.za) | [www.bokamoso.co.za](http://www.bokamoso.co.za)  
38 Lebombo Street, Athlisa Gardens, Pretoria | P.O. Box 11376 Marzellan 2151

## Juanita

---

**From:** Bokamoso <lizelle@mweb.co.za>  
**Sent:** 04 December 2014 03:38 PM  
**To:** Drikus.Swanepoel@arecongroup.com  
**Subject:** RE: Enquiry Tijger Valley Extension 14 & 34  
**Attachments:** Public Notice BA.pdf

**Flag Status:** Flagged

Good day Drikus,

Please find attached the public notice for this project.

The entire property is approximately 21 hectares but the development will be less than 20 hectares. The layout is not yet finalised but will be included in the Draft Basic Assessment Report.

You will be notified when this Draft Basic Assessment Report is available for review.

Trust you find the above in order.

Kind Regards,

*Mary-Lee van Zyl*

*Senior Environmental Assessment Practitioner*

---



Landscape Architects &  
Environmental Consultants cc

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

---

**From:** Drikus Swanepoel  
**Sent:** Wednesday, December 03, 2014 2:35 PM  
**To:** 'lizelle@mweb.co.za'  
**Subject:** RE: Enquiry Tijger Valley Extension 14 & 34

Hi Lizelle, Ane

Would you kindly provide feedback on my earlier request (see e-mail below dated 18 November).

Regards

**Drikus Swanepoel** PMP, PrEng, MEng (Project Management)  
Project Manager, Aurecon  
T +27 12 427 2356 F +27 86 267 8210 C +27 79 490 7844

E [Drikus.Swanepoel@aurecongroup.com](mailto:Drikus.Swanepoel@aurecongroup.com)

Aurecon Centre Lynnwood Bridge Office Park 4 Daventry St Lynnwood Manor 0081 Tshwane South Africa  
[aurecongroup.com](http://aurecongroup.com)



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**DISCLAIMER**

**From:** Drikus Swanepoel  
**Sent:** Tuesday, November 18, 2014 12:10 PM  
**To:** 'lizelle@mweb.co.za'  
**Subject:** Enquiry Tijger Valley Extension 14 & 34

Hi Lizelle, Ane

Would you kindly provide me with additional information regarding the proposed development / project (particulars below).

**Reference No:** Gaut 002/14-15/0091  
**Project Name:** Tijger Valley Extension 14 & 34

A general layout of the proposed development indicating the stand locations, sizes etc. would be appreciated.

Much appreciated.

Kind regards

**Drikus Swanepoel** PMP, PrEng, MEng (Project Management)  
Project Manager, Aurecon  
T +27 12 427 2356 F +27 86 267 8210 C +27 79 490 7844

E [Drikus.Swanepoel@aurecongroup.com](mailto:Drikus.Swanepoel@aurecongroup.com)

Aurecon Centre Lynnwood Bridge Office Park 4 Daventry St Lynnwood Manor 0081 Tshwane South Africa  
[aurecongroup.com](http://aurecongroup.com)

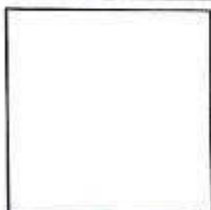


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## Juanita

---

**From:** Juanita <user3@bokamoso.net>  
**Sent:** 04 December 2014 02:24 PM  
**To:** 'Drikus.Swanepoel@aurecongroup.com'  
**Subject:** RE: Enquiry Tijger Valley Extension 14 & 34

Hi Drikus Swanepoel,

Baie dankie vir jou terugvoering, jy is geregistreer as belanghebbende persoon vir die voorgestelde Tijger Valley X14 & X34 Projek.

Ons sal jou ophoogte hou in verband met die verdere proses in die toekoms.

Kind Regards/Vriendelike Groete

*Juanita De Beer*

*Public Participation Consultant*

---



Landscape Architects &  
Environmental Consultants

T: (+27) 12 346 3910 | F: (+27) 86 570 3359 | E: [lizelleq@mweb.co.za](mailto:lizelleq@mweb.co.za) | [www.bokamoso.net](http://www.bokamoso.net)  
38 Lekombo Street, Ashika Gardens, Pretoria | P.O. Box 11375 Maroelana 015

---

**From:** Drikus Swanepoel [<mailto:Drikus.Swanepoel@aurecongroup.com>]  
**Sent:** 03 December 2014 03:32 PM  
**To:** [lizelleq@mweb.co.za](mailto:lizelleq@mweb.co.za)  
**Subject:** RE: Enquiry Tijger Valley Extension 14 & 34

Hi Lizelle, Ane

Vervolgens ons telefoniese gesprek, kan julle my asb registreer as n belanghebbende party.

Dankie

**Drikus Swanepoel** PMP, PrEng, MEng (Project Management)

Project Manager, Aurecon

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Aurecon Centre Lynnwood Bridge Office Park 4 Daventry St Lynnwood Manor 0081 Tshwane South Africa

[aurecongroup.com](http://aurecongroup.com)

**DISCLAIMER**

**From:** Drikus Swanepoel  
**Sent:** Wednesday, December 03, 2014 2:35 PM  
**To:** 'lizelle@mweb.co.za'  
**Subject:** RE: Enquiry Tijger Valley Extension 14 & 34

Hi Lizelle, Ane

Would you kindly provide feedback on my earlier request (see e-mail below dated 18 November).

Regards

**Drikus Swanepoel** PMP, PrEng, MEng (Project Management)  
Project Manager, Aurecon  
T +27 12 427 2356 F +27 86 267 8210 C +27 79 490 7844  
E [Drikus.Swanepoel@aurecongroup.com](mailto:Drikus.Swanepoel@aurecongroup.com)  
Aurecon Centre Lynnwood Bridge Office Park 4 Daventry St Lynnwood Manor 0081 Tshwane South Africa  
[aurecongroup.com](http://aurecongroup.com)

**DISCLAIMER**

**From:** Drikus Swanepoel  
**Sent:** Tuesday, November 18, 2014 12:10 PM  
**To:** 'lizelle@mweb.co.za'  
**Subject:** Enquiry Tijger Valley Extension 14 & 34

Hi Lizelle, Ane

Would you kindly provide me with additional information regarding the proposed development / project (particulars below).

**Reference No:** Gaut 002/14-15/0091  
**Project Name:** Tijger Valley Extension 14 & 34

A general layout of the proposed development indicating the stand locations, sizes etc. would be appreciated.

Much appreciated.

Kind regards

**Drikus Swanepoel** PMP, PrEng, MEng (Project Management)  
Project Manager, Aurecon  
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**DISCLAIMER**

## Juanita

---

**From:** Juanita <user3@bokamoso.net>  
**Sent:** 02 October 2014 11:02 AM  
**To:** 'elana.orsmond@propcobrokers.co.za'  
**Subject:** RE: Grey Stone Development

Dear Elana Orsmond,

Thank you for your response, I have registered you as Interested and/or Affected Party Member for the proposed Graystone Project.

We will keep you updated regarding the process in the future.

Hope this finds you well.

Kind Regards

*Juanita De Beer*

*Public Participation Consultant*

---



**Landscape Architects &  
Environmental Consultants**

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38 Lombardy Street, Ashlea Gardens, Pretoria | P.O. Box 11375, Naroelana 0101

---

**From:** Elana Orsmond [<mailto:elana.orsmond@propcobrokers.co.za>]  
**Sent:** 02 October 2014 10:23 AM  
**To:** [lizelleq@mweb.co.za](mailto:lizelleq@mweb.co.za)  
**Subject:** Grey Stone Development

Good morning Liselle

I spoke to you about a week ago regarding the proposed development, Grey Stone, next to Ludwich Roses in the Area of Lombardy estate

Kindly register me as an interested party and place me on your mailing list

My details: Elana Orsmond  
[Elana.orsmond@propcobrokers.co.za](mailto:Elana.orsmond@propcobrokers.co.za)  
Cell 0825696190

Regards

Elana Orsmond





## Environmental Management Services Department

4th Floor, Nr 11 Francis Baard Street, Pretoria  
PO Box 1454 | Pretoria | 0001  
Email: Tel: 012 358 8871 | Fax: 012 358 8934  
Email: [LivhuwanIS@tshwane.gov.za](mailto:LivhuwanIS@tshwane.gov.za) | [www.tshwane.gov.za](http://www.tshwane.gov.za)

My ref:	8/4/R/4	Tel:	012 358 7334
Your ref:	GAUT 002/14 -15/0091	Fax:	012 358 8934
Contact person:	K. Mofela	Email:	<a href="mailto:kemmonem@tshwane.gov.za">kemmonem@tshwane.gov.za</a>
Section:	Environmental Planning and Open Space Management	Date:	21 May 2015

Bokamoso Landscape Architects & Environmental Consultants  
P.O. Box 11375  
Maroelana  
0161

**Attention:** Ané Agenbacht  
**Tel:** (012) 346 3810  
**Fax:** 086 570 5659  
**E-mail:** [lizelleg@mweb.co.za](mailto:lizelleg@mweb.co.za)

Dear Madam,

**DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED RESIDENTIAL TOWNSHIP DEVELOPMENT ON PART OF PORTION 5 OF THE FARM TYGERVALLEY 334-JR – TO BE KNOWN AS TYGER VALLEY EXTENSIONS 14 AND 34**

Your Report dated April 2015 refers,

### 1. INTRODUCTION

The Environmental Management Services Department (the Department) has considered the Draft Basic Assessment Report in respect of the above-mentioned application. The Draft Basic Report is submitted to the Environmental Management Services Department of the City of Tshwane, hereafter referred to as "the City", as a commenting authority in terms of the National Environmental Management Act (NEMA) and EIA Regulations of August 2010.

### 2. PROJECT LOCATION AND DESCRIPTION

Bokamoso Landscape Architects & Environmental Consultants was appointed by André Wright as an independent Environmental Assessment Practitioner (EPA) to undertake the environmental assessment for the proposed residential township development on part of Portion 5 of the Farm Tygervalley 334-JR. The study area is located approximately 2.7km east of Tshwane Metropolitan Municipal/Kungwini Local Municipal boundary, 750m north of Lynnwood road and south-southeast of Silver Lakes.

The proposed township entails 37 "Residential 1" erven which will have one dwelling unit per erf, 13 "Special zone" erven with dwelling units at different densities, 1 "Special" erf for access and access control, 1 erf zoned as special for clubhouse, open space, sport and recreational facilities, 8 "Private Open Space" erven as well as Streets. The total extent of the proposed development site is approximately 9.9525Ha. The proposed township establishment falls within the area of jurisdiction of the City of Tshwane Metropolitan Municipality.

A positive environmental authorization issued in favour of this proposed development on the 03 April 2007 lapsed before the project could commence and thus the resubmission of this report. Upon the receipt of a positive authorization, the currently proposed layout will be amended to accommodate the proposed Hazeldean road.

The activity entails undertaking the following listed activity in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and Environmental Impact Assessment Regulation, 2010, under:

*Listing Notice 1, R 544: Activities 9, 10, 11, 18, 22, 23, 26*

*Listing Notice 3, R 546: Activities 13, 16*

### 3. KEY FACTORS INFORMING THE COMMENTS

In making comments in respect of the proposed Activity the Department has taken, *inter alia*, the following into consideration:

- a) The information contained in the Draft Basic Assessment Report dated April 2015 and received by the Department on 14 April 2015.
- b) Information obtained from the Section's information base including *inter alia*:
  - Geographic Information System (GIS); and
  - Gauteng Open Space Plan (GOSP).
- c) Compliance with applicable Municipal, Provincial, and National Policies and Guidelines including:
  - The National Environmental Management Act 1998 (Act 107 of 1998) (NEMA): its decision-making principles and Environmental Impact Assessment Regulations;
  - The Tshwane Integrated Environmental Policy (TIEP);
  - The Tshwane Open Space Framework (TOSF); and
  - The Bioregional Plan for the Gauteng Metropolitan Municipalities.

### 4. DISCUSSION

In reviewing the application the Department made the following findings:

- a) According to the Tshwane Open Space Framework the proposed site is situated within and in close proximity of the following typologies:
  - A **Blue Way**, namely an unnamed river. Blue ways are the most important elements in the provisioning of environmental goods and services, the protection of biodiversity, endangered species and ecological systems as well as eco-based activity. Blue ways must therefore be conserved
- b) According to the GDARD C-Plan version 3 the proposed activity site is situated on an **Irreplaceable area and a part of important area.**

- c) According to the Bioregional Plan for the Gauteng Metropolitan Municipalities, the proposed site is situated within the following areas:
- **Critical Biodiversity Area (CBA) 1.** Critical Biodiversity Area, in relation to the rivers and associated floodplain, wetlands, catchments, implies that the area is either natural or near natural terrestrial or aquatic as well as have some cultivated landscapes required to meet biodiversity pattern and/or thresholds. Critical Biodiversity Area One must obtain formal conservation protection where possible to avoid net loss of intact habitat or intensification of land-use.
  - **Ecological Sensitivity Area 1 & 2.** Supporting zone required to prevent degradation of Critical Biodiversity Areas and Protected Areas. These include remaining corridor, catchment, wetland and other process areas that are required to prevent degradation of Critical Biodiversity Areas and formal Protected Areas; and areas which would otherwise have been identified as Critical Biodiversity Areas except that have been transformed or degraded, but which are currently or potentially still important for supporting ecological processes e.g. floodplain areas that have transformed or degraded. These areas are a focus for rehabilitation rather than the intensification of land uses.
  - **Other Natural Areas**
  - **No Natural Areas Remaining**
- d) A record of decision (RoD) indicates that GDARD support the proposed development provided limited development occurs on the less sensitive areas informed by the Ridges Policy and Red List species guidelines.
- e) According to the Flora and Fauna Habitat Assessment report, 26 Red data bird species have been recorded within the 2528CD q.d.g.c. The report recommends that the proposed development should be prohibited from the summit of the ridge, steep slopes and within the 50 metres of the drainage line.
- f) The report further indicates that the drainage line present on site is degraded and utilized by some fauna species. It will not be developed but it shall be zoned as private open space.
- g) The GDARD letter indicates a revised layout plan showing the proposed development within the disturbed areas and south of the road.
- h) According to the Flora and Fauna Habitat Assessment the proposed development site is situated within the Marikana Thornveld vegetation unit of the Savanna Biome with 6 plant communities identified on the larger study area.
- i) The Flora and Fauna Habitat Assessment recommends that amongst the plant communities the *Acacia karoo* is the most sensitive and should be excluded from the development.
- j) The Flora and Fauna Habitat Assessment indicate that the proposed development site is a suitable habitat for three Orange-listed plant species: *Eucornis autumnalis*, *Hypoxis hemerocallidiae* and *Lithops lesliei*. Yet only *Hypoxis hemerocallidiae* was confirmed on site.
- k) The EMP recommends the relocation of *Hypoxis hemerocallidiae* to a nearby suitable site of similar habitation should they be encountered on site.
- l) Three mammal species were confirmed during the site visits, *Lepus saxatilis*, *Pronolagus randensis* and *Hystrix africaeaustralis*. However no red data mammals have been identified as stated in the Flora and Fauna Habitat Assessment.
- m) According to the Golden Mole Habitat Suitability, the site lacks characteristic ecological features associated with Juliana's golden moles and it cannot be viewed as a suitable habitat for these species.

- n) According to the report, the sensitive and species rich areas are towards the north-east of the larger study area and do not form part of the proposed development.
- o) According to the Wetland Delineation report, the wetland is located along the drainage line, with temporary, seasonal and permanent zones of saturation occurring as a mosaic throughout the wetland.
- p) The Wetland Delineation report indicates that the mosaic effect might be caused by past disturbance in the area, which resulted in a patch of wetter and drier zones within the wetland. The wetland is currently in a functional condition.
- q) The Wetland Delineation report recommends that the development should remain within 10m outside the delineated wetland area and mitigation measures regarding bulk services, erosion, invasive species and rubble in a wetland should be effected.
- r) The Wetland Rehabilitation Guidelines recommends that the disturbed areas should be rehabilitated as soon as possible. Wetland species to be used as part of rehabilitation should include: *Typha capensis*, *Leersia hexandra*, *Imperata cylindrical*, *Eragrostis plana*, *Digitaria eriantha* and *Schoenoplectus corymbosus* and Invasive species have to be removed.
- s) The EMP neglect to mention the potential impact of the proposed development as well as mitigation strategies to prohibit further degradation of the wetland and riverine systems onsite.
- t) According to the report, this proposed development requires Water Use License however an application for Water Use License has not been submitted.
- u) According to the report, the proposed development site is currently zoned as agriculture and is vacant. However, the rezoning comments regarding the proposed development has not been included in the report.
- v) The Soil Investigation report Swartland soil found on the footslopes consist of medium fine structured clayey topsoil on structured subangular clayey subsoil. This family soil is deemed suitable for arable agriculture and grassland.
- w) The Mispah soil found in the northern part consist of mainly shallow medium fine structured clay loamy topsoil on weathered rock as indicated in the Soil Investigation report. This family soil is suitable for grazing.
- x) The Tshwane GIS map indicates that the underlying geology of the proposed development site is diabase and shale, minor limestone/dolomite, basalt & tuft. The nature of this geological condition is expansive and therefore could cause damage to the structure if the foundation is not properly planned.
- y) According to the Geotechnical Investigation report, the proposed development site is underlain by prominent horizons of alluvial and colluvial clayey soils overlying residual soils and shale bedrock belonging to the Silverton Shale Formation and a diabase sill of Post Transvaal age.
- z) The Geotechnical Investigation indicates that 31 test pits were excavated across the site. However, the northern part of the site inaccessible due to the steepness and thus no test pits excavated from this site.
- aa) No water table was encountered during sampling however seasonal perched water and marshy conditions may occur during rainy seasons as indicated in the Geotechnical Investigation report.
- bb) The Geotechnical Investigation report indicates no problems will be experienced in the excavation of the Alluvial clayey soils, however during wet seasons these soils tends to become saturated and soften up.

- cc) The Geotechnical Investigation report further recommends that the designs of heavier and lightly loaded structures should consider the potentially expansive nature of the site soils. The development ought to exclude areas affected by seasonal flooding and standing water conditions.
- dd) The Geotechnical Investigation report recommend that heavy excavations from the shale bedrock below a depth of 0.8m should occur using more powerful machines such as jackhammers and pop blasting.
- ee) According to the Heritage Impact Assessment report, smaller stone circles of cultural significance that could relate the Late Iron Age habitation were identified on the site. As a result, a 25m buffer zone is recommended and should be fenced off.
- ff) According to the Tshwane GIS map, the proposed application site is located inside the urban edge as determined by the Gauteng Spatial Development Framework (2000).
- gg) The Civil engineering report indicates that the annual average daily water demand for the proposed development is 177 kl/day and will be sourced from existing water reticulation.
- hh) The source as well as confirmation of capacity and supply of the electricity is not included in the report.
- ii) According to the Civil Engineering report, the average daily flow of sewage will be 147 kl/day. Sewer produced by the proposed development can be serviced through a gravity sewerage reticulation. The existing bulk sewer has capacity to cater for these flows.
- jj) The Civil Engineering report further states that the 51 m<sup>3</sup> solid waste generated per week will be disposed of using the local authority services.
- kk) The Visual Impact Study indicates that the proposed development will have a slight impact on the Lynnwood road and surrounding properties.

## 5. RECOMMENDATIONS

The Department request that the following be included in the Final EIA report:

- a) According to the TOSF guidelines, an area within 1:50 year flood lines or 1: 100 or 32m from centre of a watercourse or 30m wetland buffer (whichever is the greatest) should be reserved and maintained as Open Space. Based on this requirement, the layout plan should be amended to reflect the above guidelines.
- b) A Storm Water Management Plan including the designs of the pedestrian bridge should be compiled and included in the Final Basic Assessment Report.
- c) A detailed Wetland Rehabilitation Plan including rehabilitation of the wetland during construction and operational Phase must be compiled and attached in the Final Basic Assessment report.
- d) Revised EMP addressing potential impacts on the wetland should be compiled and submitted to the department for review the EMP should also incorporate the recommendations that were made by the specialist.
- e) Comments from interested and affected parties should be sought and included in the Final Basic Assessment report.
- f) A Confirmation letter regarding the presence or absence of the golden moles on the proposed development site should be sought from the ecologist and included in the Final Basic Assessment report.

Kgote ya Taolo ya Tikologo • Departament Omngwenyabestuur • Lefapha la Tsamaiso ya Tikologo  
 Ndzwulo ya Mafambieto ya nwa Mbango • UMnyango Wozokuphathwa Kwemvelo  
 Environmental Management Department

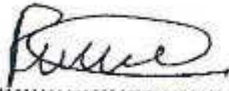


g) A confirmation letter regarding the current status of the fauna and flora should be sought from the relevant specialist and included in the Final Basic Assessment report.

## 6. CONCLUSION

The Department will deliver final comments upon the review of the Final Basic Assessment Report addressing the above-mentioned recommendations.

Yours faithfully



21/08/2015

Mr Livhuwani Siphuma Date:

**EXECUTIVE DIRECTOR: ENVIRONMENTAL MANAGEMENT DIVISION**

Letter signed by: Rudzani Mukheli

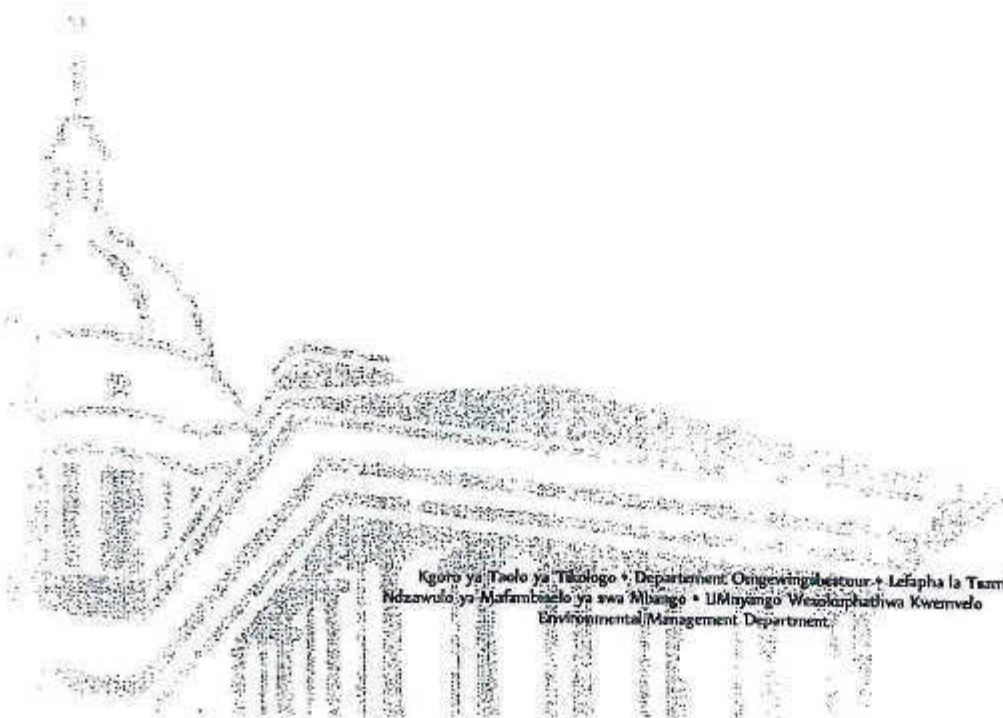
Designation: Deputy Director: Environmental Planning and Open Space Management Section

CC Gauteng Department of Agriculture and Rural Development Attn:

Mr. Teboho Leku

Tel:  
Fax:

(012) 240 3421  
(012) 240 2700



Kgomo ya Taolo ya Tikologo • Departamente Omgwenyngabesour • Lefapha la Tszamiso ya Tikologo  
Indzawulo ya Mafambiselo ya swa Mbang • UMnyango Wezokaphatiwa Kwemvelo  
Environmental Management Department

**Minutes of Any Public and/or  
Stakeholders Meetings**

**(Not available)**



**Appendix E5**

# Comments and Responses Report



Appendix E6

**COMMENT AND RESPONSE REPORT-  
FOR THE PROPOSED TIJGER VALLEY X14 & X34  
Gaut: 002/14-15/0091**

Issue	Commentator	Response
<p>We would like to register as an affected party in the above process.</p> <p>Physical Address: Plot 4 Tygervalley Tyger St Shere Pretoria</p> <p>Postal Address: PO Box 72183 Lynnwood Ridge 0040</p> <p>We are situated on portion 12 of Tygervalley, which is adjacent to the proposed development. Our contact details are as below.</p> <p>Please confirm receipt of this email.</p>	<p>Carl Coetzee <a href="mailto:carl@soleil.ludwigsroses.co.za">carl@soleil.ludwigsroses.co.za</a></p>	<p>Thank you for your response, I have registered you as Interested and/or Affected Party Member for the proposed Tijger Valley X14 &amp; X34 Project.</p> <p>We will keep you updated regarding the process in the future.</p> <p>This I&amp;AP was notified of the availability DBAR and FBAR.</p>
<p>I spoke to you about a week ago regarding the proposed development, Grey Stone, next to Ludwich Roses in the Area of Lombardy estate.</p> <p>Kindly register me as an interested party and place me on your mailing list.</p> <p>My details: Elana Orsmond; <a href="mailto:Elana.orsmond@propcobrokers.co.za">Elana.orsmond@propcobrokers.co.za</a>; Cell 082 569 6190</p>	<p>Elana Orsmond <a href="mailto:Elana.orsmond@propcobrokers.co.za">Elana.orsmond@propcobrokers.co.za</a></p>	<p>Thank you for your response, I have registered you as Interested and/or Affected Party Member for the proposed Graystone Project.</p> <p>We will keep you updated regarding the process in the future.</p> <p>This I&amp;AP was notified of the availability DBAR and FBAR.</p>

<p>Would you kindly provide me with additional information regarding the proposed development/project (particulars below).  <b>Reference No:</b> Gaut 002/14-15/0091  <b>Project Name:</b> Tijger Valley Extension 14 &amp; 34  A general layout of the proposed development indicating the stand locations, sizes etc. would be appreciated.</p>	<p>Drikus Swanepoel  <a href="mailto:Drikus.Swanepoel@aurecongroup.com">Drikus.Swanepoel@aurecongroup.com</a></p>	<p>Please find attached the public notice for this project.</p> <p>The entire property is approximately 21 hectares but the development will be less than 20 hectares. The layout is not yet finalized but will be included in the Draft Basic Assessment Report.</p> <p>You will be notified when this Final Basic Assessment Report is available for review.</p> <p>This I&amp;AP was notified of the availability DBAR and FBAR.</p>
<p>In terms of the National Heritage Resources Act, no 25 of 1999, heritage resources, including archaeological or palaeontological sites over 100 years old, graves older than 60 years, structures older than 60 years are protected. They may not be disturbed without a permit from the relevant heritage resources authority. This means that prior to development it is incumbent on the developer to ensure that a <b>Heritage Impact Assessment</b> is done. This must include the archaeological component is to contract an accredited specialist (see the website of the Association of Southern African Professional Archaeologists <a href="http://www.asapa.org.za">www.asapa.org.za</a>) to provide a Phase 1 Archaeological Impact Assessment Report. This must be done before any large development takes place.</p> <p>The Phase 1 Impact Assessment Report will identify the archaeological sites and assess their significance. It should also make recommendations (as indicated in section 38) about the process to be followed. For example, there may need to be a mitigation phase (Phase 2) where the specialist will collect or excavate material and date the site. At the end of the process the heritage authority may give permission for destruction of the sites.</p>	<p>Andrew Salomon  <b>Sahra</b>  <a href="mailto:asalomon@sahra.org.za">asalomon@sahra.org.za</a></p>	<p>Noted.</p>

<p>Where bedrock is to be affected, or where there are coastal sediments, or marine or river terraces and in potentially fossiliferous superficial deposits, a Palaeontological Desk Top study must be undertaken to assess whether or not the development will impact upon palaeontological resources – or at least a letter of exemption from a Palaeontologist is needed to indicate that this is unnecessary. If the area is deemed sensitive, a full Phase 1 Palaeontological Impact Assessment will be required and if necessary a Phase 2 operation might be necessary. Please consult the SA Fossil Sensitivity map that is part of SAHRIS for guidance with this.</p> <p>If the property is very small or disturbed and there is no significant site the heritage specialist may choose to send a letter to the heritage authority to indicate that there is no necessity for any further assessment.</p> <p>Any other heritage resources that may be impacted such as built structures over 60 years old, sites of cultural significance associated with oral histories, burial grounds and graves, graves of victims of conflict, and cultural landscapes or viewsapes must also be assessed.</p>		
<p>The Department request that the following be included in the Final EIA report:</p> <ul style="list-style-type: none"> <li>a) According to the TOSF guidelines, an area within 1:50 year flood lines or 1:100 or 32m from centre of a watercourse or 30m wetland buffer (whichever is the greatest) should be reserved and maintained as Open Space. Based on this requirement, the layout plan should be amended to reflect the above guidelines.</li> <li>b) A Storm Water management Plan including the designs of the pedestrian bridge should be compiled and included in the Final Basic Assessment Report.</li> <li>c) A detailed Wetland Rehabilitation Plan including</li> </ul>	<p>K. Mofela  <b>City of Tshwane</b>  <a href="mailto:kemmonem@tshwane.gov.za">kemmonem@tshwane.gov.za</a></p>	<ul style="list-style-type: none"> <li>a) A wetland buffer is incorporated on the layout plan and no development is planned within this area/ below the 1:100 year flood line. Only an internal road will cut across the drainage line. Take note that the CTMM recently applied for a major road across the same drainage channel. The final EIA has been</li> </ul>

<p>rehabilitation of the wetland during the construction and operational Phase must be compiled and attached in the Final Basic Assessment Report.</p> <p>d) Revised EMP addressing potential impacts on the wetland should be compiled and submitted to the department for review the EMP should also incorporate the recommendations that were made by the specialist.</p> <p>e) Comments from Interested and Affected parties should be sought and included in the Final Basic Assessment report.</p> <p>f) A confirmation letter regarding the presence or absence of the golden moles on the proposed development site should be sought from the ecologist and included in the Final Basic Assessment report.</p>		<p>submitted to GDARD for consideration. The proposed road will have a more significant impact on the flood line and the wetland areas that the proposed development. SEF applied for the road. It is the proposed Hazeldean Road that will traverse the watercourse, wetlands and a ridge. The detail of the application has been included as part of the FBAR.</p> <p>b) This will be done after the finalization of the layout. The layout will be finalized after the alignment of the Hazeldean Road has been finalized. The applicant is not willing to endure any more costs on the finalization of the layout, because the proposed CTMM road across the study area has a significant impact.</p> <p>The former authorization issued by GDARD also made the compilation of a storm water management plan one of the conditions of approval.</p> <p>The concept of the storm water management plan will be the even distribution of storm water into the wetland/ watercourse area and the intention will be to</p>
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<p>g) A confirmation letter regarding the current status of the fauna and flora should be sought from the relevant specialist and included in the Final Basic Assessment report.</p> <p><b>Conclusion</b>  The Department will deliver final comments upon the review of the Final Basic Assessment Report addressing the above-mentioned recommendations.</p>		<p>allow for the free flow of water and to prevent the “cutting-off” of surface and ground water that feeds the watercourse and associated wetlands.</p> <p>Surface water will also be attenuated and distributed across the surface to prevent erosion and siltation.</p> <p>c) Such a wetland rehabilitation plan will be compiled after the alignment of Hazeldean Road has been finalized. DWS will also require such a plan when they consider the Section 21 WULA to be submitted. CTMM will also require a wetland rehabilitation plan for the watercourse crossing and if the proposed Hazeldean Road is approved, the Graystone wetland rehabilitation plan will dovetail with the CTMM wetland rehabilitation plan and S21 WUL.</p> <p>d) The EMP already addressed the impacts on the wetland areas. As mentioned the reports will be updated once the decision for the Hazeldean Road has been issued by GDARD.</p> <p>e) Extensive Public Participation was conducted by means of</p>
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		<p>notice boards on site, a newspaper advertisement, notices hand delivered to people within a 100 meter radius as well as emails to stakeholders. The comments received from the I&amp;APs are attached to the report and their comments are included within this Comments and Issues Report above.</p> <p>f) SEF recently conducted a moe study for the Hazeldean Study area and confirmed that there are no Juliana Golden moles on the study area.</p> <p>The Juliana Golden mole prefers sandy soils and is found on the Shere agricultural holdings to the south of the study area and on sections of the Bronberg.</p> <p>If any goldens moles are to be found on the study area, they will only be present on the ridge, which is excluded from the development. In an experiment done by Bokamoso an office development took place in an area that was regarded as a suitable habitat for the Juliana Golden Mole. The GDARD Decision required that a special mole garden/ habitat be created on the study area for the moles and it was recently confirmed</p>
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		<p>that the moles use the “mole garden” as habitat and that the office block could successfully be developed adjacent to the mole habitat.</p> <p>If required, a similar mole garden can be established in the ridge area of the study area.</p> <p>The soils around the wetland area are clayish soils, which are not regarded as suitable habitat for the Juliana Golden Mole. This area could however accommodate the Rough Hared Golden Mole. The wetland areas and the watercourse are also excluded from the development and therefore it also creates an opportunity for the protection of this mole. The possible establishment of mole habitats on the site will be considered in the wetland rehabilitation plan to be compiled.</p> <p>g) SEF recently conducted fauna and flora studies of the study area and its surroundings for the proposed local authority road. The results of the SEF Fauna and flora reports are similar to the original reports compiled by the applicant for the study area. It was therefore not regarded as necessary to compile updated</p>
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# **Comments from I&Ap's on Basic Assessment (BA) Report**



**Appendix E7**

# **Comments from I&Ap's on Amendments to the BA Report**

**(not available)**



**Appendix E8**

# **Copy of the Register of I&AP's**



**Appendix E9**

Nr	Registered Parties	Contact details	Address
<b>Stakeholders</b>			
1	Council Geo-Science	<a href="mailto:igrobler@geoscience.org.za">igrobler@geoscience.org.za</a>	
2	SAHRA Gauteng	<a href="mailto:asalomon@sahra.org.za">asalomon@sahra.org.za</a> <a href="mailto:nndobochani@sahra.org.za">nndobochani@sahra.org.za</a>	
3	PHRAG	<a href="mailto:maphata.ramphele@gauteng.gov.za">maphata.ramphele@gauteng.gov.za</a>	
4	DWA	<a href="mailto:justicem@dwaf.gov.za">justicem@dwaf.gov.za</a> <a href="mailto:keetm@dwaf.gov.za">keetm@dwaf.gov.za</a> <a href="mailto:siwelanel@dwa.gov.za">siwelanel@dwa.gov.za</a> <a href="mailto:tshifaror@dwa.gov.za">tshifaror@dwa.gov.za</a> <a href="mailto:mathebet@dwa.gov.za">mathebet@dwa.gov.za</a>	
5	Eskom	<a href="mailto:central@eskom.co.za">central@eskom.co.za</a> <a href="mailto:paia@eskom.co.za">paia@eskom.co.za</a>	
6	SANRAL	<a href="mailto:schmidk@nra.co.za">schmidk@nra.co.za</a>	
7	Gautrans	<a href="mailto:kumen.govender@gauteng.gov.za">kumen.govender@gauteng.gov.za</a>	
8	Randwater	<a href="mailto:mmpshe@randwater.co.za">mmpshe@randwater.co.za</a> <a href="mailto:nkoneigh@randwater.co.za">nkoneigh@randwater.co.za</a>	
9	City Of Tshwane	<a href="mailto:RudzaniM@tshwane.gov.za">RudzaniM@tshwane.gov.za</a>	
10	Spoornet	<a href="mailto:daniel.ramokone@transnet.net">daniel.ramokone@transnet.net</a> <a href="mailto:loveous.tampane@transnet.net">loveous.tampane@transnet.net</a>	
11	DA Roads	<a href="mailto:casperm@tshwane.gov.za">casperm@tshwane.gov.za</a>	
12	<b>Ward Councillor</b> Andre van der Walt	<a href="mailto:andre@ward101.co.za">andre@ward101.co.za</a> Cell: 083 462 5928 Tel: 011 242 8800	
<b>Interested and Affected Parties</b>			
1	Carl Coetzee Ludwigs roses	<a href="mailto:carl@soleil.ludwigsroses.co.za">carl@soleil.ludwigsroses.co.za</a> Cell: 083 247 4688 Tel: 012 817 2099/2101	





# **Comments from I&AP's on the Application**

**(Not available)**



**Appendix E10**

**Water Use Licence(s), SAHRA Information,  
Service Letters from Municipalities &  
Water Supply Information**



**Appendix F**

## Letter

### In terms of Section 38 of the National Heritage Resources Act (Act 25 of 1999)

Attention: André Wright

### The proposed development is a Residential Township that is situated on Part of Portion 5 of the Farm Tygervalley 334 JR

Thank you for your notification regarding this development.

In terms of the National Heritage Resources Act, no 25 of 1999, heritage resources, including archaeological or palaeontological sites over 100 years old, graves older than 60 years, structures older than 60 years are protected. They may not be disturbed without a permit from the relevant heritage resources authority. This means that prior to development it is incumbent on the developer to ensure that a **Heritage Impact Assessment** is done. This must include the archaeological component (Phase 1) and any other applicable heritage components. Appropriate (Phase 2) mitigation, which involves recording, sampling and dating sites that are to be destroyed, must be done as required.

The quickest process to follow for the archaeological component is to contract an accredited specialist (see the web site of the Association of Southern African Professional Archaeologists [www.asapa.org.za](http://www.asapa.org.za)) to provide a Phase 1 Archaeological Impact Assessment Report. This must be done before any large development takes place.

The Phase 1 Impact Assessment Report will identify the archaeological sites and assess their significance. It should also make recommendations (as indicated in section 38) about the process to be followed. For example, there may need to be a mitigation phase (Phase 2) where the specialist will collect or excavate material and date the site. At the end of the process the heritage authority may give permission for destruction of the sites.

Where bedrock is to be affected, or where there are coastal sediments, or marine or river terraces and in potentially fossiliferous superficial deposits, a Palaeontological Desk Top study must be undertaken to assess whether or not the development will impact upon palaeontological resources - or at least a letter of exemption from a Palaeontologist is needed to indicate that this is unnecessary. If the area is deemed sensitive, a full Phase 1 Palaeontological Impact Assessment will be required and if necessary a Phase 2 rescue operation might be necessary. Please consult the SA Fossil Sensitivity Map that is part of SAHRIS for guidance with this.

If the property is very small or disturbed and there is no significant site the heritage specialist may choose to send a letter to the heritage authority to indicate that there is no necessity for any further assessment.





Any other heritage resources that may be impacted such as built structures over 60 years old, sites of cultural significance associated with oral histories, burial grounds and graves, graves of victims of conflict, and cultural landscapes or viewsapes must also be assessed.

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

---

Andrew Salomon  
Heritage Officer: Archaeology  
South African Heritage Resources Agency

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**ADMIN:**

Direct URL to case: <http://www.sahra.org.za/node/174504>  
(GDARD, Ref: Gaut 002/14-15/0091)



# Specialist Reports



Appendix G

# Civil Services



Appendix G1



**DEKKER &  
GELDERBLOM**

137 Muckleneuk Street  
c/o Melk & Muckleneuk Street  
Nieuw Muckleneuk  
0181

P O Box 36817  
Mento Park  
0102

Tel (012) 460-0801  
Fax (012) 460-0803  
e-mail: mail@dgeng.co.za  
www.dgeng.co.za

Reg No 2000/021627/07

13 June 2005

RefNo 012f/498

Synergistics Environmental Services  
P O Box 13419  
Vorna Valley  
1686

For attention: Mr D Kathawaroo

### **CIVIL SERVICES EIA INPUT REPORT: GREYSTON ESTATE**

#### **1. INTRODUCTION**

The applicant has appointed Dekker & Gelderblom, Consulting Engineers (Pty) Ltd for the civil engineering services (roads, water, sewer). A full services report for council will be compiled at a later stage.

The purpose of this report is to confirm the availability and capacity of the existing civil engineering services.

#### **2. DESCRIPTION OF THE SITE**

The site is approximately 21 ha in extend, and is situated north of Lynnwood Road.. The site is situated inside the Kungwini Municipal Boundaries.

The site drains towards the western boundary in a northern direction..

#### **3. GEOLOGY**

A geotechnical investigation has been compiled by Johan van der Merwe. A copy of the report is attached as Annexure A.

It is noted that a portion of the soil zone D extends into the proposed erven and an appropriate engineering solution for the foundations must be designed by the individual owners based on a more detailed investigation of each site.

NW Dekker

PrEng, BSc(Eng)/Civ(Pret)  
B(Eng) (Hons) (Struct) (Pret)  
M(Eng) (Struct) (Pret), PhD(Wits)

JH Gelderblom

PrEng, B(Eng) (Pret)  
B(Eng) (Hons) (Struct) (Pret)  
M(Eng) (Struct) (Pret)

#### 4. THE PROPOSED DEVELOPMENT

The proposed township will consist of the following:

- Residential I stands                      57 No off
- Residential II                                28 No off (99 dwelling units)
- Clubhouse                                    1 No off

#### 5. PROVISION OF SEWAGE RETICULATION

##### 5.1 Existing external sewer reticulation

According to the report from CES (Attached as Annexure A), Kungwini insisted that the developer immediately west of this development will install a new 525 mm dia outfall sewer to the eastern boundary of their property.

##### 5.2 Proposed link sewer

A new link sewer will be installed from the eastern boundary of Paradiso Township to the western boundary of this township. This main outfall sewer will also extend through the township to allow for development upstream of this township.

Kungwini will be responsible for the cost of the enlargement which will be subtracted from bulk service contributions.

##### 5.3 Indicative sewage flow calculations for the full development

Average daily flow = 147 kl/day

##### 5.4 Proposed internal sewer reticulation

A network of 160 mm dia uPVC pipe will be installed on the low side of each stand to drain towards the new approved external connection points.

The internal sewer pipes will be designed in accordance with the "General principles for the design and installation of sewage reticulation in the Pretoria Municipal area as well as Guidelines for the provisional Engineering Services and Amenities in Residential Township Development (Amended 1995)." The more important design criteria are:

- Peak flow rate: 1 l/s for 30 dwelling units
- Minimum pipe diameter = 160 mm (nominal)
- Minimum slope = 1:100 in the first length
- Capacities calculated at 95 % of full flow



- Maximum distance between manholes is 110m.
- Minimum depth within the road reserve 1,0 m
- Minimum depth in midblock sewers 0,6 m
- Cleaning eyes permitted if the last length of sewer is less than 55 m
- Extraneous flow = 1,7 l/s per kilometer of total sewer pipe (internal & external the first, ignoring 15 m of pipe from each block).

### 5.5 Conclusion

The entire site can be serviced with a gravity sewerage reticulation to the satisfaction of the local authority and the existing bulk sewer has sufficient capacity to cater for these flows.

## 6. PROVISION OF WATER RETICULATION

### 6.1 Existing external water reticulation

The developer for Paradiso Estate will install a new bulk water pipe from the existing Rand Water pipe.

### 6.2 Proposed link water between the site and the existing external reticulation

The internal reticulation will be linked to the new bulk supply pipe in Paradiso Estate.

### 6.3 Water demand

Water demand figures are based on the average water consumption figures for a "Residential II" development as per the "Guidelines for the provision of Engineering services and amenities in residential township development".

- Annual average daily water demand 147 kl/day

### 6.4 Proposed water reticulation inside the township

The individual dwelling units will be supplied with water via an uPVC main distribution network, which will also provide water to the fire hydrants. Isolation valves will be positioned along the water pipes to facilitate easy maintenance.

The estimated minimum static pressure inside the development will be 35 m.

### 6.5 Conclusion

The entire development can be serviced by connecting to the existing water reticulation.

## 7. **ROADS**

### 7.1 Existing external road network

Access to the existing road network will be obtained via Lynnwood Road.

### 7.2 External Road upgrades as part of this development

A new link road will be constructed from the southern boundary of the property up to Lynnwood Road on the current road servitude. Refer to the attached drawing from ITS indicating the future master plan in terms of the proposed road upgrades.

### 7.3 Proposed internal roads

The internal roads will consist of roads with a width varying between 6 and 7,4 m depending on local authority requirements.

### 7.4 Conclusion

Access to the site can be obtained via Lynnwood Road.

## 8. **SOLID WASTE AND GAS EMISSIONS**

This development will generate approximately 51 m<sup>3</sup> of solid waste per week. The local authority will be responsible for solid waste removal.

No gas emissions will be generated by the development.

## 9. **CONSTRUCTION PERIOD**

The estimated construction period will be 6 months for the external services.

## 10. SUMMARY

This report deals with the provision of civil engineering services for a township, which consist of a combination residential 1 and residential 2 erven. The proposed development will be approximately 156 dwelling units on approximately 21 ha.

The site can be serviced with a gravity sewerage reticulation. The new bulk sewer to be installed by the developer of Paradiso Estate will have sufficient capacity to cater for the sewerage flow.

The entire site can be serviced with a domestic and fire water reticulation by means of a new connection to the existing reticulation. The new bulk water supply to be installed by the developer of Paradiso Estate, will have enough capacity and pressure to service this development.

Access to the site may be obtained via the new link road installed from Lynnwood Road as per the roads masterplan done by ITS.

Based on the above scenario in terms of the existing civil engineering services, we can therefore conclude that this property can be developed and link to the existing local authority services without difficulty or abnormal cost implications. The existing local authority services have enough capacities to cater for the proposed development.

8 December 2004

**CES**

11 ELECTRON STREET  
PO BOX 814  
STELLENBOSCH 7599  
PHONE (021) 880 0435  
FAX (021) 880 0389  
EMAIL ces@gls.co.za  
REG NO 96 13326/07

COMMUNITY  
ENGINEERING  
SERVICES

Director : Corporate Services  
Kungwini Local Municipality  
P O Box 40  
BRONKHORSTSPRUIT  
1020

Attention: Mr Governor Seleka

Dear Sir

## DEVELOPMENT OF PARADISO ESTATE

The attached request by DLV Engineers (Pty) Ltd dated 23 November 2004, with regards to accommodation of the proposed development in the Metsweding (Kungwini) water distribution system and sewer network, refers.

### 1. WATER DISTRIBUTION SYSTEM

#### 1.1. Distribution zone

The proposed development area should be accommodated in the Bronberg direct zone as shown on Figure 1. The Bronberg direct zone has an 830 mm Rand Water pipe, supplying northward from the Bronberg reservoir. There is also a Kungwini 500 mm/400 mm/300 mm pipe supplying Silver Lakes. It is not certain whether this pipe is linked to the Bronberg reservoir, or to a PRV on the Rand Water pipes upstream of the Bronberg reservoir.

#### 1.2 Water demand

The bulk distribution pipes in the Bronberg direct zone was analysed and planned as part of the Tshwane water master plan. The Tshwane planning was done with a total Annual Average Daily Demand (AADD) for the proposed development of 2 299 kl/d.

For this re-analysis, the AADD for the proposed development was calculated as follows:

• 283 Residential erven @ 1,8 kl/erf/d	= 509 kl/d
• 64 Group housing units @ 1,8 kl/unit/d	= 115 kl/d
• 6,95 ha Town houses @ FSR of 0,4 @ 0,6 kl/100 m <sup>2</sup> /d	= 167 kl/d
• 0,53 ha High rise flats @ FSR of 2,0 @ 0,6 kl/100 m <sup>2</sup> /d	= 64 kl/d
• 1,02 ha Workshop area @ FSR of 0,6 @ 0,6 kl/100 m <sup>2</sup> /d	= 37 kl/d
• 2,72 ha Offices @ FSR of 0,4 @ 0,4 kl/100 m <sup>2</sup> /d	= 44 kl/d
• 0,82 ha Shopping centre @ FSR of 0,4 @ 0,4 kl/100 m <sup>2</sup> /d	= 13 kl/d
• 5,60 ha Guest House & Hotel @ FSR of 0,4 @ 0,6 kl/100 m <sup>2</sup> /d	= 134 kl/d
• 25,93 ha Parks @ FSR of 0,6 @ 30 kl/ha/d	= 467 kl/d
	<u>1 550 kl/d</u>

Directors:  
L C Geustyn  
F J Haupt  
J E Kock  
L H Matlala  
S S Dube

**I.O.R.O.C**

### 1.3 Present situation

Upgrading of the existing system will not be required to accommodate the peak hour demand of the development. The proposed development can connect to the existing Kungwini 400 mm  $\emptyset$  supply pipeline. It must be checked however, whether this pipe is linked to the Rand Water Bronberg reservoir, or to a PRV upstream of the reservoir. If the latter, then it is suggested that the pipe be switched to a feed directly from the reservoir.

### 1.4 Future situation

In future this area will still form part of the future Bronberg Direct zone.

## 2. SEWER NETWORK

### 2.1 Drainage area

The proposed development falls within the Baviaanspoort WCW drainage area of Tshwane as indicated on Figure 2, showing the master plan items required for the Metsweding (Kungwini) part of the drainage area.

### 2.2 Sewer flow

The outfall sewers in Tshwane were recently analysed and planned as part of a master planning study. The master planning took cognizance of the present and potential sewer flows from Kungwini.

For the Tshwane planning the Peak Day Dry Weather Flow (PDDWF) for the proposed development was calculated at 1 629 kl/d @ 20 units/ha.

For this re-analysis, the PDDWF for the proposed development was calculated at 766 kl/d with a Instantaneous Peak Dry Weather Flow (IPDWF) of 13,0 l/s.

### 2.3 Present situation

To link the proposed development to the existing system will require the following (schematic) master plan item. Its future pro rata load on the pipe is also given:

<u>Item</u>	<u>New outfall sewer</u>	<u>IPDWF</u>	<u>Cost</u>	<u>Pro rata load</u>
• S1	970 m x 525 mm $\emptyset$	264 l/s	R681 000 *	5,0%

The following items are required to accommodate the flow from the proposed development in the existing Metsweding (Kungwini) system, allowing for all potential future upstream flow:

<u>Item</u>	<u>New outfall sewer</u>	<u>IPDWF</u>	<u>Cost</u>	<u>Pro rata load</u>
• S2	430 m x 600 mm $\emptyset$	295 l/s	R 486 000 *	4,5%
• S3	730 m x 675 mm $\emptyset$	305 l/s	R1 006 000 *	4,5%
• S4	450 m x 750 mm $\emptyset$	310 l/s	R 713 000 *	4,3%

(\* Excluding P & G, Contingencies, Fees and VAT).

An alternative route for items S2 to S6 is also indicated on the figure.

The pipes sizes inside and through the proposed development should be designed such that the 8,9 l/s (Point A) and 9,0 l/s (Point B) IPDWF from the potential future areas draining towards the development can also be accommodated in the pipelines whilst flowing 70% or less full. (The remaining 30% of the flow area is reserved for accommodation of stormwater ingress).

#### 2.4 Future situation

The development will have a pro rata effect on the following longer term master plan items downstream of its connection. These are not required to accommodate the proposed development in the present situation, but will only be required in future when substantial developments have taken place in the drainage area:

<u>Item</u>	<u>New outfall sewer</u>	<u>IPDWF</u>	<u>Cost</u>	<u>Pro rata load</u>
• S5	300 m x 750 mm Ø	312 l/s	R 484 000 *	4,3%
• S6	400 m x 750 mm Ø	317 l/s	R 636 000 *	4,2%
• S7	1 810 m x 750 mm Ø	504 l/s	R2 769 000 *	3,4%
• S8	530 m x 1 500 mm Ø	3 625 l/s	R1 927 000 *	0,4%
• S9	260 m x 2 100 mm Ø	3 625 l/s	R2 122 000 *	0,4%
• S10	1 110 m x 2 100 mm Ø	3 675 l/s	R8 987 000 *	0,4%

(\* Excluding P & G, Contingencies, Fees and VAT).

If required, the effect of the proposed development on the relevant master plan items in the Tshwane system, can be addressed.

Yours sincerely

COMMUNITY ENGINEERING SERVICES  
REG. NO.: 96/13328/07



Per: DR BF LOUBSER

**ANNEXURE A**  
**GEOTECHNICAL REPORT**

*JOHANN VD MERWE (Pty) Ltd*  
CONSULTING APPLIED EARTH AND ENVIRONMENTAL SCIENTISTS

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PROJECT No: M05/2568

5 June 2005

SYNERGISTICS ENVIRONMENTAL SERVICES  
P.O. Box 13419  
VORNA VALLEY 1686

Attention: Ms. D. Kathararoo

Dear Sir,

**REPORT ON GEOTECHNICAL INVESTIGATION CARRIED OUT FOR THE PROPOSED: TYGER VALLEY HOUSING DEVELOPMENT TO BE ESTABLISHED ON: PORTION 5 OF THE FARM TYGERVALLEI 334-JR, PRETORIA DISTRICT, TSHWANE METROPOLITAN MUNICIPALITY, GAUTENG PROVINCE**

### 1. INTRODUCTION

At the request of Ms. Deshika Kathararoo of Synergistics Environmental Services, who is acting on behalf of a client, a detailed geotechnical investigation was carried out during May 2005 on the above property. The purpose of the investigation was to determine foundation conditions for the establishment of the proposed new Tygervalley Housing Development. The investigation consisted of a detailed geotechnical investigation during which time a number of test pits were inspected across the site, combined with soil sampling and testing in order to produce this report.

### 2. TERMS OF REFERENCE

The objectives of the desk study were to: -

- Determine the engineering properties of the site soils and bedrock including potentially expansive material, low bearing capacity soils and areas difficult to excavate.
- Present appropriate recommendations for residential township design and precautionary measures in accordance with the requirements of the National Home Builders Registration Council's guidelines.

The investigation was carried out in terms of written instructions received from Ms. Deshika Kathararoo in her letter referenced S0015 dated 15 April 2005.

### 3. INFORMATION CONSULTED

The following information was available and was consulted: -

- A site layout plan prepared to a scale of 1: 1 500 by Vlietstra Town and Regional Planners showing existing roads, the proposed layout of the new township, the boundaries of the site and surface contours at 1,0m intervals.



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- The publication "National Home Builders Registration Council's Home Building Manual, Part 1 & 2, February 1999.

#### 4. SITE DESCRIPTION

The site for the proposed development is situated in the eastern part of Pretoria as shown on the attached 1: 50 000 scale Locality Map at the back of the report. The property is trapezoidal in shape and covers a surface area of some 20,65 hectares of which 16 hectares was investigated in detail. The site is bounded to the south by Lynnwood Road, to the north by a prominent rocky ridge and on the remaining sides by adjacent agricultural holdings.

The property is a partly developed agricultural holding containing a derelict house and outbuildings located in the north-eastern part of the site. The surface cover consists of Highveld sourgrass containing dense growths of indigenous trees in the central and northern portions of the site, the most common species observed were *Acacia*, *Rhus*, *Olea* and *Ziziphus spp.* The property is bisected by a westerly flowing, non-perennial drainage feature (a tributary of the Pienaars River) and surface drainage takes place via sheetwash towards this feature from the south at an average gradient of some 2% and from the north at some 30% initially, flattening to some 6%. Two small earth dams are located in the lower reaches of the drainage feature, close to the western boundary of the site.

#### 5. SITE INVESTIGATION

Thirty-one test pits were excavated across the site using a John Deere 310 backactor supplied by SNA Labr, were entered and inspected by the undersigned, a registered professional engineering geologist. The soil and bedrock formations were described in terms of the methods advocated by Jennings *et al* (1973) namely, moisture condition, colour, soil consistency, soil structure, soil type and origin (MCCSSO). Due to the steepness of the northern part of the site, no test pits could be excavated here due to access problems.

During the test pit profiling, disturbed and undisturbed representative soil samples were recovered from the test pits and submitted to SNA's and Soillab's commercial soil laboratories in Pretoria for testing and identification. Detailed descriptions of the test pit profiles are provided on the Soil Profile Sheets in Appendix 1 of the report whilst the laboratory test results appear in Appendix 2. The location of the test pits is shown on the "Geotechnical Map", Drawing Number M05/2568 at the back of the report.

#### 6. OBSERVATIONS

The site is underlain by prominent horizons of alluvial and colluvial clayey soils overlying residual soils and shale bedrock belonging to the Silverton Shale Formation, Pretoria Group, Transvaal Supergroup. A diabase sill of Post Transvaal age is intruded into the sediments in portions of the site. The property has been apportioned into four prominent soil zones, Zones "A" to "D" as shown on the "Geotechnical Map".

*Soil Zone "A"* covers the *higher-lying northern portion* of the site and a very generalized description of the typical soil profile that may be encountered here, is as follows: -

- 0,0 - 0,3: Abundant coarse, flaky and angular SHALE GRAVELS, clast supported in a matrix of dry, dark brown, sandy CLAY; pebble marker. Overall consistency is loose.
- 0,3 - 0,6: Moist, dark khaki becoming light grey, very stiff, shattered, silty CLAY; residual shale.
- 0,6 - 1,3: Light grey becoming dark yellow stained orange and yellow on joints, highly weathered, very closely bedded and jointed, very soft rock SHALE becoming soft rock with increasing depth. Bedding planes dip towards the north at about 15° and contains thin infill of clay and silt on discontinuity surfaces. Abundant open, randomly oriented and vertically and sub-vertically inclined joints present. Scattered large and medium-sized DIABASE BOULDERS occur at surface across this soils zone, these are derived from a weathered diabase sill upslope of Zone "A".

Soil Zone "B" covers the area immediately to the south of the rocky ridge and a very generalized description of the typical soil profile that may be encountered here, is as follows: -

- 0,0 - 1,0: Moist, dark grey, very stiff, shattered, sandy CLAY; colluvium.
- 1,0 - 1,1: As above and containing abundant coarse GRAVELS and COBBLES; pebble marker.
- 1,1 - 1,3: Abundant coarse, medium and fine angular and flaky SHALE FRAGMENTS, clast supported in a matrix of moist, dark yellow, clayey SILT; reworked residual shale. Overall consistency is dense becoming very dense.
- 1,3 - 1,5: Light grey becoming dark yellow stained orange and yellow on joints, highly weathered, very closely bedded and jointed, very soft rock SHALE becoming soft rock with increasing depth. Bedding planes dip towards the north at about 15° and contains thin infill of clay and silt on discontinuity surfaces. Abundant open, randomly oriented and vertically and sub-vertically inclined joints present.

Soil Zone "C" covers the major portion of the site and a very generalized description of the typical soil profile that may be encountered here, is as follows: -

- 0,0 - 0,5: Moist, dark grey, medium dense, clayey fine SAND containing roots; colluvium. This sandy colluvium occurs in the south-eastern part of the site only.
- 0,5 - 2,0: Moist, dark grey becoming dark yellowish brown blotched light grey towards the base, very stiff, slickensided, silty CLAY containing scattered, well-rounded gravels and occasional boulders; alluvium.
- 2,0+: Moist, dark yellow, stiff, relict jointed, clayey sandy SILT; residual diabase (extreme northern portion of the site) and elsewhere, very soft rock SHALE.

Soil Zone "D" covers the central, lower-lying portion of the site where the major drainage feature is located as well as a number of subtle, subdued drainage features that occur elsewhere across the site.

Slow excavation to gradual refusal of the backactor was experienced in the shale bedrock from below a depth of 0,8m to 1,5m in Zones "A" and "B", elsewhere, no refusal (although very slow excavation in the very stiff clay) was experienced down to a depth of at least 2,0m below surface. The water table, whether perched or permanent, was not encountered during the investigation, which was carried out during the beginning of the dry season. Seasonal perched water table conditions can be expected to occur in the south-eastern portion of the site at the interface between the highly permeable colluvial sand and the underlying impermeable alluvial clay.

## 7. GEOTECHNICAL CONSIDERATIONS

### 7.1 Expansive Soils

Soil Zone "A" is underlain by a thin horizon of khaki brown, silty and clayey residual soils. The residuum is potentially "low/medium" in the degree of expansiveness, the potentially expansive horizon is comparatively thin and a maximum heave value of less than 15mm is predicted at the ground surface in this soil zone.

Soil Zone "B" is underlain by a moderate horizon of colluvial and residual sandy clay that extend down to a depth of some 1,0m below surface. These materials are potentially "medium/high" in the degree of expansiveness and a total surface heave value of some 7,5mm to 20mm is predicted in this area.

The alluvial clay horizon that blankets Zone "C" the site down to a depth in excess of 2,0m below surface is potentially highly expansive based on the results of the laboratory free swell test carried out by Soillab with a maximum swell pressure of some 780 kPa being predicted for the material. The Van der Merwe (1964) method indicates that the clay is potentially "medium" in the degree of expansiveness but this value should be ignored in view of the free swell test results and a more conservative approach should be adopted, it should therefore be assumed that the clay is potentially "high" to "very high" in degree of expansiveness. A total surface heave value in excess of 30mm, possibly as much as 80mm is predicted across this portion of the site, should the moisture condition of the soils change from a dry to a saturated state

### 7.2 Excavation Characteristics

No problems should be experienced in excavating the alluvial clayey soils across the site, using conventional earthmoving equipment down to a depth of at least 2,0m below surface. The alluvial clay will be difficult to work during the wet season when machines will tend to become bogged down in the upper clay horizons that tend to soften up when becoming saturated.

The shale bedrock that underlie the clay will require very hard excavation from below a depth of 0,8m in places, using a more powerful machine than the one used during the investigation and the use of jackhammers and possibly "pop" blasting will be required to remove the shale bedrock, especially across Zones "A" and "B".

Unstable sidewall conditions can be expected in deep excavations in the clay horizon, caused by slickensided joints and shoring will be required in deep excavations in order to safeguard construction personnel. Likewise, unstable sidewall conditions can be expected along the southern, eastern and western sidewalls in deep excavations in the shale bedrock, caused by unfavorably dipping joint- and bedding planes.

### 7.3 Foundations

#### *Soil Zone "A"*

This soil zone tentatively classifies as a Site Class "H1" according to the guidelines of the National Home Builders Registration Council's Standards and Guidelines of 1999 and in view of the potentially moderately expansive nature of the upper soils, one of the following foundation systems may be considered for proposed rigid, single-storey, residential structures: -

### *Modified Normal Construction*

- Lightly reinforced strip footings
- Articulation joints at all internal/external doors and openings
- Light reinforcement in masonry
- Site drainage and plumbing precautions to be taken

### *Soil Raft*

- Remove all or part of the expansive horizon to 1m beyond the perimeter of the structure and replace with inert backfill compacted to 93% Mod AASHTO density at -1% to +2% of optimum moisture content.
- Normal construction with lightly reinforced strip footings and light reinforcement in masonry if residual movements are <7,5mm or construction type appropriate to residual movement.
- Site drainage and plumbing/service precautions to be taken.

### *Soil Zone "B"*

This portion of the site tentatively classifies as a Site Class "H1-H2" according to the guidelines of the National Home Builders Registration Council's Standards and Guidelines of 1999 and in view of the potentially expansive nature of the upper soils which blanket this soil zone, one of the following foundation systems may be considered for proposed structures: -

### *Soil Raft*

- Remove all or part of the expansive horizon to 1m beyond the perimeter of the structure and replace with inert backfill compacted to 93% Mod AASHTO density at -1% to +2% of optimum moisture content.
- Normal construction with lightly reinforced strip footings and light reinforcement in masonry if residual movements are <7,5mm or construction type appropriate to residual movement.
- Site drainage and plumbing/service precautions to be taken.

### *Split construction*

- Combination of reinforced brickwork/ blockwork and full movement joints;
- Suspended floors or fabric reinforced ground slabs acting independently from the structure;
- Site drainage and plumbing/service precautions to be taken.

### *Piled construction*

- Piled foundations with suspended floor slabs with or without ground beams.
- Site drainage and plumbing/service precautions to be taken.

### *Stiffened or cellular raft*

- Stiffened or cellular raft of articulated lightly reinforced masonry.
- Site drainage and plumbing/service precautions to be taken.

### *Soil Zone "C"*

The major portion of the site is underlain by potentially highly expansive alluvial and colluvial clay and classifies as being Site Class "H3" according to the guidelines of the NHBRC Standards and Guidelines of 1999. One of the following foundation solutions (excluding areas affected by a flood line) may be adopted for the construction of single-storey, masonry, residential structures: -

### *Stiffened or cellular raft*

- Stiffened or cellular raft with articulation joints or solid lightly reinforced masonry.
- Site drainage and plumbing/service precautions to be taken.

### *Soil Raft*

- Remove all or necessary parts of expansive horizon to 1,0m beyond the perimeter of the structure and replace with inert backfill material compacted to 93% Mod AASHTO density at -1% to +2% of optimum moisture content.
- Normal construction with lightly reinforced strip footings and light reinforcement in masonry if residual movements are <7,5mm or construction type appropriate to residual movements.
- Light reinforcement in masonry.
- Site drainage and plumbing/service precautions to be taken.

### *Piled construction*

- Piled foundations with suspended floor slabs with or without ground beams.
- Site drainage and plumbing/service precautions to be taken.

### *Soil Zone "D"*

This soil zone classifies as a Site Class "H3" and "P" (flooding) according to the National Home Builders Registration Council's (NHBRC) Standards and Guidelines of 1999 and it is recommended that this soil zone be excluded from the development. Alternatively, the portions of this zone that are not affected by flooding and seasonal wet and standing water conditions, may be developed, adopting similar precautionary measures as for Zone "C".

The design and construction of raft foundations (whether soil or concrete) should be done in accordance and under supervision of a civil or structural engineer. It is recommended that the excavations for foundations be carefully examined during construction in order to determine the presence of disturbed ground conditions that may have been caused by previous activities.

The design of heavier structures such as double- or multi-storey structures, should take cognisance of the potentially highly expansive site soils. The design of lightly loaded structures such as garden walls, boundary walls etc. should also take cognisance of the potentially expansive nature of the foundation soils. Flood lines should be determined accurately and areas that may be affected by seasonal flooding and standing water conditions, should be excluded from the development.

## **7.4 Earthworks**

The site soils which blankets the property are generally fine-grained with a high plasticity index, a low grading modulus and will probably possess a very low compacted strength and a high swell after compaction. Material for use as backfill underneath surface beds and for the construction of roads and parking areas will have to be imported to the site.

The design and construction of roads should take cognisance of the potentially expansive nature of the alluvial clay as well as the potentially compressible nature of the colluvial sand that blankets the south-eastern part of the site.

## 7.5 Ground Water and Soil Chemistry

Although the water table was not encountered in any of the test pits during the investigation, seasonal perched water conditions and marshy conditions may occur, especially during the rainy season. The necessary damp proofing precautions should be taken underneath structures and the design of subsurface structures such as basements should take cognizance of this phenomenon.

The foundation soils are expected to be potentially neutral to slightly chemically aggressiveness with regards to buried ferrous pipes (pH values ranging from 7,78 to 9,17 and electrical conductivity values ranging from 0,01 to 0,09 S/m) based on the results of the chemical tests carried on the soils. Non-ferrous metal pipes or plastic pipes should therefore be used for wet services and the foundation soils should be treated with an environment friendly insecticide to combat termites.

## 8. GENERAL


While every effort has been made to ensure that representative test pitting and sampling has been undertaken to probe the soils on-site, guaranteeing that isolated zones of either poor foundation material or hard rock excavation have not been identified, is impossible under the constraints of an investigation of this nature. The investigation has sought to highlight general areas of potential foundation and excavation problems, and to provide early warning to the design engineers and town planners. In view of the variability inherent in soils, a competent person must inspect all foundation excavations.

The placement of the engineered fills must be controlled with suitable field tests to ensure that the required densities are achieved during compaction, and that the quality of fill material is within specification.

This investigation serves as a Phase 1 geotechnical investigation in terms of the National Department of Housing's Generic Specification GFSH-2 that specifies that a Phase 2 investigation should also be carried out. The Phase 2 investigation comprises the appointment of a competent person by the developer during the installation of township services. Such an investigation comprises observations and in some instances, additional investigations after the township has been pegged, to confirm the site class designation of individual erven in accordance with the NHBRC requirements for enrolment of top structures in the Warranty Scheme under the provisions of the Housing Consumer Protection Measures Act, 1998 (Act No 95 of 1998) and the Joint Structural Division of the South African Institution of Civil Engineering and Institution of Structural Engineers' code of practice for foundations and superstructures for single storey residential buildings of masonry construction.

We trust that the above information will meet with your immediate requirements, please do not hesitate to call for any further information.

Yours faithfully,



JOHANN VAN DER MERWE (Pr. Sci. Nat.)  
Engineering Geologist

9. APPENDICES

Test Pit Profiles

Laboratory Test Results

Locality Map

Geotechnical Map

**ANNEXURE B**

**LAYOUT OF THE PROPOSED DEVELOPMENT**



**ANNEXURE C**

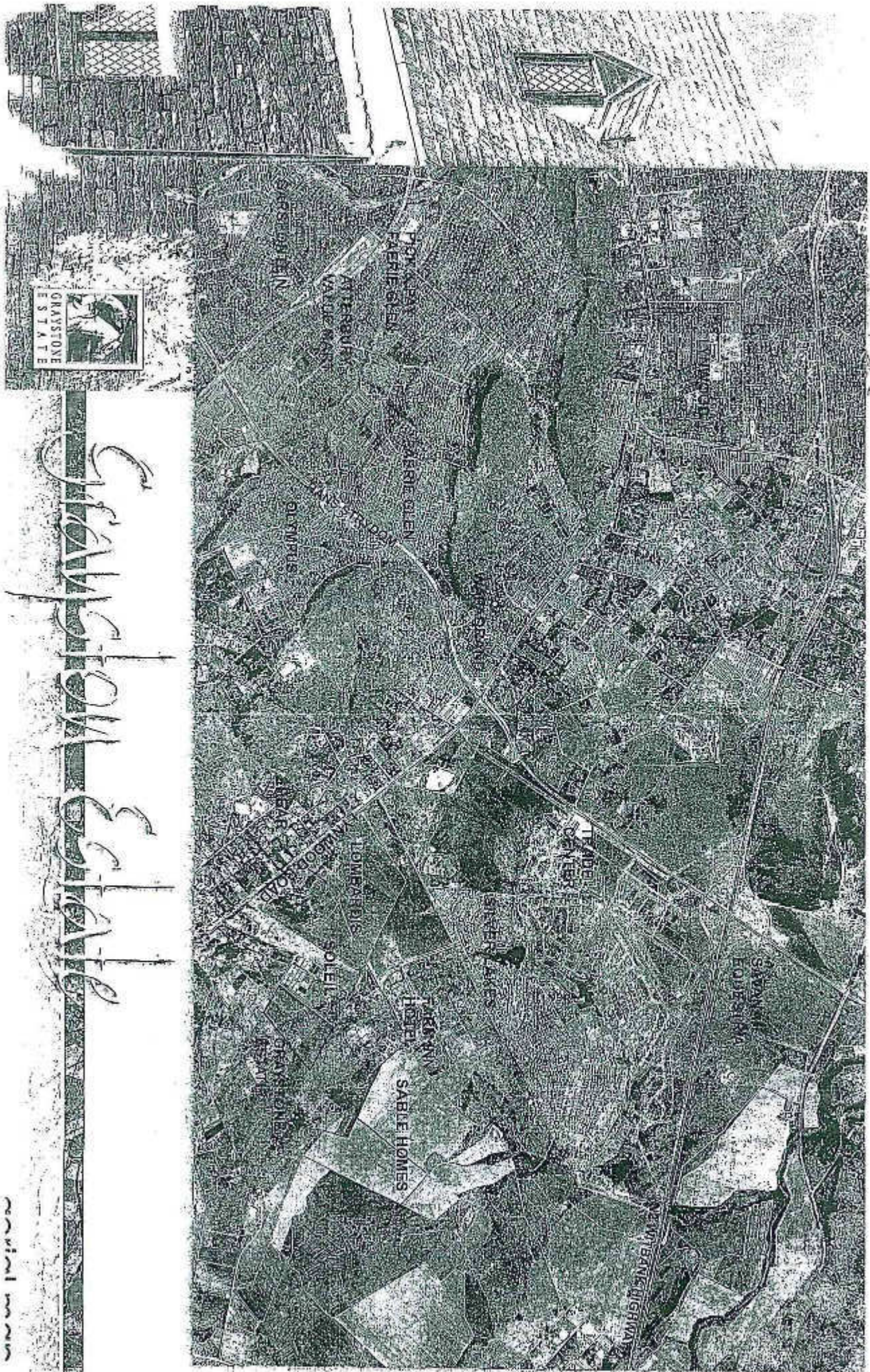
**ROADS, WATER AND SEWER MASTERPLAN**

**ANNEXURE C**

**ROADS, WATER AND SEWER MASTERPLAN**

# Graystone Estate

original map



BOCCACCINI  
+ PARTNER  
1-877-777-7777

# PORTION 5 TYGERVALLEI 334-JR

ZWARTKOPPIES No. 364-JR  
PORTION 21

POTN 18

PORTION 4

PORTION 6

PORTION 12

PORTION 3

PORTION 24

PORTION 25

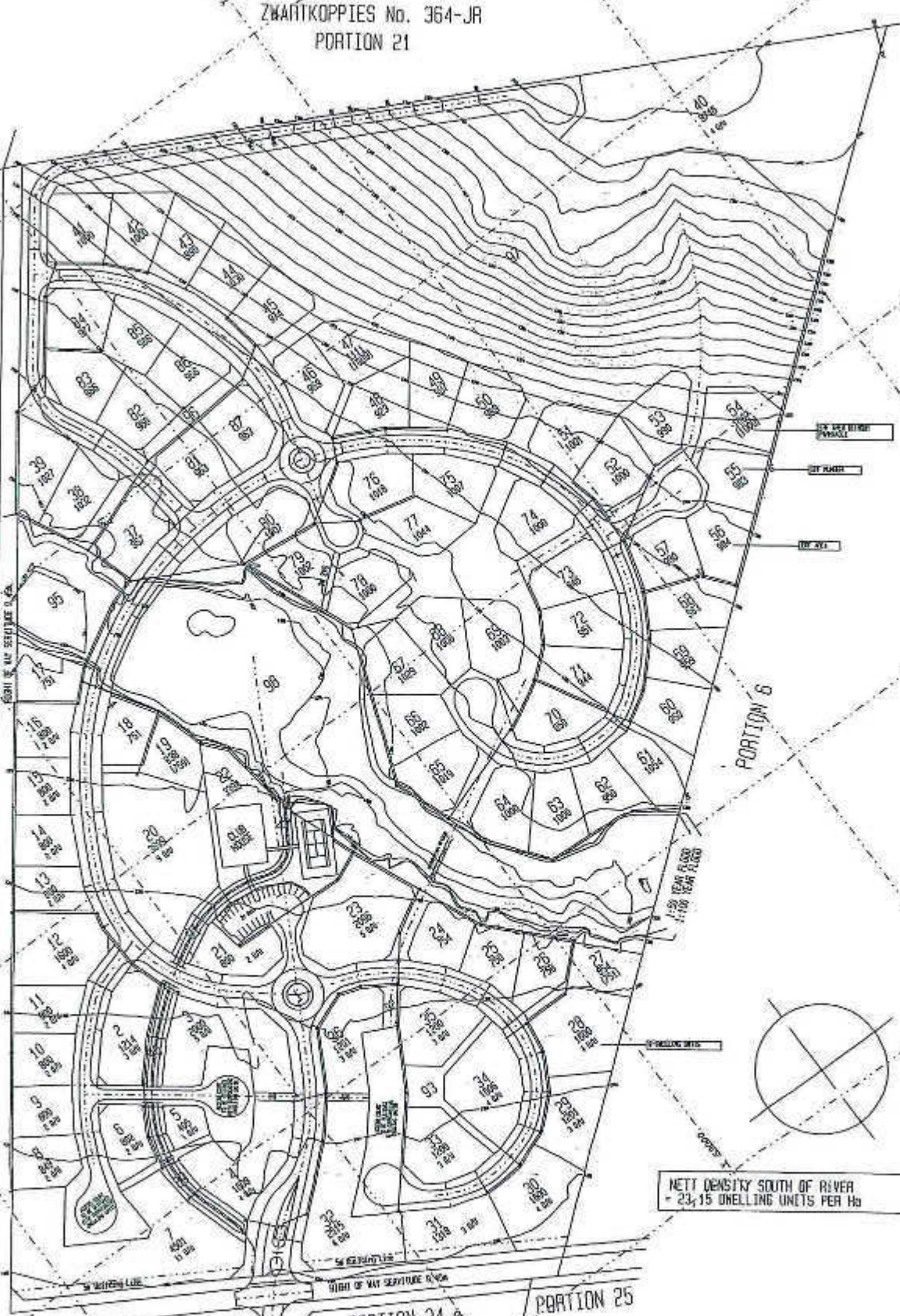
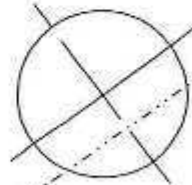
0: \491\tygdxf3 site layout.dwg

TONSHIP CONSISTS OF 57 HOUSES  
AND 106 DWELLING UNITS

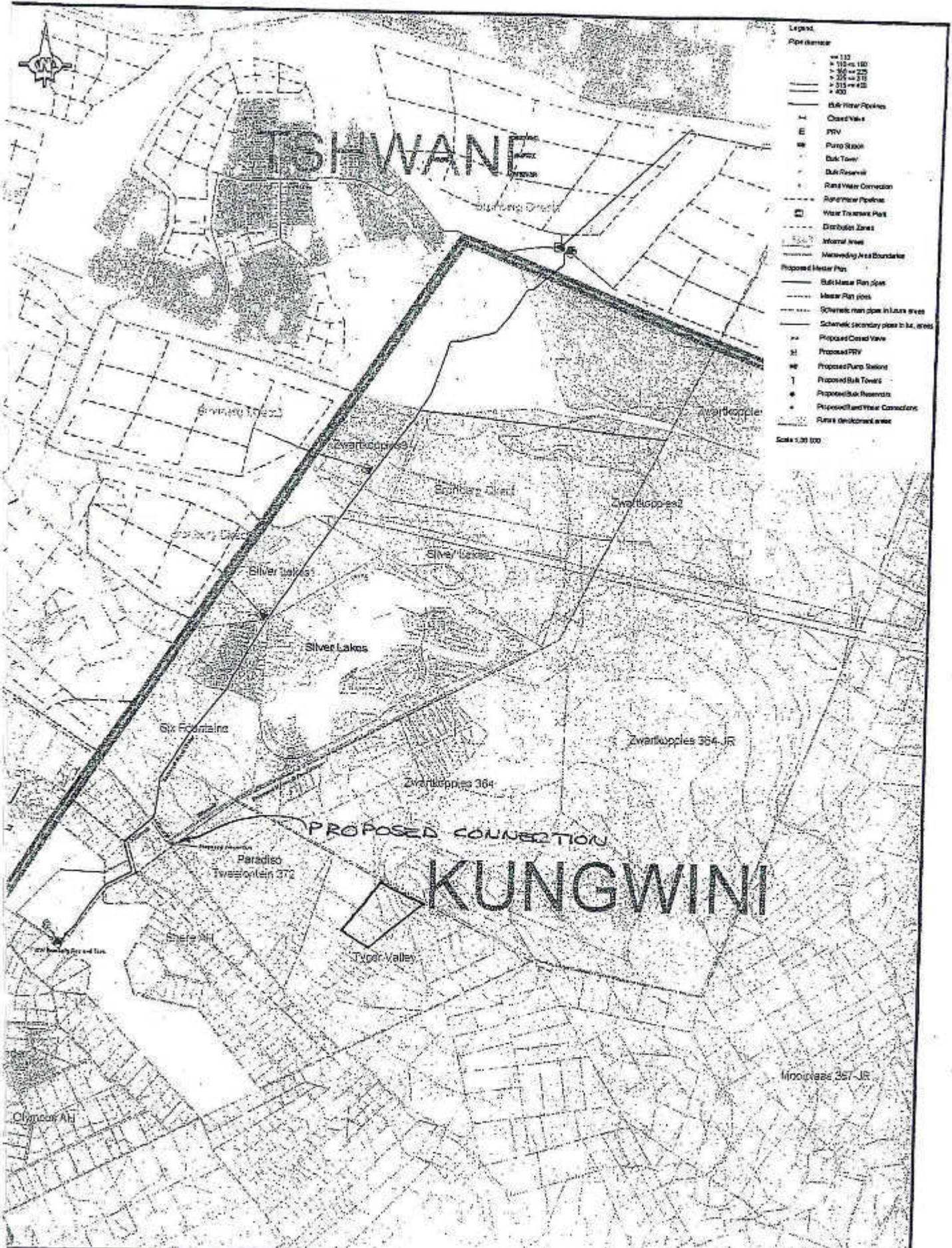
SCALE 1:1000

LAND USE	ERF NUMBERS	NO OF ERVEN	AREA (Ha)	%
RESIDENTIAL 1	1-15, 24-27, 37-38, 41-47	57	X	X
RESIDENTIAL 2	2-16, 28, 31, 23, 29- 36, 48	28	X	X
SPECIAL FOR ACCESS AND ACCESS CONTROL	1	1	X	X
SPECIAL FOR CLUBHOUSE	22	1	0.3394	1,93
PRIVATE OPEN SPACE	69-89	11	X	X
PUBLIC FRONTS	N/A	N/A	X	X
TOTAL		98	21,4127	100,00

NETT DENSITY SOUTH OF RIVER  
= 23,15 DWELLING UNITS PER Ha

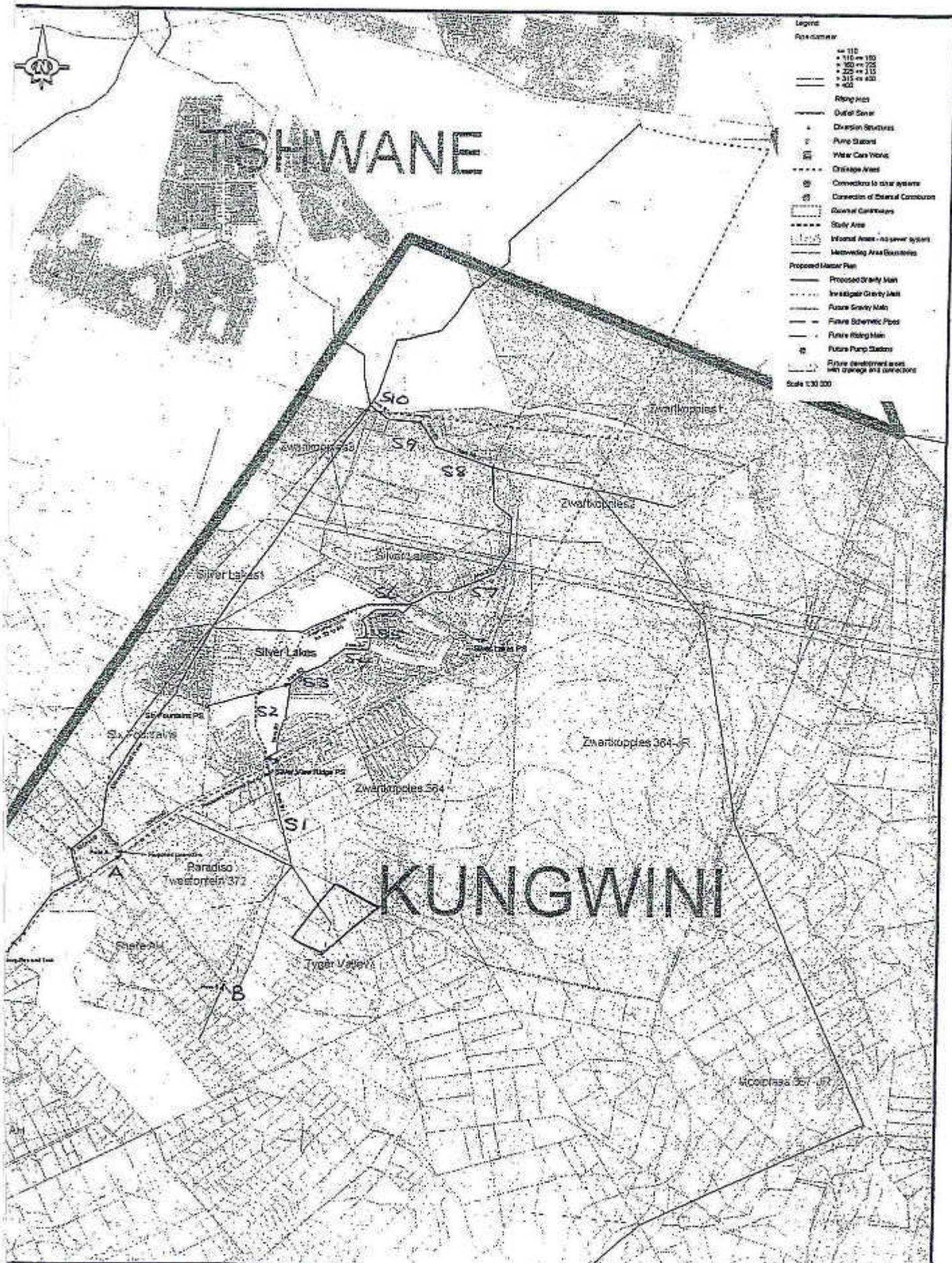






- Legend**
- Pipe diameter**
- 110
  - 150 to 180
  - 225 to 275
  - 375 to 450
  - 450
- Bulk Water Pipeline  
 — Closed Valve  
 E PRV  
 — Pump Station  
 — Bulk Tower  
 — Bulk Reservoir  
 — Raw Water Connection  
 — Raw Water Pipeline  
 — Water Treatment Plant  
 — Distributor Zone  
 — Internal Arterial  
 — Mainfeeding Area Boundary
- Proposed Water Plan**
- Bulk Water Raw Pipe
  - Water Plan pipe
  - Schedule main pipe in future areas
  - Schedule secondary pipe in future areas
  - Proposed Closed Valve
  - Proposed PRV
  - Proposed Pump Station
  - Proposed Bulk Towers
  - Proposed Bulk Reservoirs
  - Proposed Raw Water Connections
  - Future development area
- Scale 1:50,000

**FIGURE 1**  
 Required Works - Future System:  
 Bronberg Direct Zone



**FIGURE 2**  
**Required Works - Future System:**  
**Baviaanspoort Drainage Area**

# Geotechnical Report



Appendix G2



*JOHANN V.D. MERWE (Pty) Ltd*  
CONSULTING APPLIED EARTH AND ENVIRONMENTAL SCIENTISTS

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PROJECT No: M05/2568

5 June 2005

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- 0,5 - 2,0: *Moist, dark grey becoming dark yellowish brown blotched light grey towards the base, very stiff, slickensided, silty CLAY containing scattered, well-rounded gravels and occasional boulders; alluvium.*
- 2,0+: *Moist, dark yellow, stiff, relict jointed, clayey sandy SILT; residual diabase (extreme northern portion of the site) and elsewhere, very soft rock SHALE.*

*Soil Zone "D" covers the central, lower-lying portion of the site where the major drainage feature is located as well as a number of subtle, subdued drainage features that occur elsewhere across the site.*

Slow excavation to gradual refusal of the backactor was experienced in the shale bedrock from below a depth of 0,8m to 1,5m in Zones "A" and "B", elsewhere, no refusal (although very slow excavation in the very stiff clay) was experienced down to a depth of at least 2,0m below surface. The water table, whether perched or permanent, was not encountered during the investigation, which was carried out at during the beginning of the dry season. Seasonal perched water table conditions can be expected to occur in the south-eastern portion of the site at the interface between the highly permeable colluvial sand and the underlying impermeable alluvial clay.

## 7. GEOTECHNICAL CONSIDERATIONS

### 7.1 Expansive Soils

Soil Zone "A" is underlain by a thin horizon of khaki brown, silty and clayey residual soils. The residuum is potentially "low/medium" in the degree of expansiveness, the potentially expansive horizon is comparatively thin and a maximum heave value of less than 15mm is predicted at the ground surface in this soil zone.

Soil Zone "B" is underlain by a moderate horizon of colluvial and residual sandy clay that extend down to a depth of some 1,0m below surface. These materials are potentially "medium/high" in the degree of expansiveness and a total surface heave value of some 7,5mm to 20mm is predicted in this area.

The alluvial clay horizon that blankets Zone "C" the site down to a depth in excess of 2,0m below surface is potentially highly expansive based on the results of the laboratory free swell test carried out by Soilab with a maximum swell pressure of some 780 kPa being predicted for the material. The Van der Merwe (1964) method indicates that the clay is potentially "medium" in the degree of expansiveness but this value should be ignored in view of the free swell test results and a more conservative approach should be adopted, it should therefore be assumed that the clay is potentially "high" to "very high" in degree of expansiveness. A total surface heave value in excess of 30mm, possibly as much as 80mm is predicted across this portion of the site, should the moisture condition of the soils change from a dry to a saturated state

### 7.2 Excavation Characteristics

No problems should be experienced in excavating the alluvial clayey soils across the site, using conventional earthmoving equipment down to a depth of at least 2,0m below surface. The alluvial clay will be difficult to work during the wet season when machines will tend to become bogged down in the upper clay horizons that tend to soften up when becoming saturated.

The shale bedrock that underlie the clay will require very hard excavation from below a depth of 0,8m in places, using a more powerful machine than the one used during the investigation and the use of jackhammers and possibly "pop" blasting will be required to remove the shale bedrock, especially across Zones "A" and "B".

Unstable sidewall conditions can be expected in deep excavations in the clay horizon, caused by slickensided joints and shoring will be required in deep excavations in order to safeguard construction personnel. Likewise, unstable sidewall conditions can be expected along the southern, eastern and western sidewalls in deep excavations in the shale bedrock, caused by unfavorably dipping joint- and bedding planes.

### 7.3 Foundations

#### *Soil Zone "A"*

This soil zone tentatively classifies as a Site Class "H1" according to the guidelines of the National Home Builders Registration Council's Standards and Guidelines of 1999 and in view of the potentially moderately expansive nature of the upper soils, one of the following foundation systems may be considered for proposed rigid, single-storey, residential structures: -

***Modified Normal Construction***

- Lightly reinforced strip footings
- Articulation joints at all internal/external doors and openings
- Light reinforcement in masonry
- Site drainage and plumbing precautions to be taken

***Soil Raft***

- Remove all or part of the expansive horizon to 1m beyond the perimeter of the structure and replace with inert backfill compacted to 93% Mod AASHTO density at -1% to +2% of optimum moisture content.
- Normal construction with lightly reinforced strip footings and light reinforcement in masonry if residual movements are <7,5mm or construction type appropriate to residual movement.
- Site drainage and plumbing/service precautions to be taken.

***Soil Zone "B"***

This portion of the site tentatively classifies as a Site Class "H1-H2" according to the guidelines of the National Home Builders Registration Council's Standards and Guidelines of 1999 and in view of the potentially expansive nature of the upper soils which blanket this soil zone, one of the following foundation systems may be considered for proposed structures: -

***Soil Raft***

- Remove all or part of the expansive horizon to 1m beyond the perimeter of the structure and replace with inert backfill compacted to 93% Mod AASHTO density at -1% to +2% of optimum moisture content.
- Normal construction with lightly reinforced strip footings and light reinforcement in masonry if residual movements are <7,5mm or construction type appropriate to residual movement.
- Site drainage and plumbing/service precautions to be taken.

***Split construction***

- Combination of reinforced brickwork/ blockwork and full movement joints;
- Suspended floors or fabric reinforced ground slabs acting independently from the structure;
- Site drainage and plumbing/service precautions to be taken.

***Piled construction***

- Piled foundations with suspended floor slabs with or without ground beams.
- Site drainage and plumbing/service precautions to be taken.

***Stiffened or cellular raft***

- Stiffened or cellular raft of articulated lightly reinforced masonry.
- Site drainage and plumbing/service precautions to be taken.

***Soil Zone "C"***

The major portion of the site is underlain by potentially highly expansive alluvial and colluvial clay and classifies as being Site Class "H3" according to the guidelines of the NHBRC Standards and Guidelines of 1999. One of the following foundation solutions (excluding areas affected by a flood line) may be adopted for the construction of single-storey, masonry, residential structures: -

### *Stiffened or cellular raft*

- Stiffened or cellular raft with articulation joints or solid lightly reinforced masonry.
- Site drainage and plumbing/service precautions to be taken.

### *Soil Raft*

- Remove all or necessary parts of expansive horizon to 1,0m beyond the perimeter of the structure and replace with inert backfill material compacted to 93% Mod AASHTO density at -1% to +2% of optimum moisture content.
- Normal construction with lightly reinforced strip footings and light reinforcement in masonry if residual movements are <7,5mm or construction type appropriate to residual movements.
- Light reinforcement in masonry.
- Site drainage and plumbing/service precautions to be taken.

### *Piled construction*

- Piled foundations with suspended floor slabs with or without ground beams.
- Site drainage and plumbing/service precautions to be taken.

### *Soil Zone "D"*

This soil zone classifies as a Site Class "H3" and "P" (flooding) according to the National Home Builders Registration Council's (NHBRC) Standards and Guidelines of 1999 and it is recommended that this soil zone be excluded from the development. Alternatively, the portions of this zone that are not affected by flooding and seasonal wet and standing water conditions, may be developed, adopting similar precautionary measures as for Zone "C".

The design and construction of raft foundations (whether soil or concrete) should be done in accordance and under supervision of a civil or structural engineer. It is recommended that the excavations for foundations be carefully examined during construction in order to determine the presence of disturbed ground conditions that may have been caused by previous activities.

The design of heavier structures such as double- or multi-storey structures, should take cognisance of the potentially highly expansive site soils. The design of lightly loaded structures such as garden walls, boundary walls etc. should also take cognisance of the potentially expansive nature of the foundation soils. Flood lines should be determined accurately and areas that may be affected by seasonal flooding and standing water conditions, should be excluded from the development.

## **7.4 Earthworks**

The site soils which blankets the property are generally fine-grained with a high plasticity index, a low grading modulus and will probably possess a very low compacted strength and a high swell after compaction. Material for use as backfill underneath surface beds and for the construction of roads and parking areas will have to be imported to the site.

The design and construction of roads should take cognizance of the potentially expansive nature of the alluvial clay as well as the potentially compressible nature of the colluvial sand that blankets the south-eastern part of the site.

## 7.5 Ground Water and Soil Chemistry

Although the water table was not encountered in any of the test pits during the investigation, seasonal perched water conditions and marshy conditions may occur, especially during the rainy season. The necessary damp proofing precautions should be taken underneath structures and the design of subsurface structures such as basements should take cognizance of this phenomenon.

The foundation soils are expected to be potentially neutral to slightly chemically aggressiveness with regards to buried ferrous pipes (pH values ranging from 7,78 to 9,17 and electrical conductivity values ranging from 0,01 to 0,09 S/m) based on the results of the chemical tests carried on the soils. Non-ferrous metal pipes or plastic pipes should therefore be used for wet services and the foundation soils should be treated with an environment friendly insecticide to combat termites.

## 8. GENERAL


While every effort has been made to ensure that representative test pitting and sampling has been undertaken to probe the soils on-site, guaranteeing that isolated zones of either poor foundation material or hard rock excavation have not been identified, is impossible under the constraints of an investigation of this nature. The investigation has sought to highlight general areas of potential foundation and excavation problems, and to provide early warning to the design engineers and town planners. In view of the variability inherent in soils, a competent person must inspect all foundation excavations.

The placement of the engineered fills must be controlled with suitable field tests to ensure that the required densities are achieved during compaction, and that the quality of fill material is within specification.

This investigation serves as a Phase 1 geotechnical investigation in terms of the National Department of Housing's Generic Specification GFSH-2 that specifies that a Phase 2 investigation should also be carried out. The Phase 2 investigation comprises the appointment of a competent person by the developer during the installation of township services. Such an investigation comprises observations and in some instances, additional investigations after the township has been pegged, to confirm the site class designation of individual erven in accordance with the NHBC requirements for enrolment of top structures in the Warranty Scheme under the provisions of the Housing Consumer Protection Measures Act, 1998 (Act No 95 of 1998) and the Joint Structural Division of the South African Institution of Civil Engineering and Institution of Structural Engineers' code of practice for foundations and superstructures for single storey residential buildings of masonry construction.

We trust that the above information will meet with your immediate requirements, please do not hesitate to call for any further information.

Yours faithfully,



JOHANN VAN DER MERWE (D. Sc. Nat.)  
Engineering Geologist

**9. APPENDICES**

**Test Pit Profiles**

**Laboratory Test Results**

**Locality Map**

**Geotechnical Map**

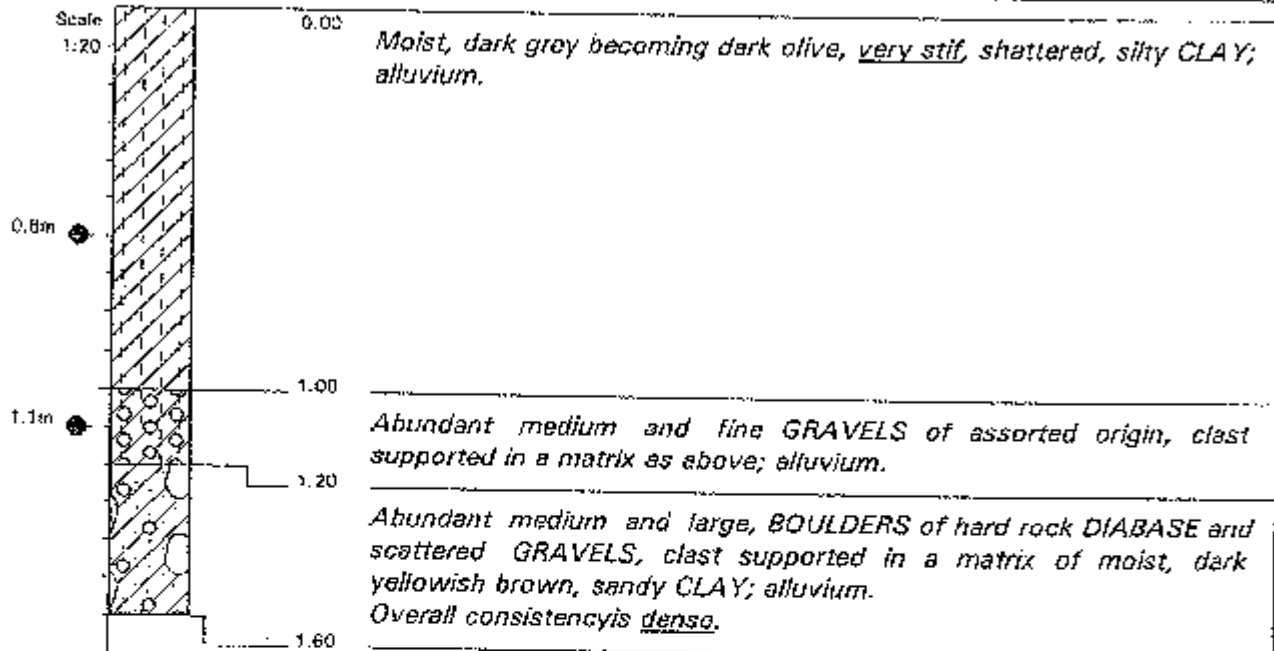


**APPENDIX 1 : TEST PIT PROFILES**

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: TV/1  
 Sheet 1 of 1

JOB NUMBER: M05/2568



**NOTES**

- 1) Refusal of backactor at 1,6m in boulder horizon.
- 2) No water seepage encountered.
- 3) Disturbed indicator samples taken at 0,6m and at 1,1m.

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 MACHINE : John Deere 310  
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 TYPE SET BY : jvdm  
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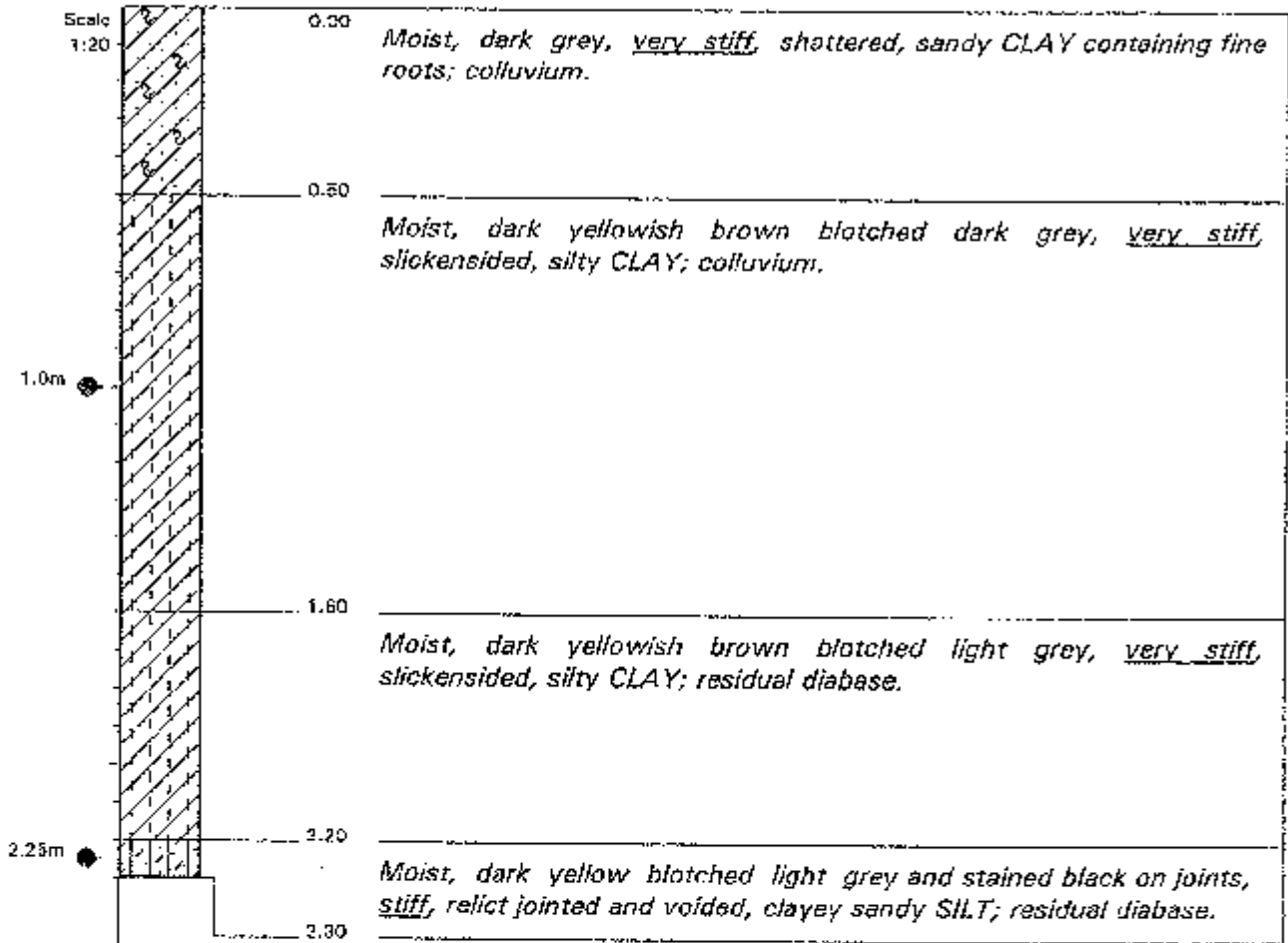
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 Y COORD :

HOLE No: TV/1

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: TV/2  
 Sheet 1 of 1  
 JOB NUMBER: M05/2568



**NOTES**

- 1) No refusal of backactor at 2,3m.
- 2) No water seepage encountered.
- 3) Disturbed indicator samples taken at 1,0m and at 2,25m.

CONTRACTOR : SNA Lab  
 MACHINE : John Deere 310  
 DRILLED BY :  
 PROFILED BY : jvdm  
 TYPE SET BY : jvdm

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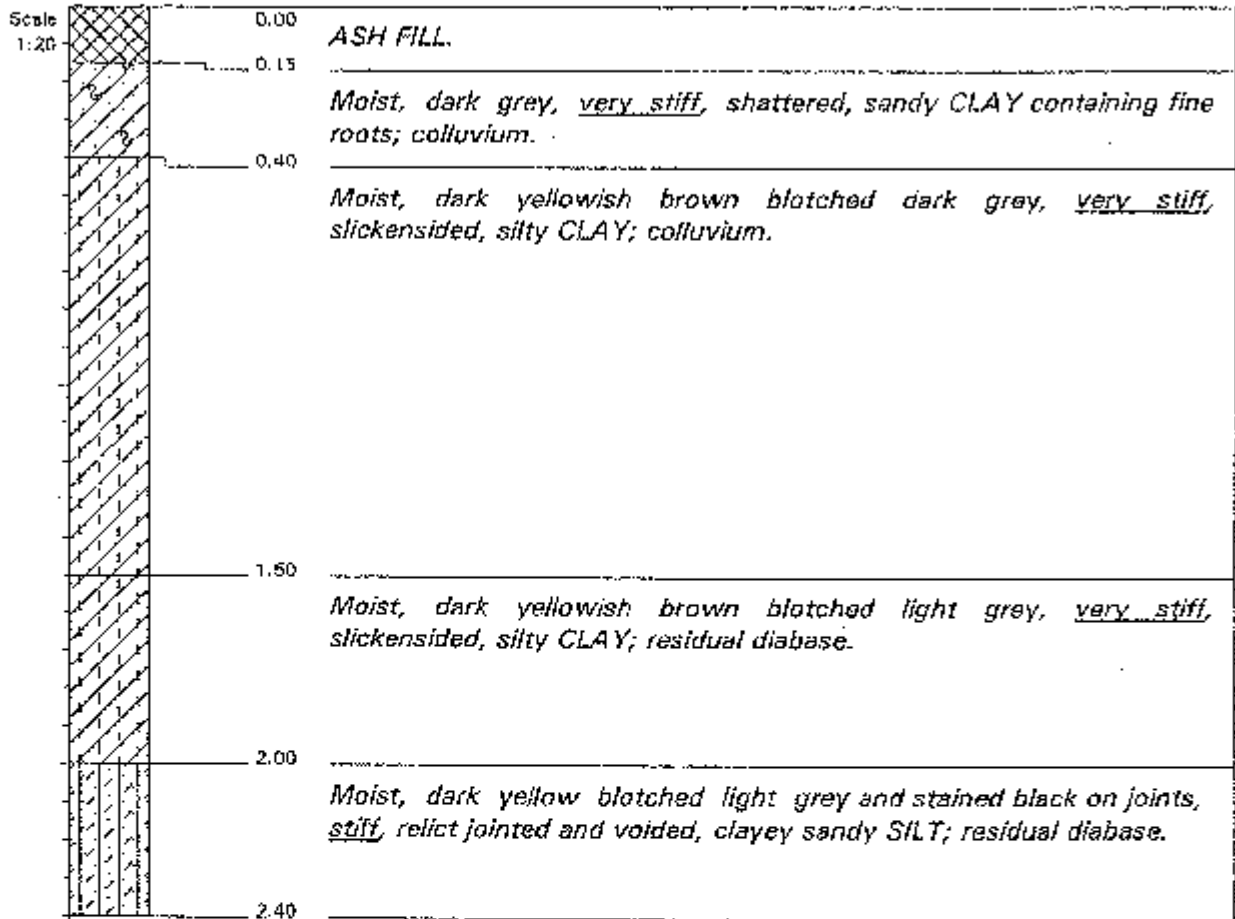
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HOLE No: TV/2

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: TV/3  
 Sheet 1 of 1

JOB NUMBER: M05/2568



**NOTES**

- 1) No refusal of backactor at 2,4m.
- 2) No water seepage encountered.

CONTRACTOR : SNA Lab  
 MACHINE : John Deere 310  
 DRILLED BY :  
 PROFILED BY : jvdm  
 TYPE SET BY : jvdm

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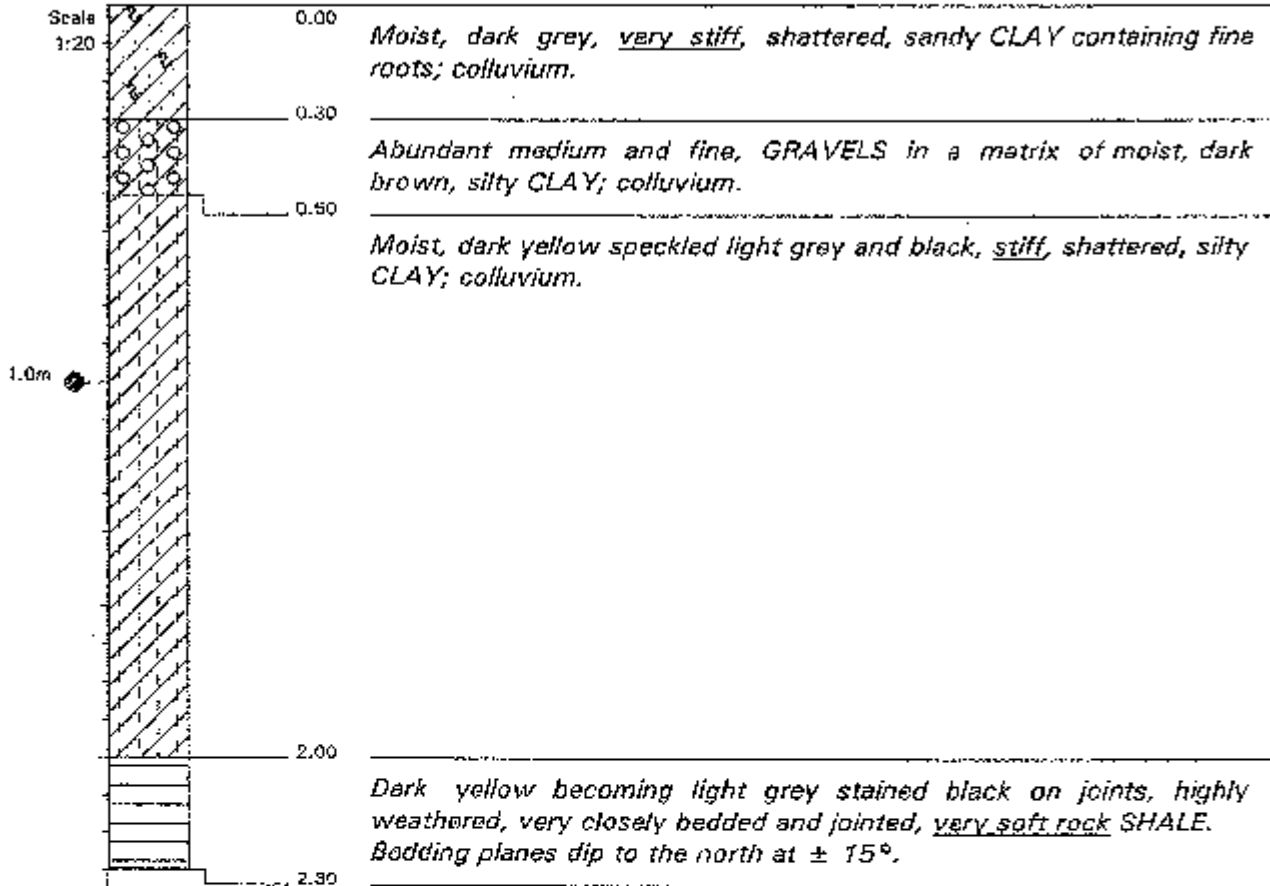
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 Y-COORD :

HOLE No: TV/3

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: TV/4  
 Sheet 1 of 1

JOB NUMBER: M05/2568



NOTES

- 1) No refusal of backactor at 2,3m.
- 2) No water seepage encountered.
- 3) Disturbed indicator sample taken at 1,0m.

CONTRACTOR : SNA Lab  
 MACHINE : John Deere 310  
 DRILLED BY :  
 PROFILED BY : jvdm  
 TYPE SET BY : jvdm  
 SETUP FILE : STANDARD.SET

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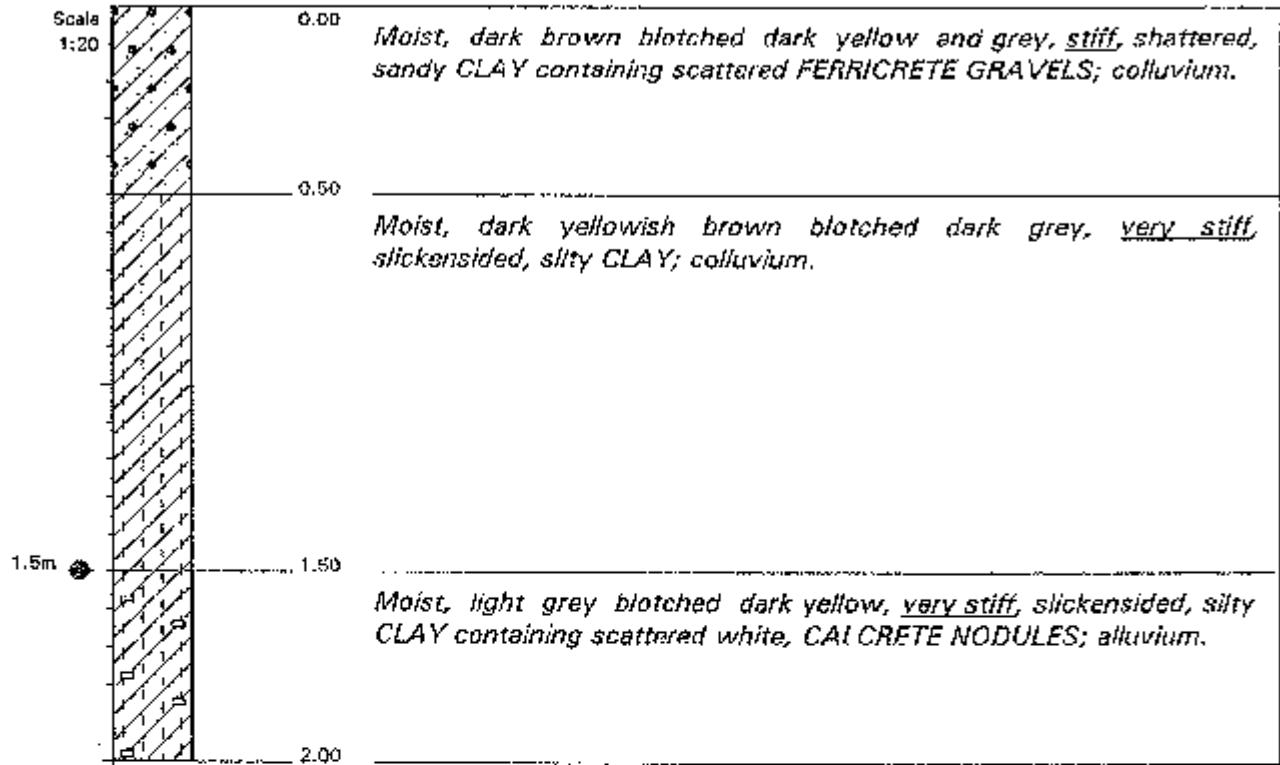
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HOLE No: TV/4

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
 PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT

HOLE No: TV/5  
 Sheet 1 of 1

JOB NUMBER: M05/2568



NOTES

- 1) No refusal of backactor at 2,0m.
- 2) No water seepage encountered.
- 3) Disturbed indicator sample taken at 1,5m.

CONTRACTOR : SNA Lab  
 MACHINE : John Deere 310  
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 PROFILED BY : jvdm  
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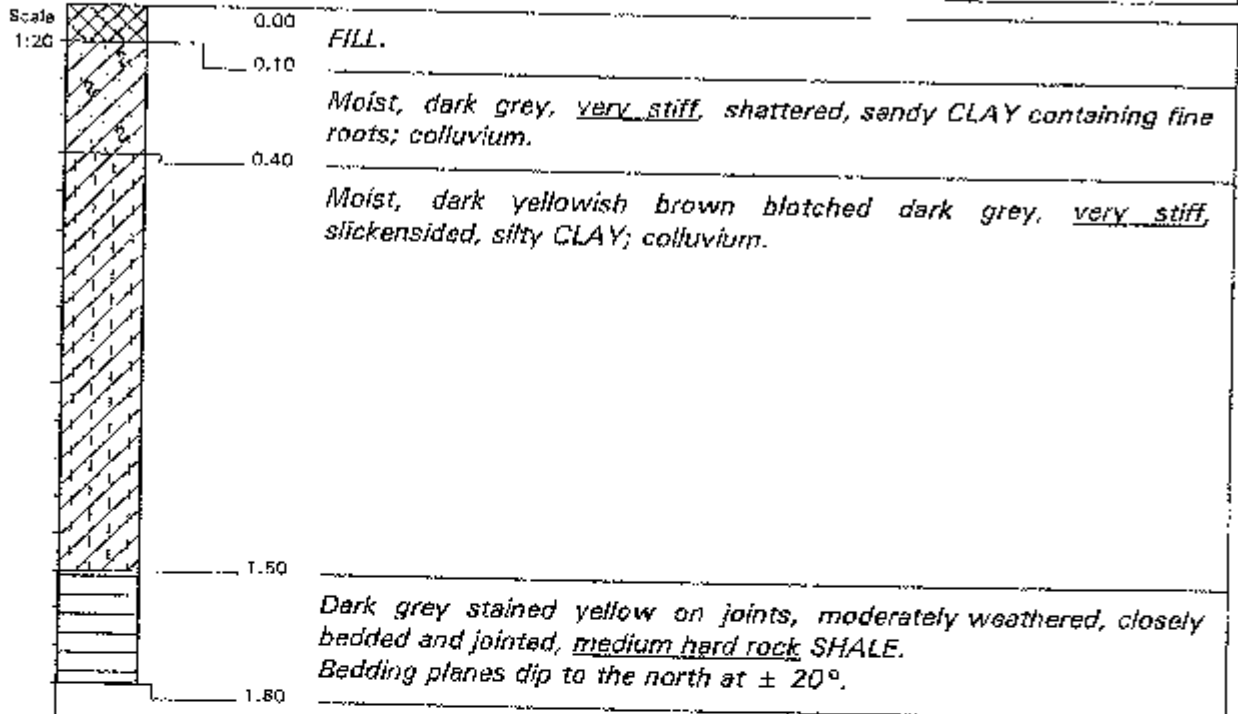
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 Y-COORD :

HOLE No: TV/5

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
 PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT

HOLE No: TV/6  
 Sheet 1 of 1  
 JOB NUMBER: M05/2568



NOTES

- 1) Refusal of backactor at 1,8m n shale bedrock.
- 2) No water seepage encountered.

CONTRACTOR : SNA Lab  
 MACHINE : John Deere 310  
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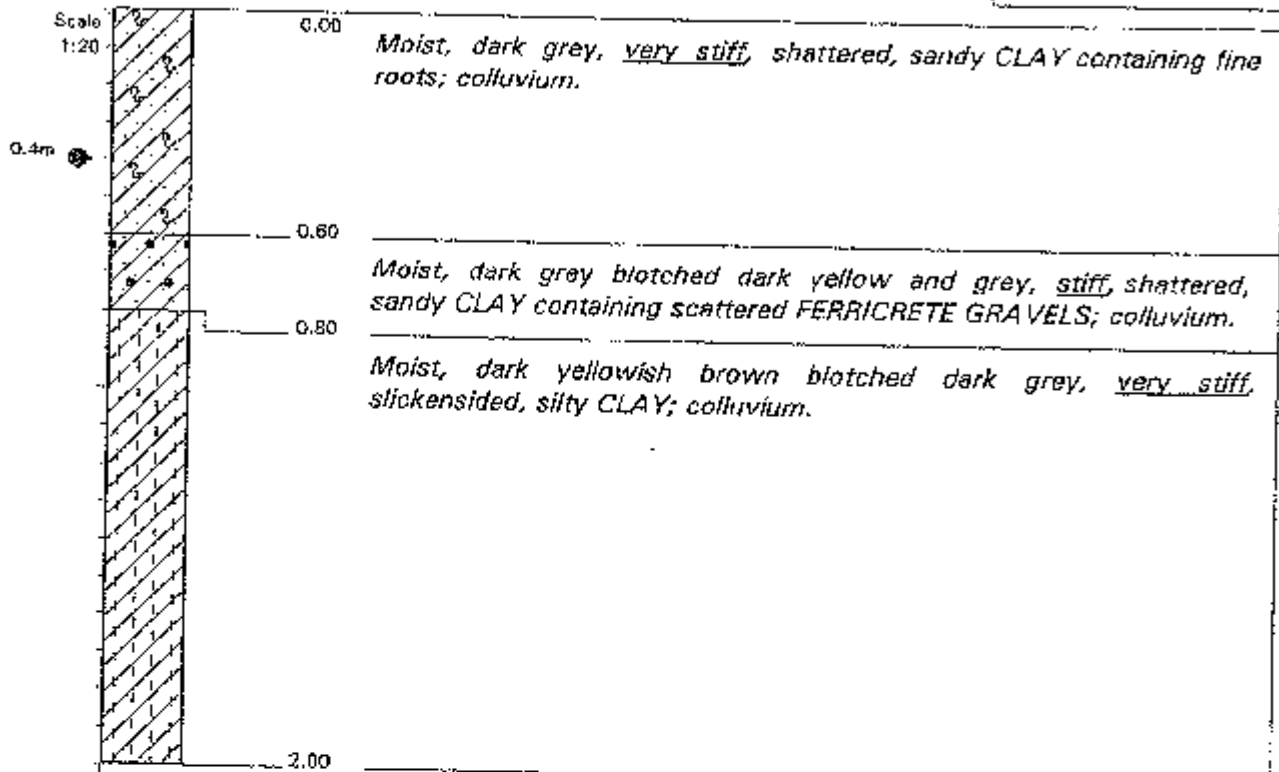
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 Y-COORD :

HOLE No: TV/6

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: TV/7  
 Sheet 1 of 1  
 JOB NUMBER: M05/2568



**NOTES**

- 1) No refusal of backactor at 2,0m.
- 2) No water seepage encountered.
- 3) Disturbed Indicator sample taken at 0,4m.

CONTRACTOR : SNA Lab  
 MACHINE : John Deere 310  
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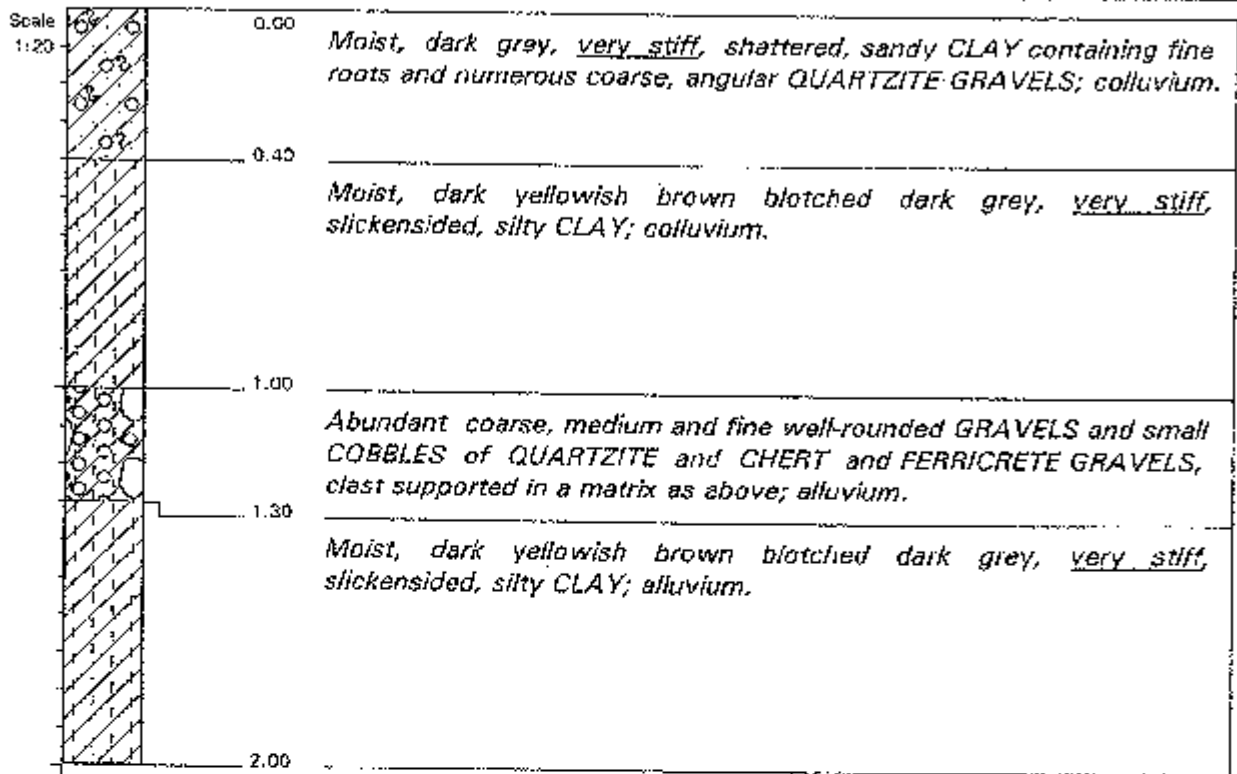
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SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: TV/8  
 Sheet 1 of 1

JOB NUMBER: M05/2568



**NOTES**

- 1) No refusal of backactor at 2,0m.
- 2) No water seepage encountered.

CONTRACTOR : SNA Lab  
 MACHINE : John Deere 310  
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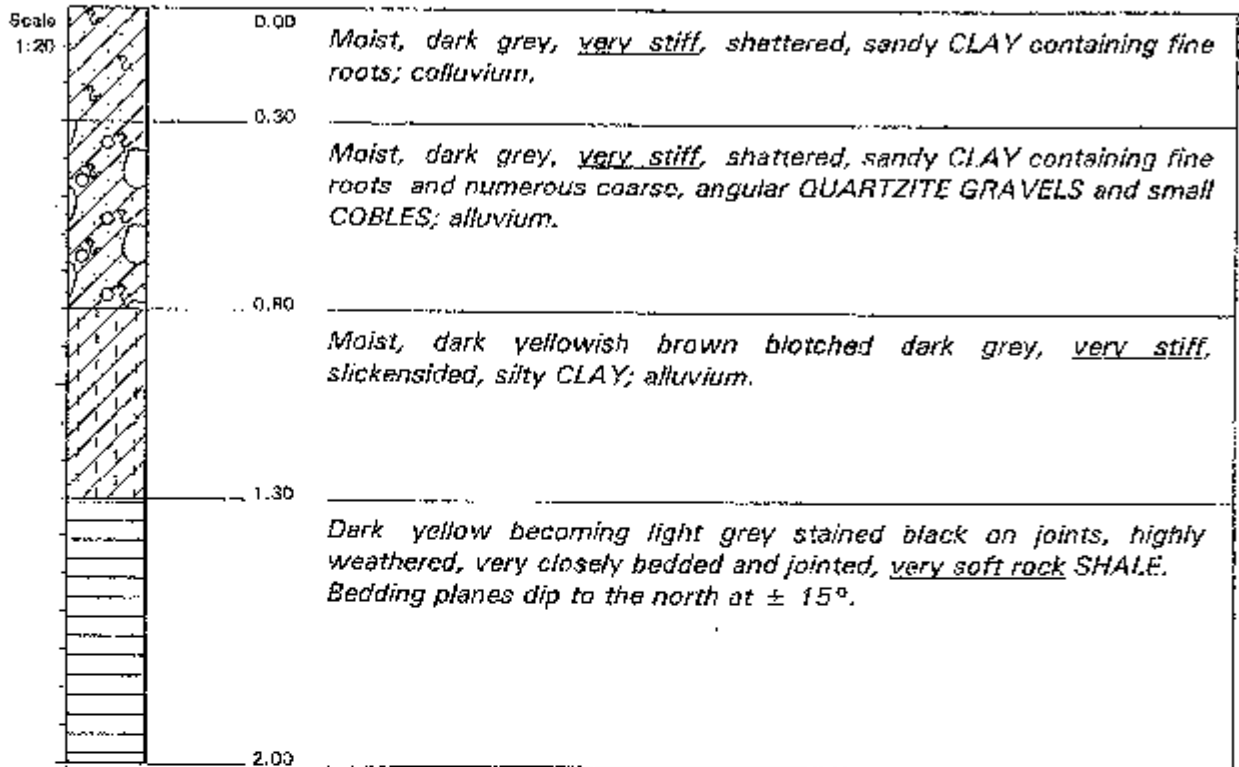
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HOLE No: TV/8

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: **TV/9**  
 Sheet 1 of 1

JOB NUMBER: **M05/2568**



**NOTES**

- 1) No refusal of backactor at 2,0m.
- 2) No water seepage encountered.

CONTRACTOR : SNA Lab  
 MACHINE : John Deere 310  
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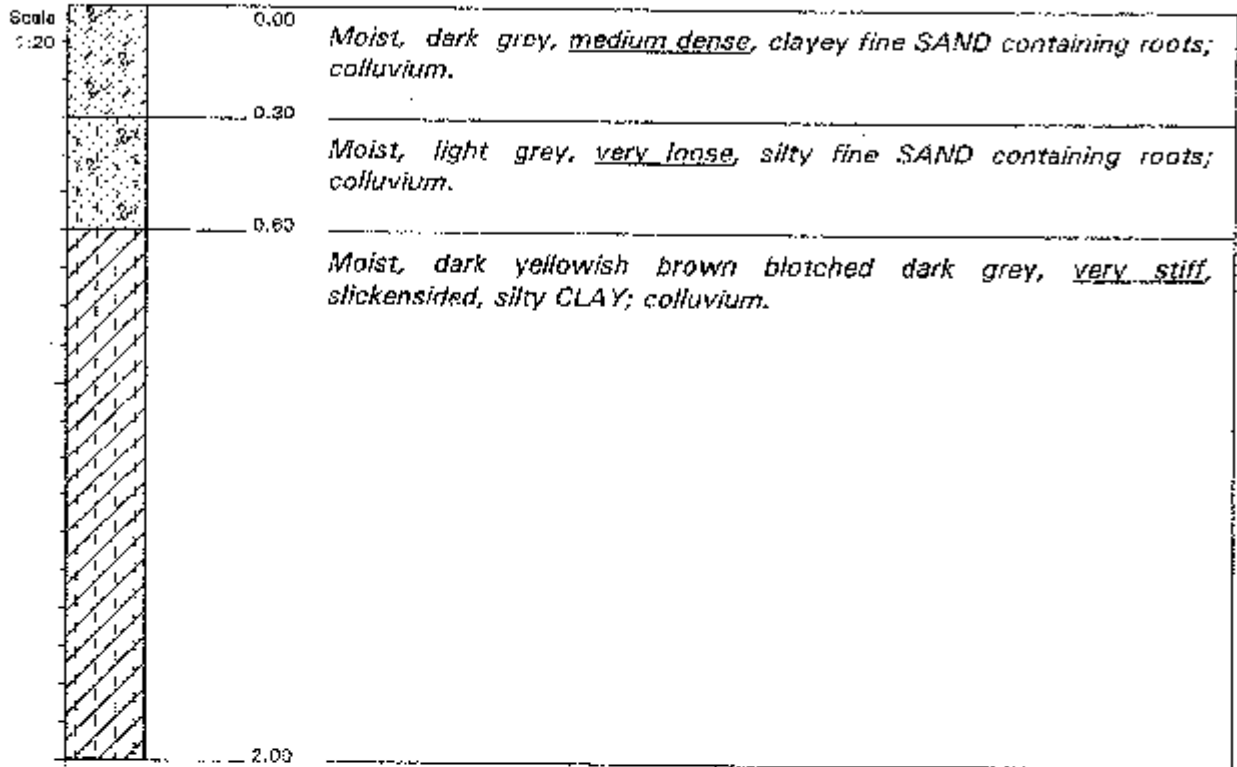
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HOLE No: **TV/9**

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
**GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
 PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: *TV/10*  
 Sheet 1 of 1

JOB NUMBER: *M05/2568*



**NOTES**

- 1) No refusal of backactor at 2,0m.
- 2) No water seepage encountered.

CONTRACTOR : *SNA Lab*  
 MACHINE : *John Deere 310*  
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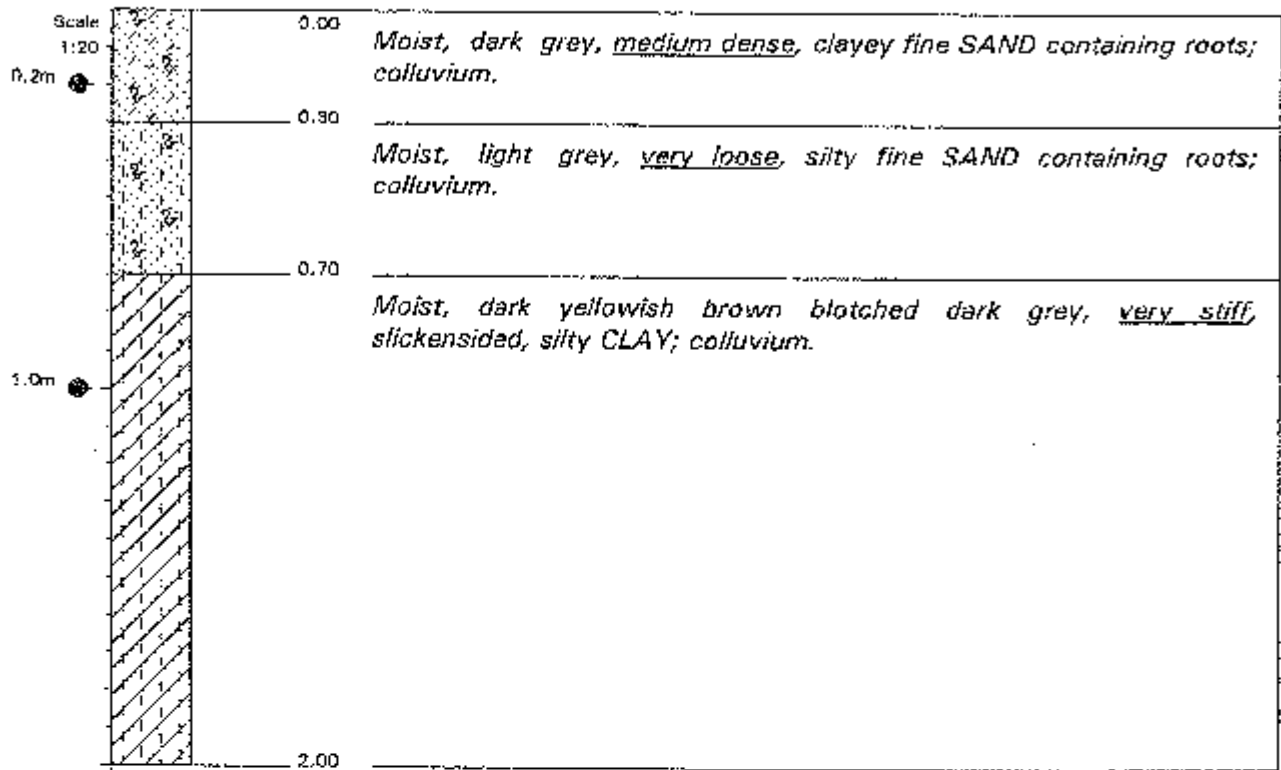
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SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
 PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT

HOLE No: TV/11

Sheet 1 of 1

JOB NUMBER: M05/2568



NOTES

- 1) No refusal of backactor at 2,0m.
- 2) No water seepage encountered.
- 3) Disturbed indicator samples taken at 0,2m and at 1,0m.

CONTRACTOR : SNA Lab  
 MACHINE : John Deere 310  
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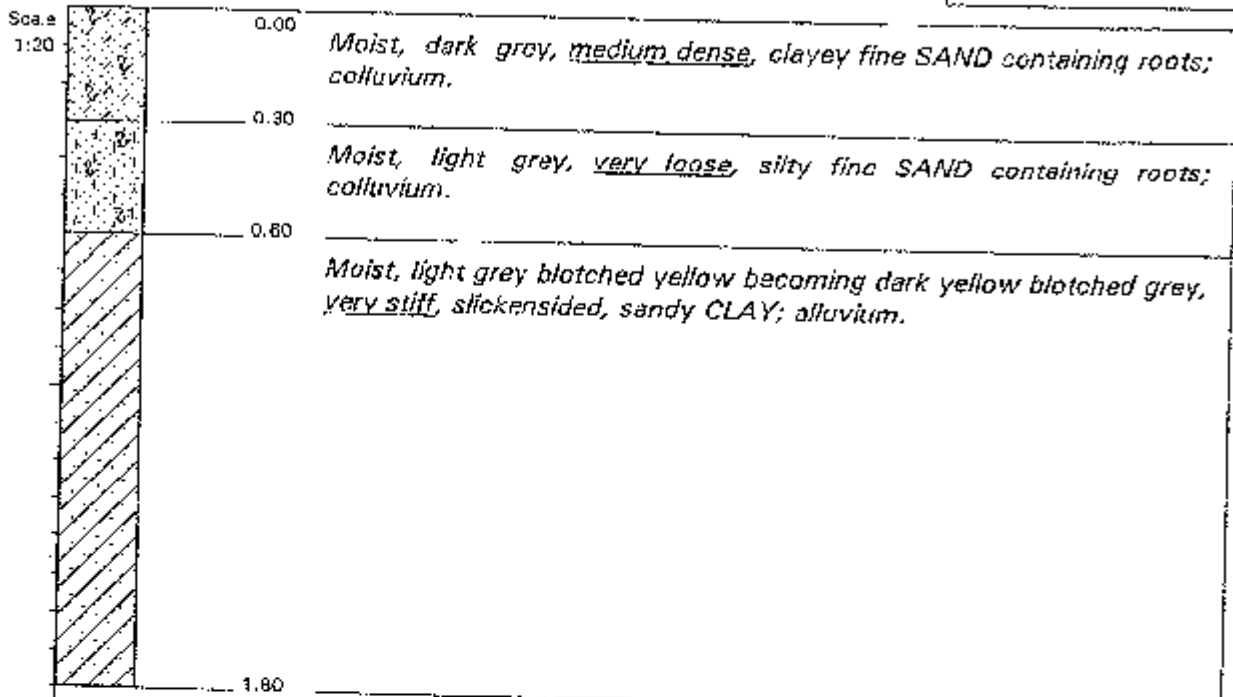
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HOLE No: TV/11

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: TV/12  
 Sheet 1 of 1  
 JOB NUMBER: M05/2568



NOTES

- 1) No refusal of backactor at 1.8m.
- 2) No water seepage encountered.

CONTRACTOR : SNA Lab  
 MACHINE : John Deere 310  
 DRILLED BY :  
 PROFILED BY : jvdm  
 TYPE SET BY : jvdm  
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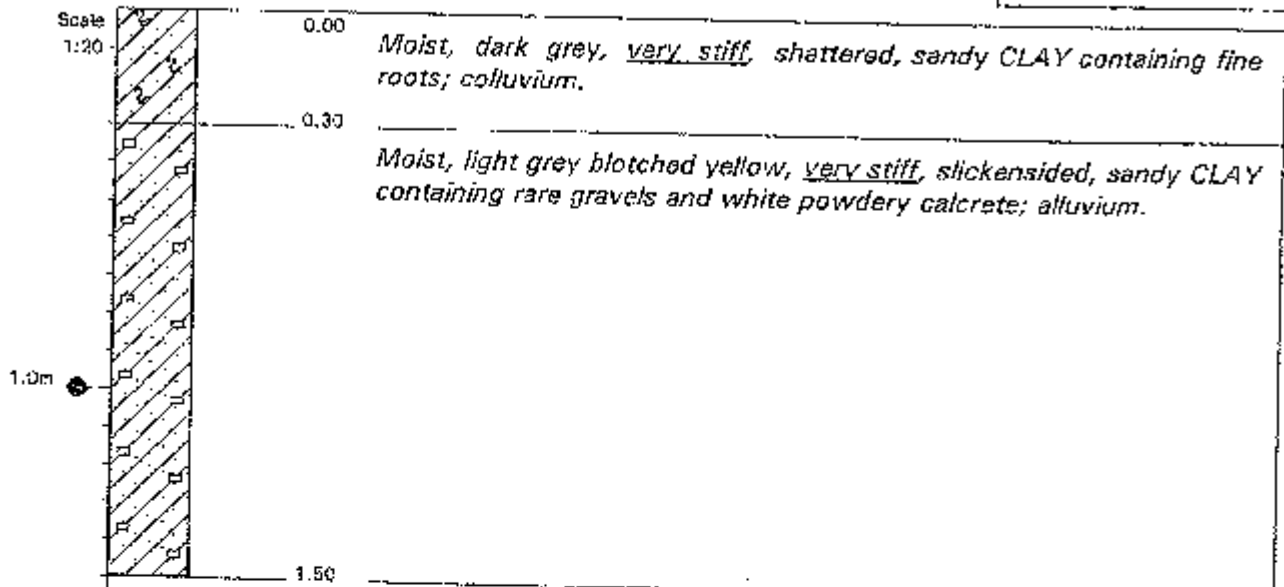
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HOLE No: TV/12

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: **TV/13**  
 Sheet 1 of 1

JOB NUMBER: **M05/2568**



**NOTES**

- 1) Extremely slow excavation to near refusal of backactor at 1,5m.
- 2) No water seepage encountered.
- 3) Disturbed indicator sample taken at 1,0m.

CONTRACTOR : **SNA Lab**  
 MACHINE : **John Deere 310**  
 DRILLED BY :  
 PROFILED BY : **jvdm**  
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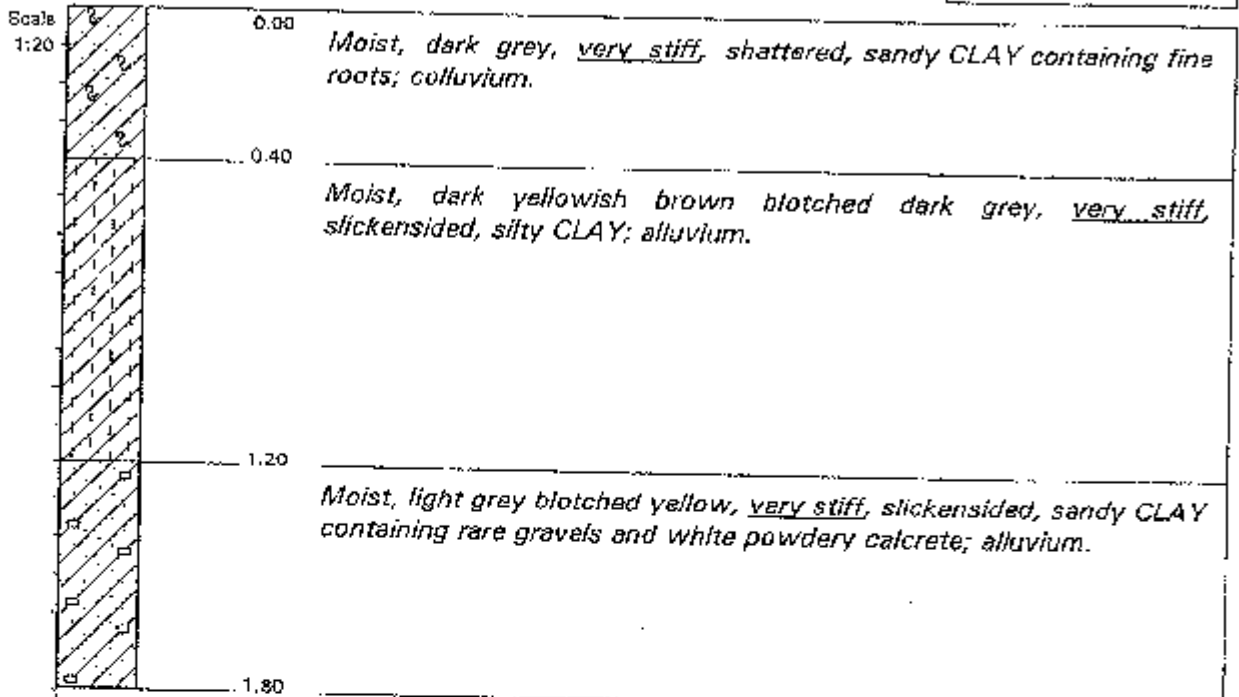
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HOLE No: **TV/13**

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: *TV/14*  
 Sheet 1 of 1

JOB NUMBER: *M05/2568*



**NOTES**

- 1) Extremely slow excavation to near refusal of backactor at 1,8m.
- 2) No water seepage encountered.

CONTRACTOR : *SNA Lab*  
 MACHINE : *John Deere 310*  
 DRILLED BY :  
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 TYPE SET BY : *jvdm*  
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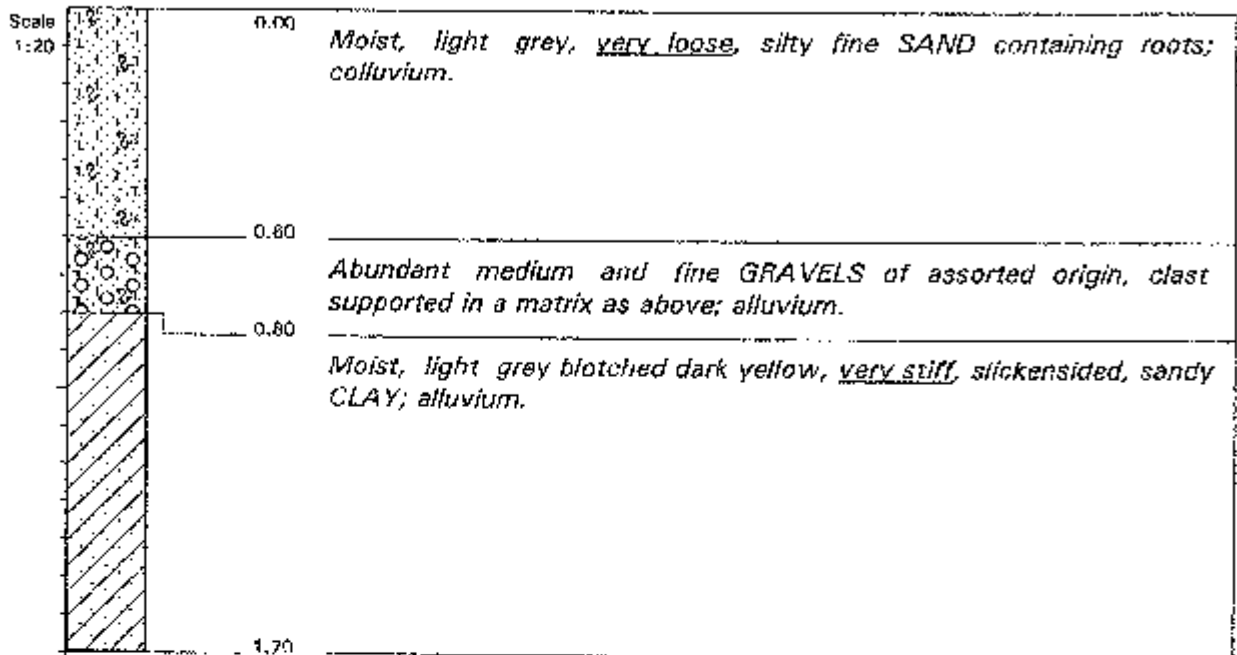
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HOLE No: *TV/14*

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
 PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT

HOLE No: TV/15  
 Sheet 1 of 1

JOB NUMBER: M05/2568



NOTES

- 1) Extremely slow excavation but no refusal of backactor at 1,7m.
- 2) No water seepage encountered.

CONTRACTOR : SNA Lab  
 MACHINE : John Deere 310  
 DRILLED BY :  
 PROFILED BY : jvdm  
 TYPE SET BY : jvdm

INCLINATION :  
 D'AM : Trench  
 DATE : 09/05/2005  
 DATE : 09/05/2005  
 DATE : 19/05/05 12:37

ELEVATION :  
 X-COORD :  
 Y-COORD :

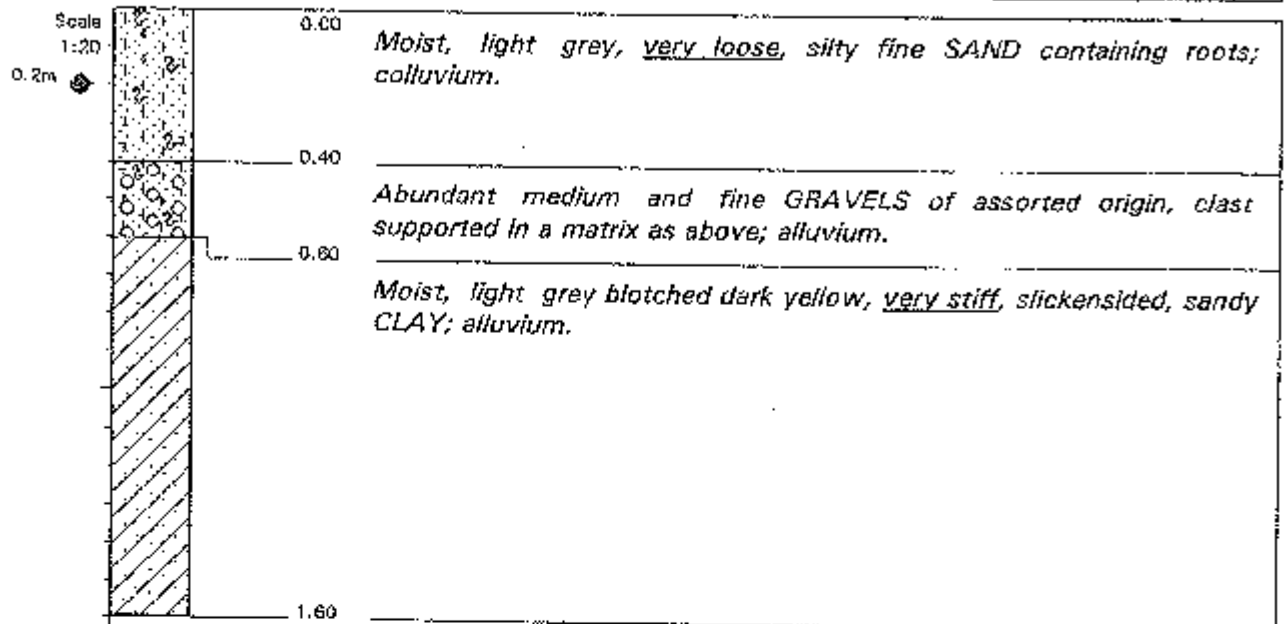
HOLE No: TV/15



SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: **TV/16**  
 Sheet 1 of 1

JOB NUMBER: **M05/2568**



**NOTES**

- 1) Extremely slow excavation but no refusal of backactor at 1,6m.
- 2) No water seepage encountered.
- 3) Disturbed soil sample taken at 0,2m.

CONTRACTOR : **SNA Lab**  
 MACHINE : **John Deere 310**  
 DRILLED BY :  
 PROFILED BY : **jvdm**  
 TYPE SET BY : **jvdm**

INCLINATION :  
 DIAM : **Trench**  
 DATE : **09/05/2005**  
 DATE : **09/05/2005**  
 DATE : **19/05/05 12:37**

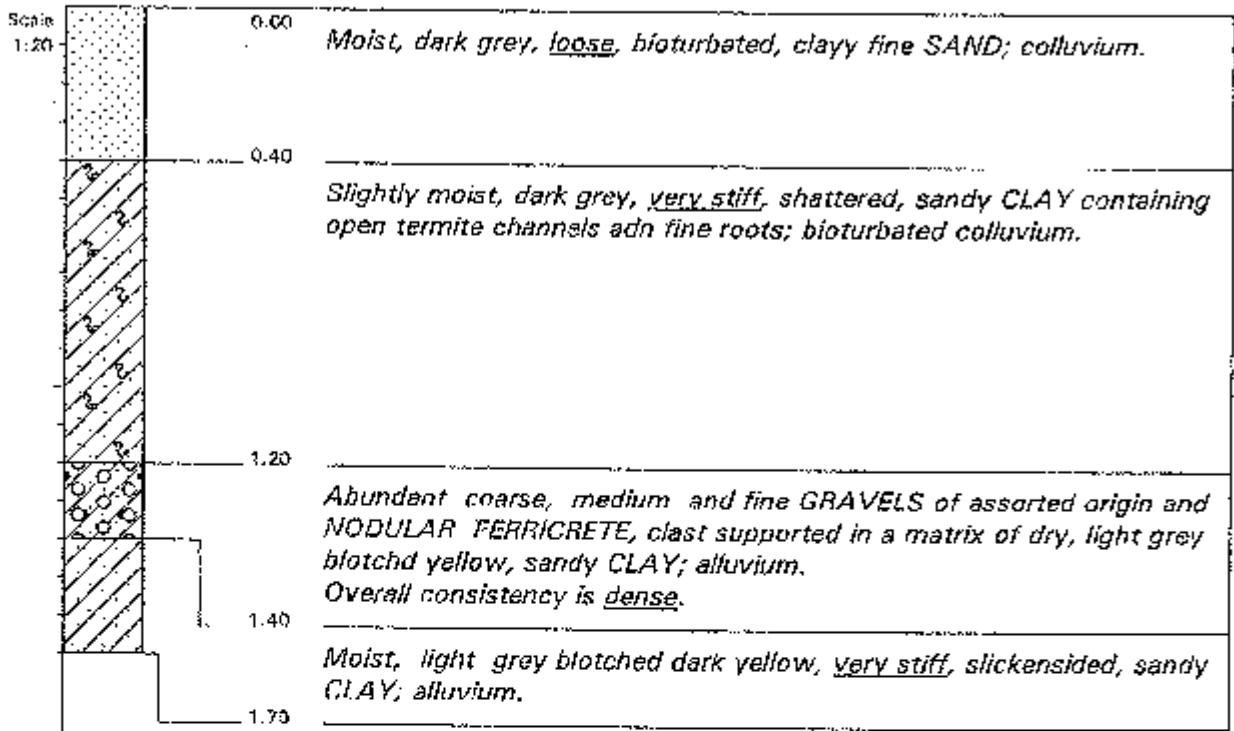
ELEVATION :  
 X-COORD :  
 Y-COORD :

HOLE No: **TV/16**

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: TV/17  
 Sheet 1 of 1

JOB NUMBER: M05/2558



**NOTES**

- 1) Extremely slow excavation but no refusal of backactor at 1,7m.
- 2) No water seepage encountered.

CONTRACTOR : SNA Lab  
 MACHINE : John Deere 310  
 DRILLED BY :  
 PROFILED BY : jvdm  
 TYPE SET BY : jvdm

INCLINATION :  
 DIAM : French  
 DATE : 09/05/2005  
 DATE : 09/05/2005  
 DATE : 19/05/05 12:37

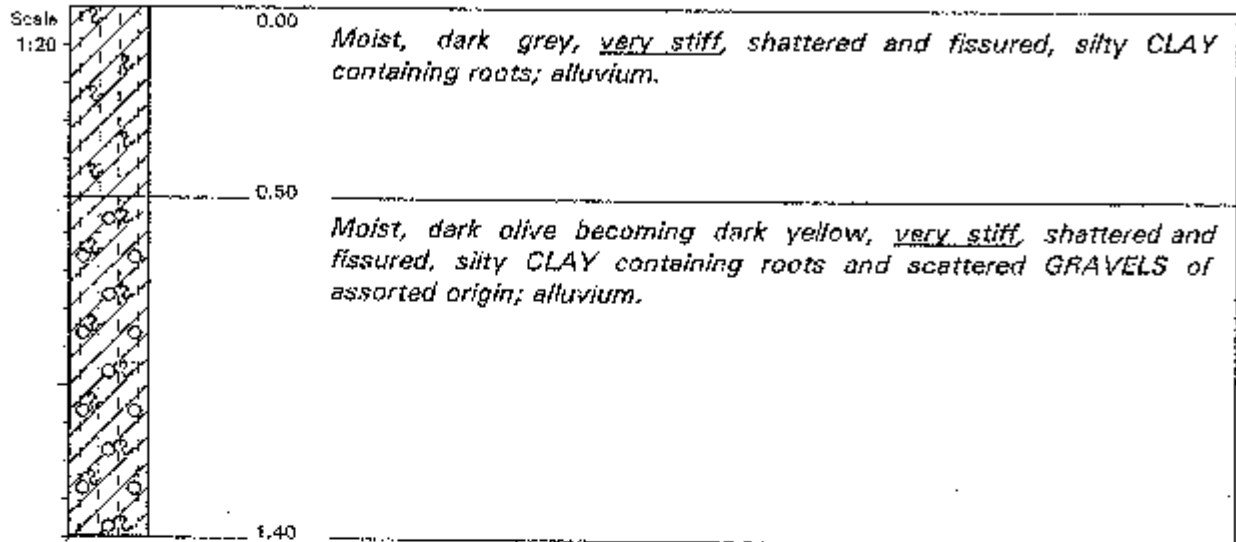
ELEVATION :  
 X-COORD :  
 Y-COORD :

HOLE No: TV/17

SYNERGISTICS, Environmental Services  
Portion 5 of Tygervallei 334-JR, Pretoria  
GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT

HOLE No: TV/18  
Sheet 1 of 1

JOB NUMBER: M05/2568



NOTES

- 1) Gradual refusal of backactor at 1,4m in very stiff clay.
- 2) No water seepage encountered.

CONTRACTOR : SNA Lab  
MACHINE : John Deere 310  
DRILLED BY :  
PROFILED BY : jvdm  
TYPE SET BY : jvdm  
ACTUAL FILE : 07-140-000-007

INCLINATION :  
DIAM : Trench  
DATE : 09/05/2005  
DATE : 09/05/2005  
DATE : 19/05/05 12:37

ELEVATION :  
X-COORD :  
Y-COORD :

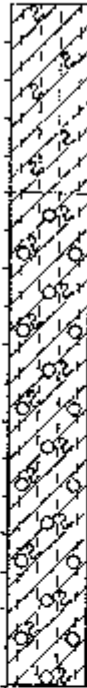
HOLE No: TV/18

SYNERGISTICS, Environmental Services  
Portion 5 of Tygervallei 334-JR, Pretoria  
GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT

HOLE No: TV/19  
Sheet 1 of 1

JOB NUMBER: M05/2568

Scale  
1:20



0.50

Moist, dark grey, very stiff, shattered and fissured, silty CLAY containing roots; alluvium.

0.60

Moist, dark olive becoming dark yellow, very stiff, shattered and fissured, silty CLAY containing roots and scattered GRAVELS of assorted origin; alluvium.

1.80

NOTES

- 1) Slow excavation but no refusal of backactor at 1.8m.
- 2) No water seepage encountered.

CONTRACTOR : SNA Lab  
MACHINE : John Deere 310  
DRILLED BY :  
PROFILED BY : jvdm  
TYPE SET BY : jvdm  
SETUP FILE - STANDARD.CAT

INCLINATION :  
DIAM : Trench  
DATE : 09/05/2005  
DATE : 09/05/2005  
DATE : 19/05/05 12:37

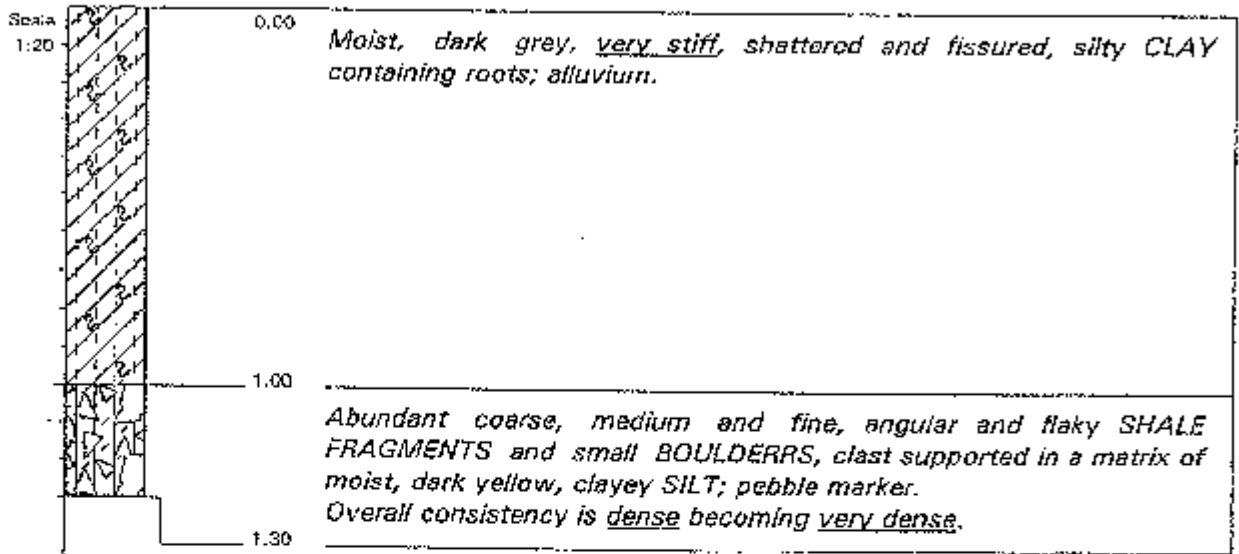
ELEVATION :  
X-COORD :  
Y-COORD :

HOLE No: TV/19

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: **TV/20**  
 Sheet 1 of 1

JOB NUMBER: **M05/2568**



**NOTES**

- 1) Slow excavation but no refusal of backactor at 1,3m in very dense pebble marker horizon.
- 2) No water seepage encountered.

CONTRACTOR : **SNA Lab**  
 MACHINE : **John Deere 310**  
 DRILLED BY :  
 PROFILED BY : **jvdm**  
 TYPE SET BY : **jvdm**  
 SETUP FILE : STANDARD.CSY

INCLINATION :  
 DIAM : **Trench**  
 DATE : **09/05/2005**  
 DATE : **09/05/2005**  
 DATE : **19/05/05 12:37**

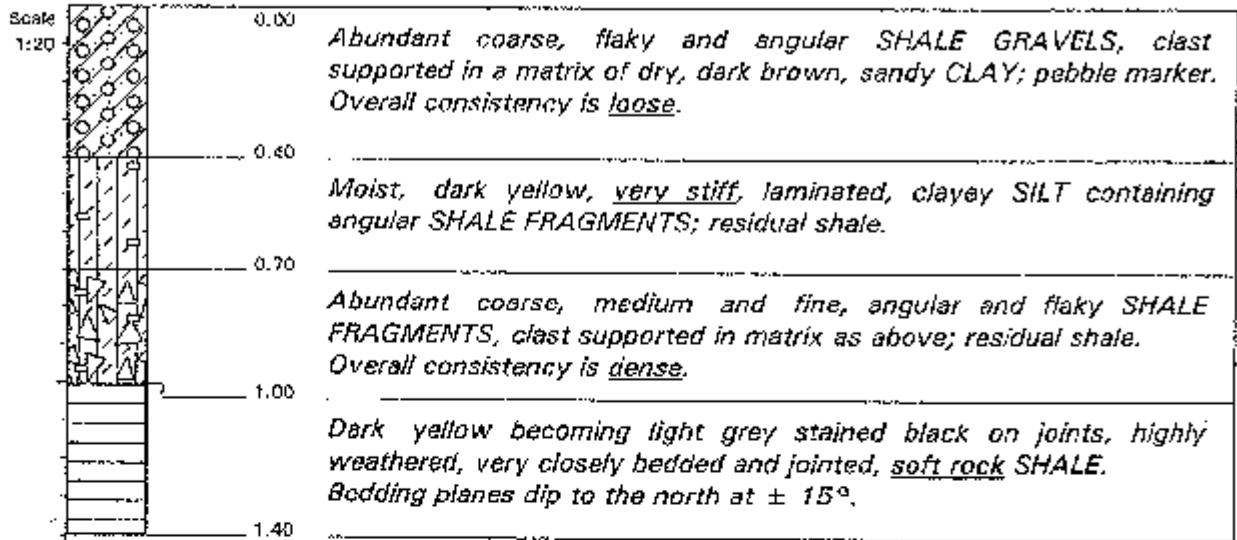
ELEVATION :  
 X-COORD :  
 Y-COORD :

HOLE No: **TV/20**

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: **TV/21**  
 Sheet 1 of 1

JOB NUMBER: **M05/2568**



**NOTES**

- 1) Gradual refusal of backactor at 1,4m in shale bedrock.
- 2) No water seepage encountered.

CONTRACTOR : *SNA Lab*  
 MACHINE : *John Deere 310*  
 DRILLED BY :  
 PROFILED BY : *jvdm*  
 TYPE SET BY : *jvdm*

INCLINATION :  
 DIAM : *Trench*  
 DATE : *09/05/2005*  
 DATE : *09/05/2005*  
 DATE : *19/05/06 12:37*

ELEVATION :  
 X-COORD :  
 Y-COORD :

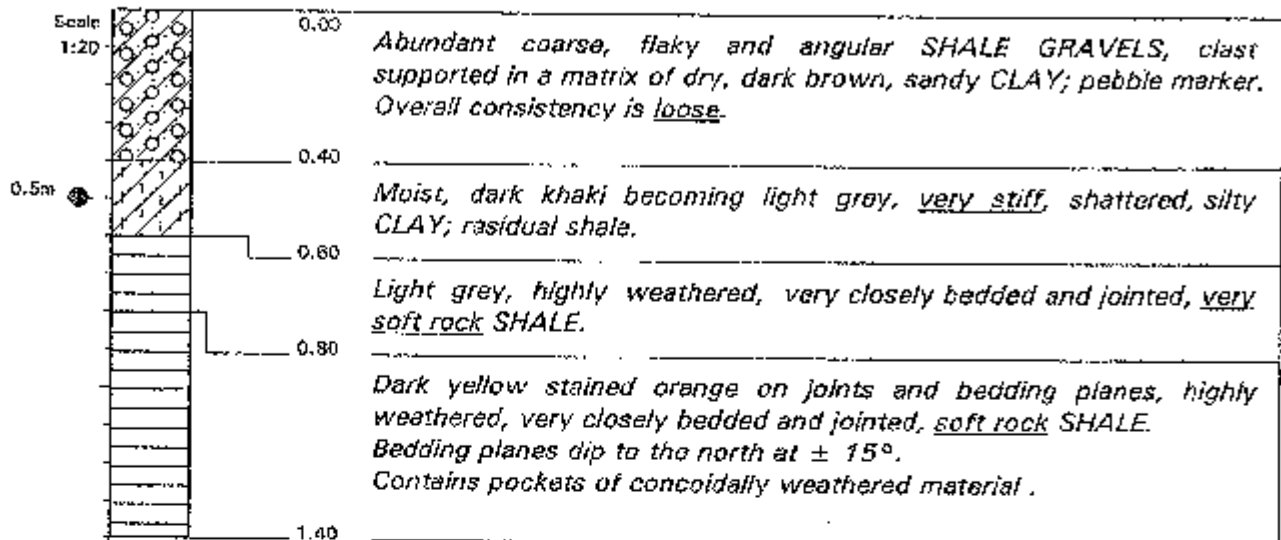
HOLE No: **TV/21**

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: TV/22

Sheet 1 of 1

JOB NUMBER: M05/2568



**NOTES**

- 1) Gradual refusal of backactor at 1,4m in shale bedrock.
- 2) No water seepage encountered.
- 3) Disturbed soil sample taken at 0,5m.

CONTRACTOR : SNA Lab  
 MACHINE : John Deere 310  
 DRILLED BY :  
 PROFILED BY : jvdm  
 TYPE SET BY : jvdsm

INCLINATION :  
 DIAM : Trench  
 DATE : 09/05/2005  
 DATE : 09/05/2005  
 DATE : 19/05/05 12:37

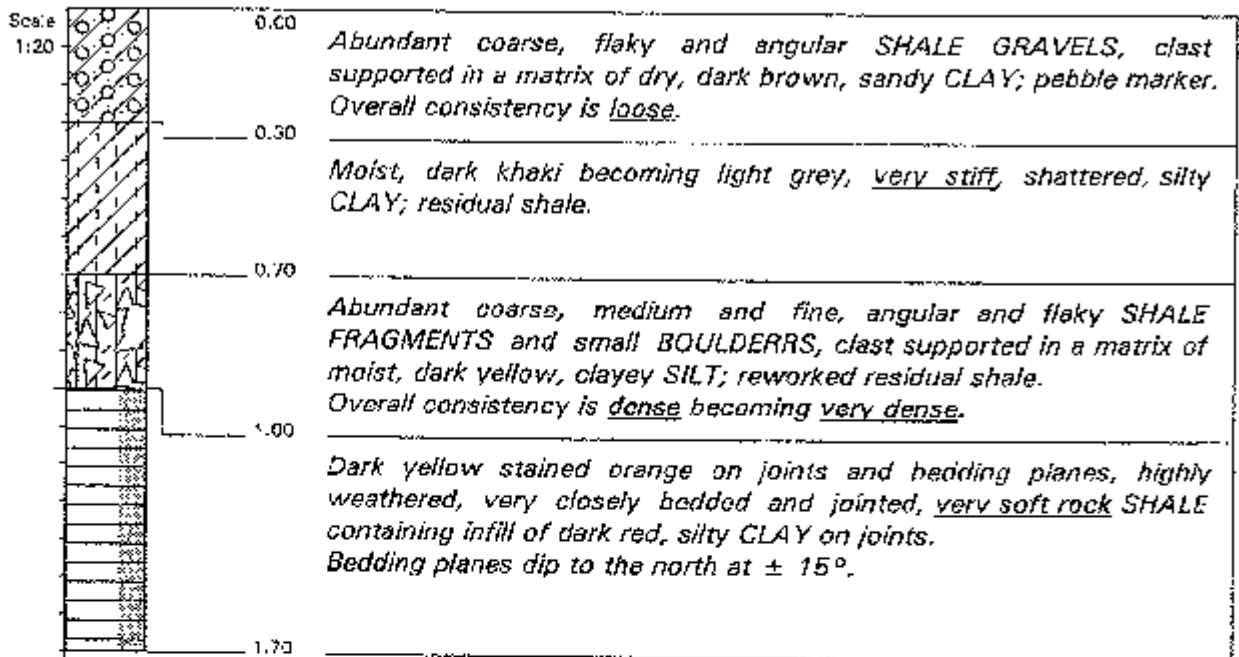
ELEVATION :  
 X-COORD :  
 Y-COORD :

HOLE No: TV/22

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: TV/23  
 Sheet 1 of 1

JOB NUMBER: M05/2568



NOTES

- 1) Gradual refusal of backactor at 1,7m in shale bedrock.
- 2) No water seepage encountered.
- 3) Abundant large and medium-sized diabase boulders scattered at surface around test pit.

CONTRACTOR : SNA Lab  
 MACHINE : John Deere 310  
 DRILLED BY :  
 PROFILED BY : jvdm  
 TYPE SET BY : jvdm  
 SETTING FILE : STANDARD.CCT

INCLINATION :  
 DIAM : Trench  
 DATE : 09/05/2005  
 DATE : 09/05/2005  
 DATE : 10/05/05 12:37

ELEVATION :  
 X-COORD :  
 Y-COORD :

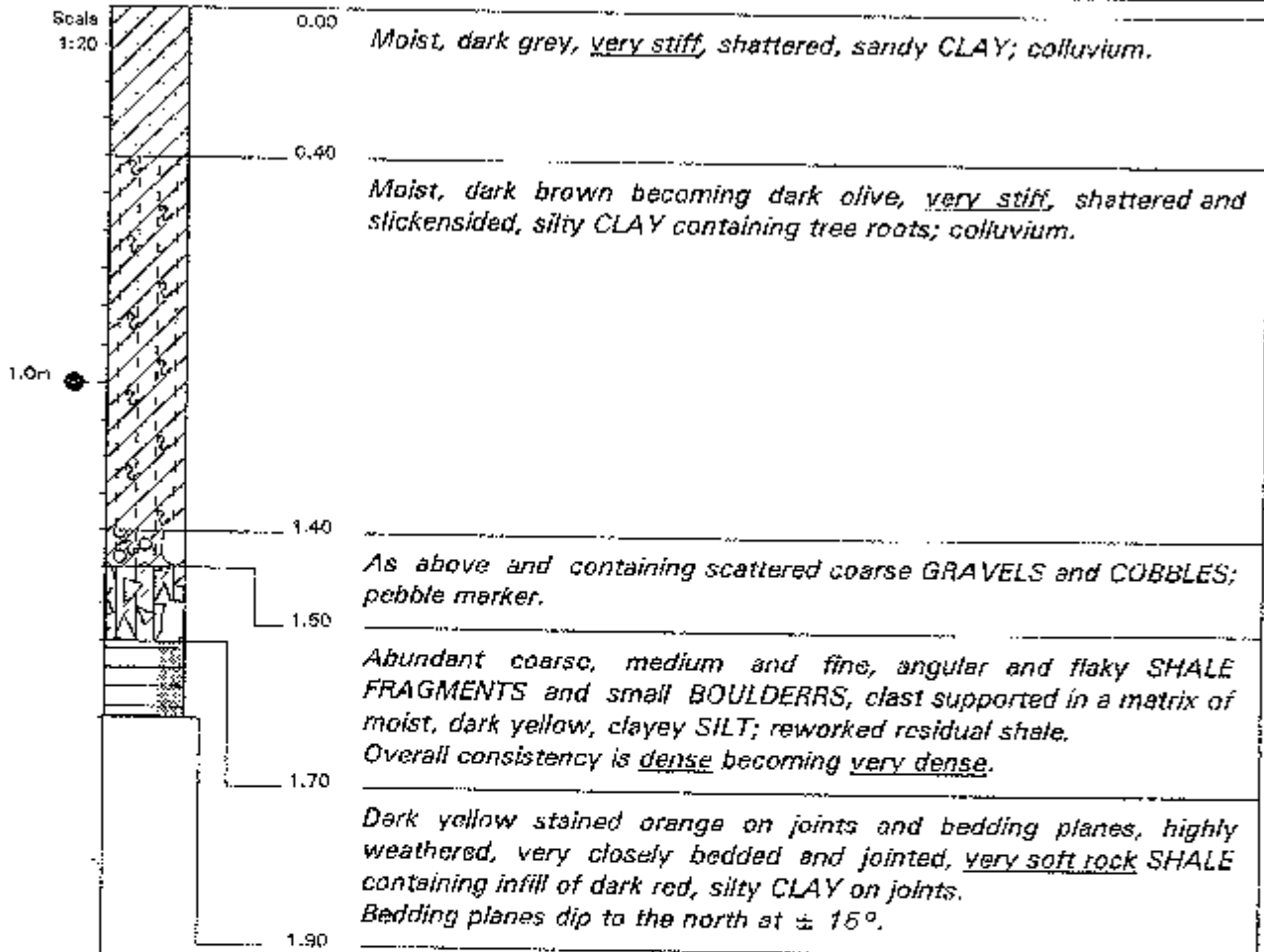
HOLE No: TV/23



SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE NO: TV/25  
 Sheet 1 of 1

JOB NUMBER: M05/2568



**NOTES**

- 1) Gradual refusal of backactor at 1,9m in shale bedrock.
- 2) No water seepage encountered.
- 3) Disturbed soil sampletaken at 1,0m.

CONTRACTOR : SNA Lab  
 MACHINE : John Deere 310  
 DRILLED BY :  
 PROFILED BY : jvd/m  
 TYPE SET BY : jvd/m  
 SET UP FILE : STANDARD SET

INCLINATION :  
 DIAM : Trench  
 DATE : 09/05/2005  
 DATE : 09/05/2005  
 DATE : 10/05/05 12:37

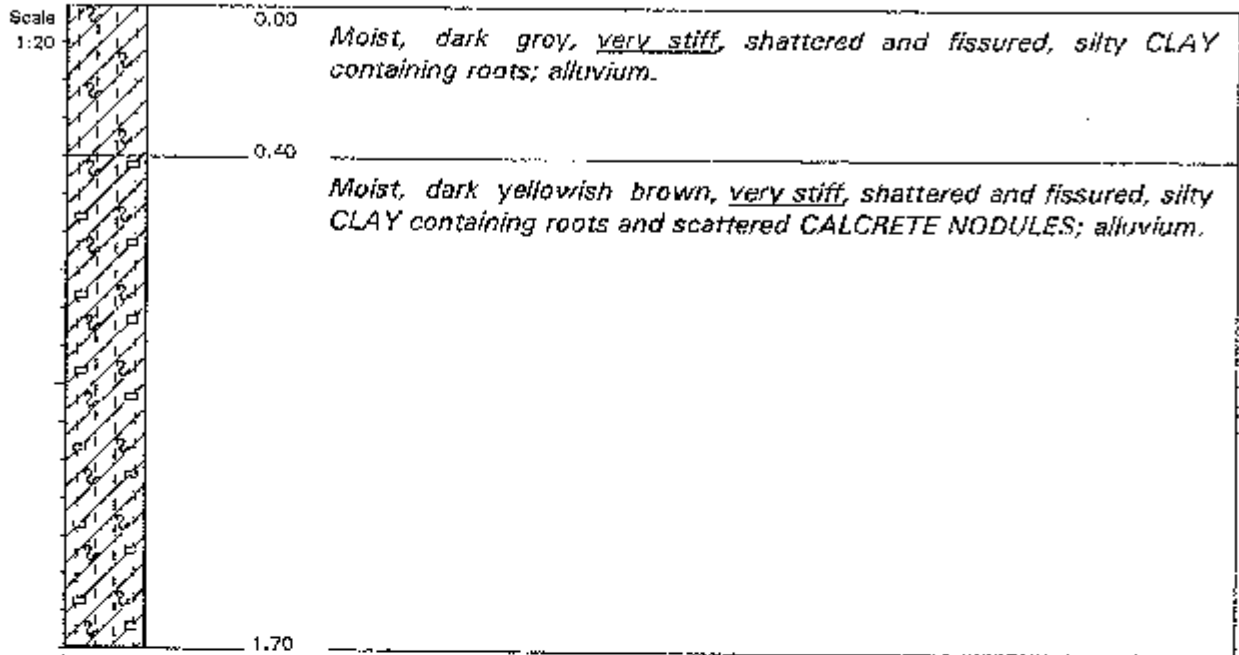
ELEVATION :  
 X-COORD :  
 Y-COORD :

HOLE No: TV/25

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
**GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
 PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: **TV/26**  
 Sheet 1 of 1

JOB NUMBER: **M05/2568**



**NOTES**

- 1) Slow excavation but no refusal of backactor at 1,7m.
- 2) No water seepage encountered.

CONTRACTOR : *SNA Lab*  
 MACHINE : *John Deere 310*  
 DRILLED BY :  
 PROFILED BY : *jvdm*  
 TYPE SET BY : *jvdm*

INCLINATION :  
 DIAM : *Trench*  
 DATE : *09/05/2005*  
 DATE : *09/05/2005*  
 DATE : 19/05/05 12:37

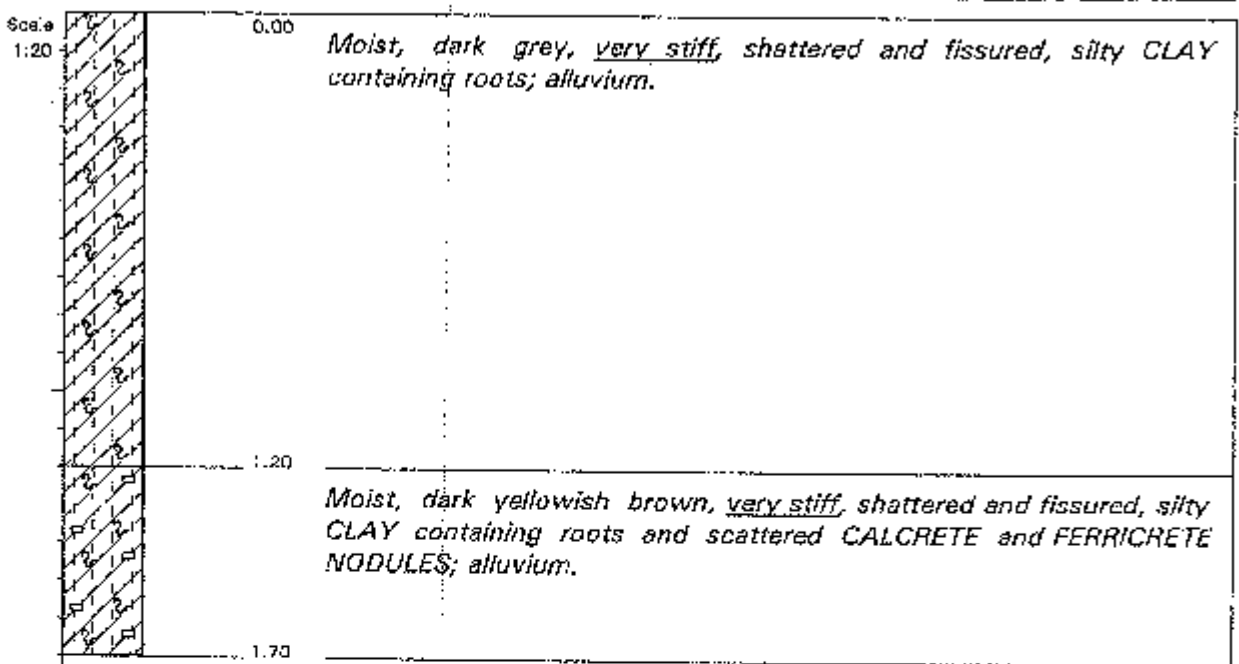
ELEVATION :  
 X-COORD :  
 Y-COORD :

HOLE No: **TV/26**

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: **TV/27**  
 Sheet 1 of 1

JOB NUMBER: **M05/2568**



**NOTES**

- 1) Slow excavation but no refusal of backactor at 1.7m.
- 2) No water seepage encountered.

CONTRACTOR : **SNA Lab**  
 MACHINE : **John Deere 310**  
 DRILLED BY :  
 PROFILED BY : **jvdm**  
 TYPE SET BY : **jvdm**  
 SOUTH AFRICAN STANDARDS

INCLINATION :  
 O'AM : **Trench**  
 DATE : **09/05/2005**  
 DATE : **09/05/2005**  
 DATE : **19/05/06 12:37**  
 TEXT : (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)

ELEVATION :  
 X-COORD :  
 Y-COORD :

HOLE No: **TV/27**

SYNERGISTICS, Environmental Services  
Portion 5 of Tygervallei 334-JR, Pretoria  
GEO TECHNICAL INVESTIGATION CARRIED OUT FOR:  
PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT

HOLE No: TV/28

Sheet 1 of 1

JOB NUMBER: M05/2568

Scale  
1:20



0.00

Moist, dark grey, very stiff, shattered and fissured, silty CLAY containing roots; alluvium.

0.90

Moist, dark yellowish brown, very stiff, shattered and fissured, silty CLAY containing roots and scattered CALCRETE NODULES; alluvium.

1.50

NOTES

- 1) Slow excavation but no refusal of backactor at 1,5m.
- 2) No water seepage encountered.

CONTRACTOR : SNA Lab  
MACHINE : John Deere 310  
DRILLED BY :  
PROFILED BY : jvdm  
TYPE SET BY : jvdm  
SETUP FILE : STANDARD.SET

INCLINATION :  
DIAM : Trench  
DATE : 09/05/2005  
DATE : 09/05/2005

ELEVATION :  
X-COORD :  
Y-COORD :

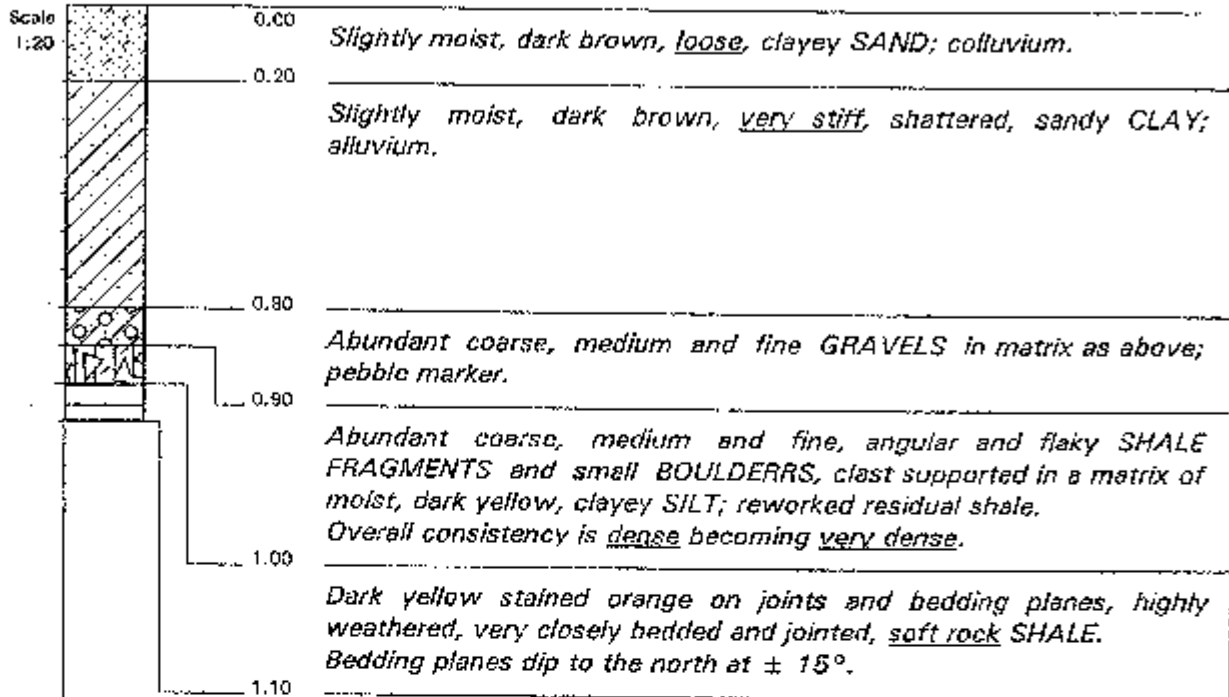
HOLE No: TV/28

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SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
 PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT

HOLE No: TV/29  
 Sheet 1 of 1

JOB NUMBER: M05/2568



NOTES

- 1) Gradual refusal of backactor at 1,1m in shale bedrock.
- 2) No water seepage encountered.

CONTRACTOR : SNA Lab  
 MACHINE : John Deere 310  
 DRILLED BY :  
 PROFILED BY : jvdm  
 TYPE SET BY : jvdm

INCLINATION :  
 DIAM : Trench  
 DATE : 09/05/2005  
 DATE : 09/05/2005  
 DATE : 19/06/05 12:37

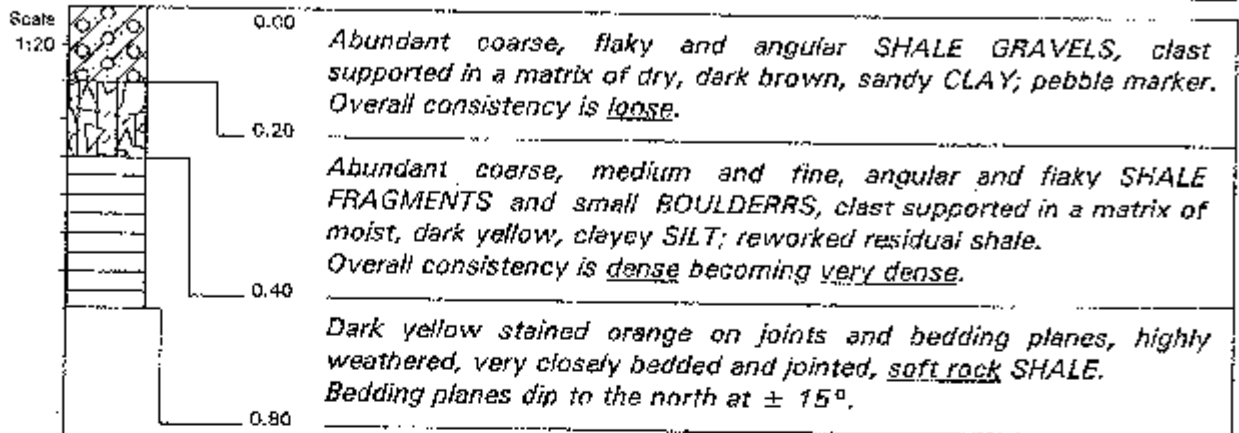
ELEVATION :  
 X-COORD :  
 Y-COORD :

HOLE No: TV/29

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: TV/30  
 Sheet 1 of 1

JOB NUMBER: M05/2568



NOTES

- 1) Gradual refusal of backactor at 0,8m in shale bedrock.
- 2) No water seepage encountered.

CONTRACTOR : SNA Lab  
 MACHINE : John Deere 310  
 DRILLED BY :  
 PROFILED BY : jvdm  
 TYPE SET BY : jvdm

INCLINATION :  
 DIAM : Trench  
 DATE : 09/05/2005  
 DATE : 09/05/2005  
 DATE : 19/05/05 12:37

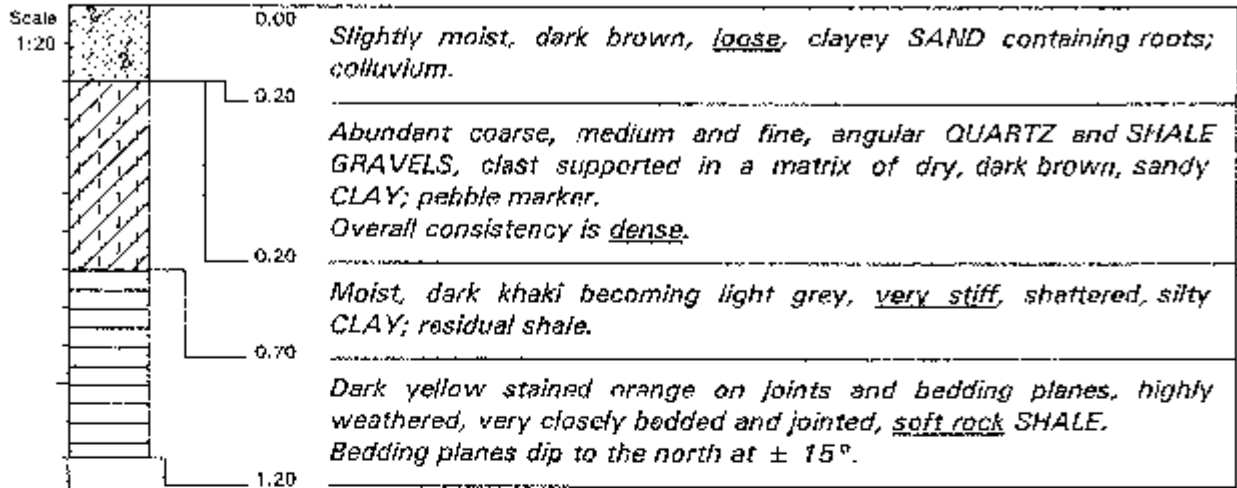
ELEVATION :  
 X-COORD :  
 Y-COORD :

HOLE No: TV/30

SYNERGISTICS, Environmental Services  
 Portion 5 of Tygervallei 334-JR, Pretoria  
**GEO TECHNICAL INVESTIGATION CARRIED OUT FOR:  
 PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: **TV/31**  
 Sheet 1 of 1

JOB NUMBER: **M05/2568**



**NOTES**

- 1) Gradual refusal of backactor at 1,2m in shale bedrock.
- 2) No water seepage encountered.

CONTRACTOR : **SNA Lab**  
 MACHINE : **John Deere 310**  
 DRILLED BY :  
 PROFILED BY : **jvdm**  
 TYPE SET BY : **jovdm**

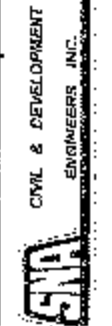
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 DIAM : **Trench**  
 DATE : **09/05/2005**  
 DATE : **09/05/2005**  
 DATE : **10/05/05 12:37**

ELEVATION :  
 X-COORD :  
 Y-COORD :

HOLE No: **TV/31**

**APPENDIX 2: LABORATORY SOIL TEST RESULTS**





Client: Johann vd Merwe  
 C/NO: 77  
 Order: Joe

Agent: (012) 347 9054  
 Fax/Tel: 082 570 2222  
 Job

Project: 2568: Tyger Valley  
 Rd/Sec/BP  
 Layer/Holes

Lab # 6256  
 Proj # 704 / 13 / 390  
 Date 2005/05/17

# INDICATORS


TMH 1: TM, A1(a)&(b), A2 - A4, A5(a)&(b), A20, A21T and ICL Constants; pH; El.Con; ICL and Classification

HOLE & / SAMPLE No.	DEPTH	SIEVE ANALYSIS PASSING # mm (%)										SOIL MORTAR ANAL (% vs # mm)			ATTERBERG LIMITS			I-L-C (%)		RE MARKS							
		75.0	63.0	53.0	37.5	26.5	19.0	13.2	4.75	2.0	0.426	0.075	2.0	0.426	0.425	0.250	0.150	0.075	GM		LL	LS	PI	pH	ELECTRIC CONDUCT. (S/m)	I-L-C (%)	TRB CLASS. & GROUP INDEX. CSRA TRH 4 & 14 CLASSIFICATION
1/0.6	0.6							100	100	98	94	88	67	7	7	7	9	7	67	0.44	47	10.7	23	8.67	0.010		A-7-6 (13)
	B9																										
1/1.1	1.1							100	98	94	88	67	7	7	7	7	7	71	0.52	51	8.7	17				A-5 (8)	
	K11																										
2/1.0	1.0							100	100	99	95	59	4	11	11	13	59	0.48	46	7.7	16					A-7-6 (10)	
	Q10																										
2/2.2-2.3	2.2-2.3							100	100	96	96	64	4	6	12	15	64	0.40	45	7.6	18					A-7-6 (10)	
	49																										
4/1.0	1.0							100	98	95	87	59	9	13	11	6	62	0.59	48	7.3	15	9.17	0.084			A-7-6 (13)	
	PQ																										
5/1.5	1.5							100	99	87	38	11	23	18	9	39	0.76	30	3.7	8						A-6 (2)	
	K33																										
7/0.4	0.4							100	100	89	44	11	18	15	11	44	0.67	23	4.7	10	8.77	0.070				A-4 (2)	
	Z14																										
11/0-0.3	0-0.3							100	100	93	45	7	17	19	13	45	0.62	18	2.2	5	8.22	0.028				A-4 (2)	
	C18																										
11/1.0	1.0							100	100	87	59	13	12	10	5	59	0.53	38	9.1	20	8.65	0.021				A-6 (9)	
	B4																										
13/1.0	1.0							100	100	99	75	45	24	15	11	5	45	0.80	28	3.1	6	8.53	0.046			A-6 (3)	
	XC10																										

MARKS:

TECH:   
 DATE: 20/5/2005



 <b>CIVIL &amp; DEVELOPMENT ENGINEERS INC.</b>	Client	Johann vd Merwe	Project	2548: Tyger Valley	LAB #	6256
	C/No	??	Rd/Sec/BP		PROJ #	704 / 13 / 390
	Order	Joe	Layer/Depth		Date	2005/05/17
	Agent	Joe	Fax/Tel	(012) 347 8064	Cell	082 570 2222

## HYDROMETER ANALYSIS

TMH 1: TM6A (Modified)

(Na<sub>2</sub>P<sub>2</sub>O<sub>7</sub>)

RD / ST / BP / Sample No.						
PEG / HOLE No.		TV 1 / 0.6	TV 1 / 1.1	TV 2 / 1.0	TV 2 / 2.2 - 2.3	TV 4 / 1.0
LAYER / DEPTH (mm)		0.6	1.1	1.0	2.2 - 2.3	1.0
PAN No.		B9	K11	Q10	49.0	PQ

### GRADING ANALYSIS. (CUM % PASSING)

SIEVE # (mm)	(01-1)	(01-2)	(02-3)	(02-4)	(03-5)	
63.0						
53.0						
37.5						
26.5						
19.0						
13.2	100	100	100		100	
4.75	100	98	100	100	98	
2.0	99	94	99	100	95	
0.425	90	88	95	96	87	
0.075	67	67	59	64	59	
GRADING MODULUS GM	0.44	0.52	0.48	0.40	0.59	

### ATTERBERG CONSTANTS.

LL	47	51	46	45	48
PI	23	17	16	18	15
LS	10.7	8.7	7.7	7.6	7.3

(PI &lt; 20, use 100 g. PI &gt; 20 use 50 g)

### HYDROMETER ANALYSIS

USED 50 / 100 g	60	100	100	100	100
SOIL FINES					
STARTING TIME					
FINE SAND 18 sek.	32.0	60.0	58.0	51.0	55.0
SILT 40 sek.	30.0	60.0	50.0	41.0	48.0
CLAY 1 hr.	25.5	48.5	33.0	18.0	25.0
EXPANSIVE CLAY 6 hrs.	22.5	38.0	27.0	16.0	19.0
TEMPERATURE (18 - 22) (°C)	19.5	19.5	19.5	19.5	19.5
CORRECTION	-0.2	-0.2	-0.2	-0.2	-0.2

### CORRECTED HYDROMETER READINGS

FINE SAND 18 sek.	63.6	59.8	55.8	50.6	54.8	
SILT 40 sek.	59.6	59.8	49.8	40.8	47.8	
CLAY 1 hrs.	50.6	46.3	32.8	17.8	24.8	
EXPANSIVE CLAY 6 hrs.	44.6	37.8	28.8	15.8	18.8	
SOIL FINES % OF TOTAL SAMPLE	0.075	57.3	52.4	52.8	48.9	47.6
	0.05	53.7	52.4	47.1	39.3	41.5

### SOIL MORTAR ANALYSIS

### PERCENTAGE OF SOIL MORTAR

C.SAND 2.0 TO 0.425	8.8	6.9	4.2	3.7	8.5
F.SAND 0.425 TO 0.05	38.8	37.4	48.1	57.0	47.8
SILT 0.05 TO 0.005	8.2	12.6	16.3	22.2	21.0
CLAY 0.005 TO 0.002	5.5	7.9	5.7	1.9	5.5
EXP. CLAY (C) < 0.002	40.7	35.2	25.7	15.2	17.2
MORTAR CHECK SUM = 100	100.0	100.0	100.0	100.0	100.0
SILT-CLAY FRACT. < 0.05	54.3	55.7	47.7	39.3	43.7

### ACTIVITY INDEX K

### SUPPLEMENTARY INFORMATION.

EXP. CLAY FRACT % = 0.4 x C		16.3	14.1	10.3	6.1	6.9
EFFECTIVE PI = % <sub>0.425</sub> x PI	(P)	20.3	14.9	15.1	17.6	13.0
K = 5((P-0.4C)/(C-10)) <sup>0.5</sup>		91	31	67	58	49
ACTIVITY CLASSIFICATION*		MED	LOW	MED	MED	LOW

\* ACTIVITY CLASSIFICATION: (P=50), LOW: (50-120), MED: (120-200), HIGH: (200-400), VERY HIGH: (&gt;400) (Note: (P=50) is not used)

ELECTRIC CONDUCT. (S/m)	0.01				0.084
pH	8.67				9.17

REMARKS:

TECH:

DATE:

  
 20/5/02


 CIVIL & DEVELOPMENT  
ENGINEERS INC.

Client	Johann vd Merwe	Project	2568: Tyger Valley	LAB #	6266
C/no	??	Rd/ST/SP		PROJ #	704/13/390
Order	Joe	Layer/Depth		Date	2005/05/17
Agent	Joe	Fax/Tel		Cell	082 570 2222

# HYDROMETER ANALYSIS

 TMH 1: TM 6A (Modified) (Na<sub>2</sub>P<sub>2</sub>O<sub>7</sub>)

Rd / ST / BP / Sample No.					
PEG / HOLE No.	TV 5 / 1.5	TV 7 / 0.4	TV 11 / 0 - 0.3	TV 11 / 1.0	TV 13 / 1.0
LAYER / DEPTH (mm)	1.5	0.4	0 - 0.3	1.0	1.0
PAN No.	K33	Z14	C18	B4	XC10

## GRADING ANALYSIS. (CUM % PASSING)

SIEVE # (mm)	(03-6)	(04-7)	(04-8)	(05-9)	(05-10)
63.0					
53.0					
37.5					
26.5					
19.0					
13.2					100
4.75	100	100	100	100	100
2.0	99	100	100	100	99
0.425	87	89	93	87	75
0.075	38	44	45	59	45
GRADING MODULUS GM	0.76	0.67	0.62	0.53	0.80

## ATTERBERG CONSTANTS.

LL	30	23	18	38	28
PI	8	10	6	20	6
LS	3.7	4.7	2.2	9.1	3.1

(PI &lt; 20, use 100 g. PI &gt; 20 use 50 g)

## HYDROMETER ANALYSIS

USED 50 / 100 g	100	100	100	100	100	
SOIL FINES						
STARTING TIME						
FINE SAND	18 sek.	41.0	Foam	Foam	57.0	39.0
SILT	40 sek.	38.0	Foam	Foam	54.0	35.5
CLAY	1 hr.	29.5	22.0	19.5	41.0	29.0
EXPANSIVE CLAY	6 hrs.	26.0	13.0	13.0	37.0	26.0
TEMPERATURE (18 - 22) (°C)		19.5	19.5	19.5	19.5	19.5
CORRECTION		-0.2	-0.2	-0.2	-0.2	-0.2

## CORRECTED HYDROMETER READINGS

FINE SAND	18 sek.	40.8			56.8	38.8
SILT	40 sek.	37.8			53.8	35.3
CLAY	1 hrs.	29.3	21.8	19.3	40.8	27.8
EXPANSIVE CLAY	6 hrs.	25.8	12.8	12.8	36.8	25.8
SOIL FINES % OF	0.075	35.7			49.6	29.2
TOTAL SAMPLE	0.05	33.0			47.0	26.6

## SOIL MORTAR ANALYSIS

## PERCENTAGE OF SOIL MORTAR

C.SAND	2.0 TO 0.425	11.2	11.0	6.6	12.6	24.4
F.SAND	0.425 TO 0.075	55.2			40.4	48.9
SILT	0.075 TO 0.005	7.5			11.4	5.7
CLAY	0.005 TO 0.002	3.1	8.0	6.1	3.5	1.5
EXP. CLAY (C)	< 0.002	22.9	11.4	12.0	32.1	19.5
MORTAR CHECK SUM	= 100	100.0			100.0	100.0
SILT-CLAY FRACT.	< 0.05	33.6			47.0	26.7

## ACTIVITY INDEX K

## SUPPLEMENTARY INFORMATION.

EXP. CLAY FRACT % = C <sub>4</sub> x C		9.2	4.6	4.8	12.9	7.8
EFFECTIVE PI = % <sub>0.425</sub> x PI	(P)	7.0	9.3	4.3	17.8	4.5
K = 5((P-0.4C)(C-10)) <sup>0.6</sup>					84	
ACTIVITY CLASSIFICATION*		LOW			MED	LOW

\* ACTIVITY CLASSIFICATION (US): LOW: (50-100), MED: (120-200), HIGH: (&gt;200), VERY HIGH: 3 (where INUM = 100 val), LOW.

ELECTRIC. CONduc. (S/m)			0.070	0.028	0.021	0.046
pH			8.77	8.22	8.65	8.63

REMARKS:

TECH:

DATE:

20/5/2005



CIVIL & DEVELOPMENT  
ENGINEERS INC.

Client	Johann vd Merwe	Project	2566: Tyger Valley	LAB #	6256
C/No	??	Rd/Sec/BP		PROJ #	704/13/390
Order	Joe	Layer/Depth		Date	2005/05/17
Agent	Joe	Fax/Tel	(012) 347 9064	Cell	082 570 2222

# HYDROMETER ANALYSIS

TMH 1: TM 6A (Modified) (Na<sub>4</sub>P<sub>2</sub>O<sub>7</sub>)

RD / ST / BP / Sample No.					
PEG / HOLE No.					
LAYER / DEPTH (mm)	TV 16 / 0 - 0.4	TV 22 / 0.3 - 0.8	TV 24 / 0.8	TV 25 / 1.0	
PAN No.	0 - 0.4	0.3 - 0.8	0.5	1.0	
	3P22	A10	015	F1	

## GRADING ANALYSIS (CUM % PASSING)

SIZE # (mm)	(01-1)	(C1-2)	(02-3)	(02-4)	(03-5)
63.0					
53.0					
37.5					
26.5					
19.0					
13.2	100	100	100	100	
4.75	98	93	100	100	
2.0	97	81	99	97	
0.425	86	60	91	91	
0.075	18	49	74	80	
GRADING MODULUS GM	1.19	1.11	0.36	0.32	

## ATTERBERG CONSTANTS

LL	20	55	47	52
PI	1	24	20	25
LS	0.5	12.5	10.8	11.7

(Pl < 20, use 100 g. Pl > 20 use 50 g)

## HYDROMETER ANALYSIS

USED 50 / 100 g	100	50	50	50
SOIL FINES				
STARTING TIME				
FINE SAND 18 sek.	19.0	29.0	37.5	40.0
SILT 40 sek.	16.0	23.0	33.0	37.5
CLAY 1 hr.	7.0	10.5	20.5	29.0
EXPANSIVE CLAY 6 hrs.	5.0	8.0	11.5	28.0
TEMPERATURE (18 - 22) (°C)	19.5	19.5	19.5	19.5
CORRECTION	-0.2	-0.2	-0.2	-0.2

## CORRECTED HYDROMETER READINGS

FINE SAND 18 sek.	18.8	57.6	74.6	79.8
SILT 40 sek.	15.8	45.6	65.8	74.6
CLAY 1 hrs.	6.8	20.6	40.6	57.6
EXPANSIVE CLAY 6 hrs.	4.8	15.8	22.8	51.6
SOIL FINES % OF TOTAL SAMPLE	0.075	12.4	34.4	67.7
	0.05	10.4	27.3	59.5

## SOIL MORTAR ANALYSIS

## PERCENTAGE OF SOIL MORTAR

C.SAND 2.0 TO 0.425	32.1	25.7	8.1	5.8
F.SAND 0.425 TO 0.05	57.1	40.4	31.6	23.9
SILT 0.05 TO 0.005	6.1	18.6	23.0	16.0
CLAY 0.005 TO 0.002	1.4	3.7	16.5	5.7
EXP. CLAY (C) < 0.002	3.3	11.6	20.8	48.6
MORTAR CHECK SUM = 100	100.0	100.0	100.0	100.0
SILT-CLAY FRACT. < 0.05	10.7	33.9	60.3	70.3

## ACTIVITY INDEX K

## SUPPLEMENTARY INFORMATION

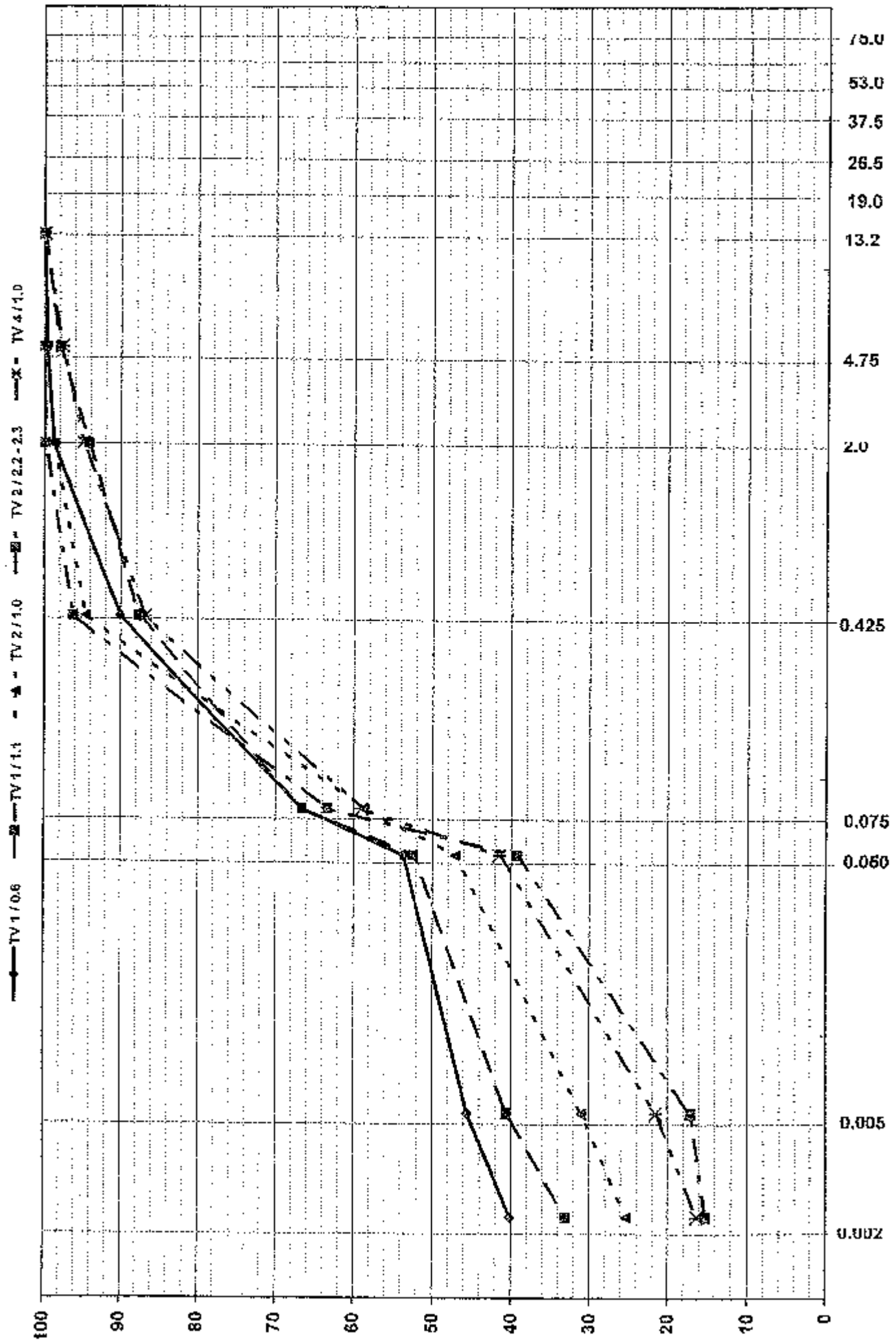
EXP. CLAY FRACT % = 0.4x C		1.3	4.6	8.3	19.4
EFFECTIVE PI = % <sub>0.425</sub> x PI (P)		0.7	14.4	18.1	22.4
K = 5((P-0.4)(C-10)) <sup>0.6</sup>		12	28	82	86
ACTIVITY CLASSIFICATION*		LOW	LOW	MED	MED

\* ACTIVITY CLASSIFICATION (LOW: (5-10), MED: (10-20), HIGH: (20-30), VERY HIGH: (30-40) & (above 40) = req. val) LOW.

ELECTRIC CONDUCT. (S/m)	0.01	0.064	0.09	
pH	8.70	8.23	7.78	

REMARKS:	TV 16 / 0 - 0.4: PI values for Hydrometer Calculation only.	TECH:	
		DATE:	20/5/2005

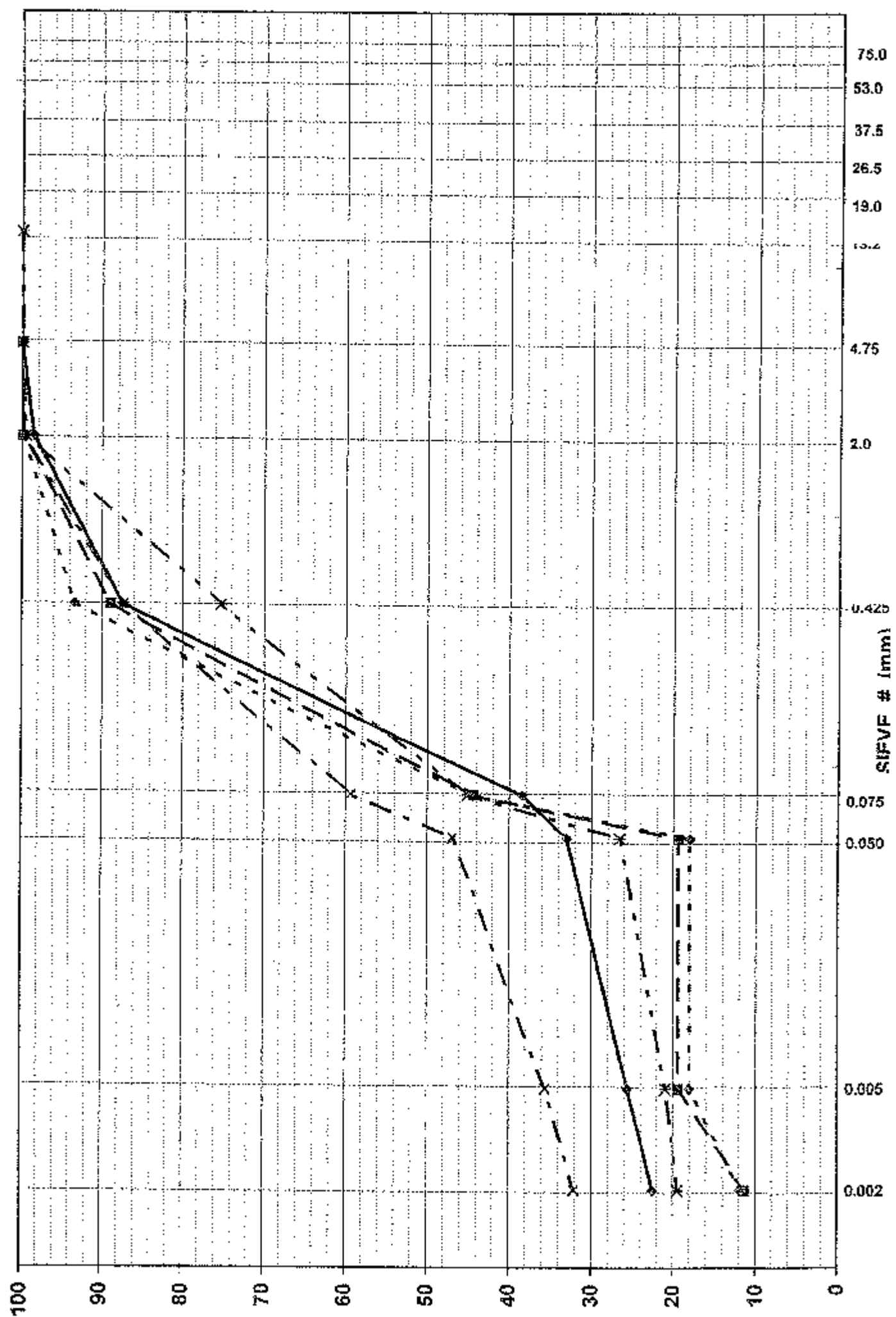
- MAY 2005



SIEVE # (mm)

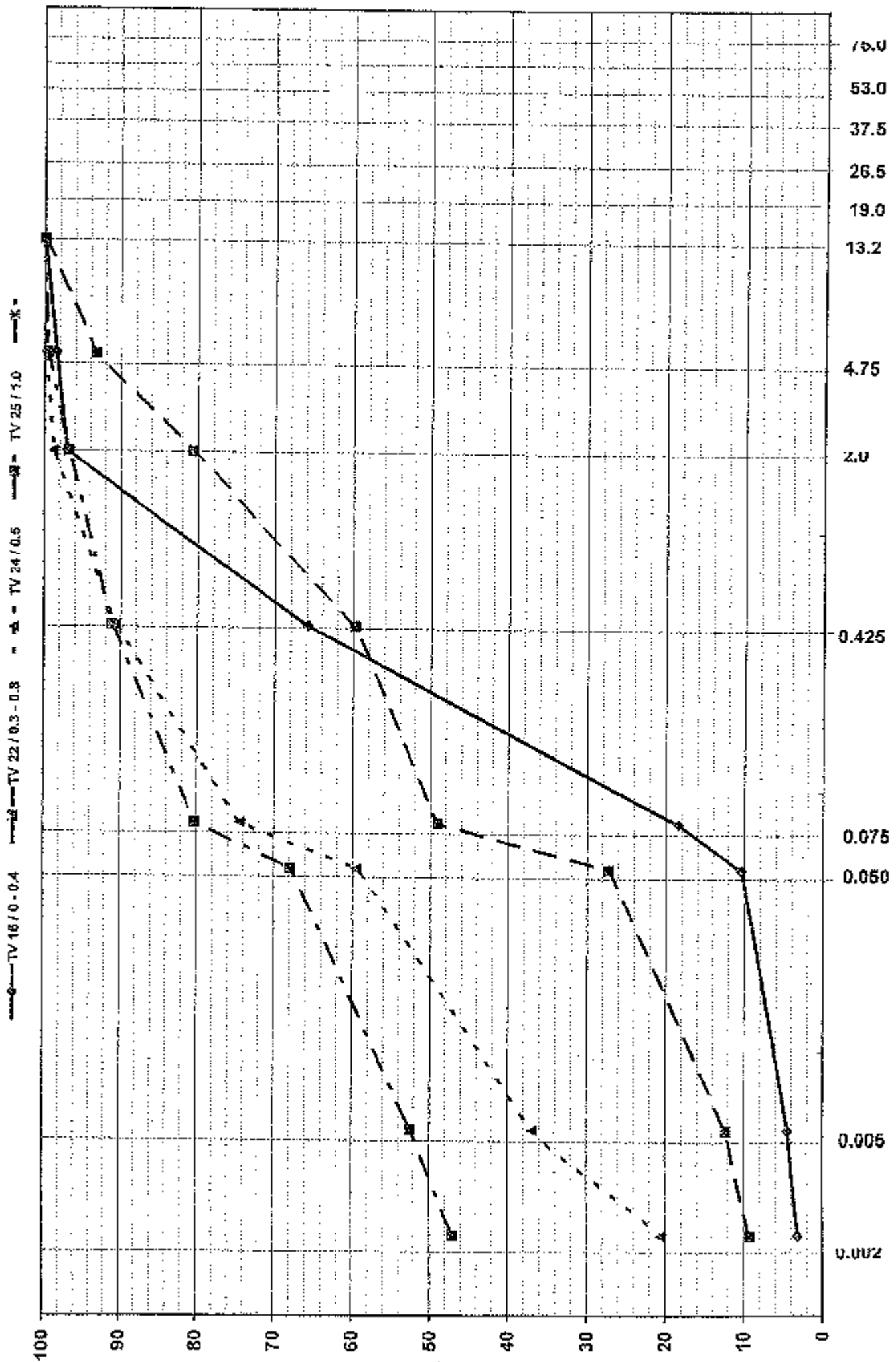
- MAY 2005

—●— TV 5/1.5    —■— TV 7/0.4    —◆— TV 11/0.0.3    —X— TV 11/1.0    —\*— TV 13/1.0



- MAY 2005

704-12-350-6256/JAN CHRD-CURF-5-2002/03/11



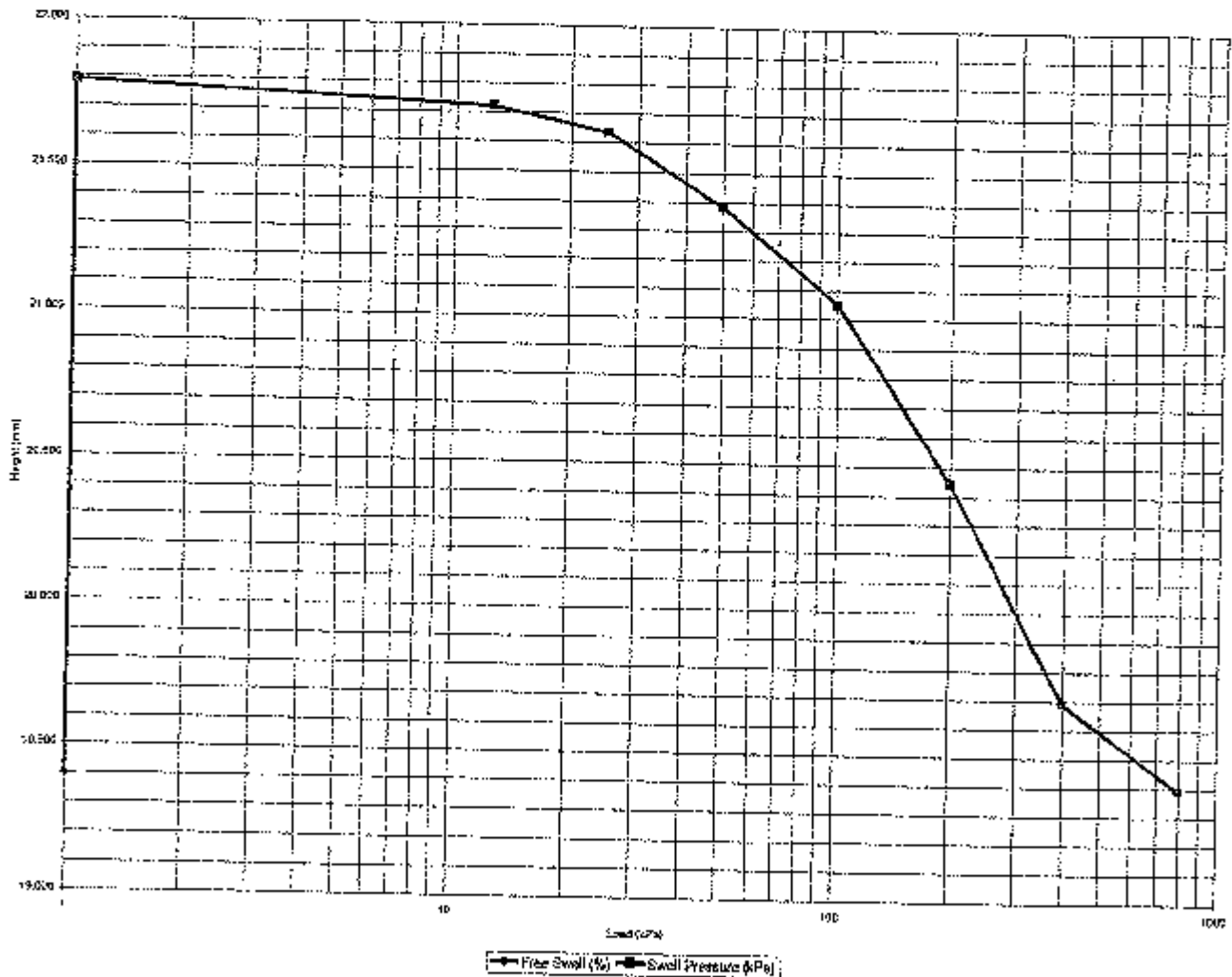
SIEVE # (mm)



## FREE SWELL & SWELL PRESSURE

PROJECT:	T04/13/890:2565 TIGER VALLEY	INITIAL DRY DENSITY (kg/m <sup>3</sup> )	1651
SAMPLE NR.	TV4	INITIAL MOISTURE (%)	22.6
DEPTH (m):	1.0	MOISTURE AFTER TEST (%)	22.3
INITIAL HEIGHT OF SAMPLE (mm)	19.4	RELATIVE DENSITY	2.544
SAMPLE CONDITION	UNDISTURBED	INITIAL VOID RATIO	0.542
SOILLAB SAMPLE No.	S05-446-U2	VOID RATIO AFTER SOAKING	0.732
		% FREE SWELL	12.33
		SWELL PRESSURE (kPa)	780.0

LOAD (kPa)	0	5	10	12.5	25	50	100	200	400	800
HEIGHT (mm)	18.400	19.388	21.790	21.720	21.638	21.388	21.050	20.442	19.690	19.390
VOID RATIO	0.542	0.542	0.732	0.727	0.720	0.700	0.673	0.628	0.585	0.542

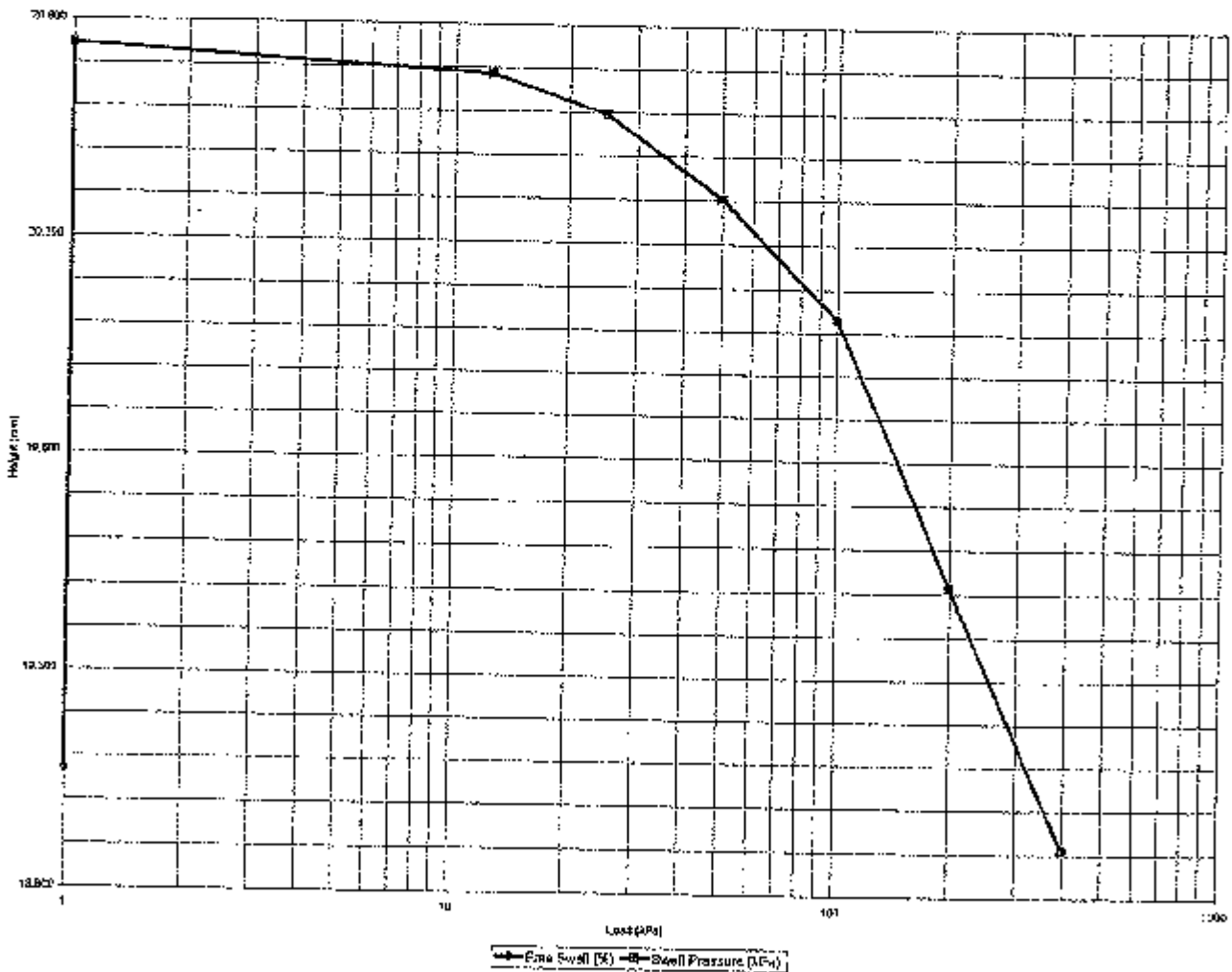


VOID RATIO AFTER SOAKING

## FREE SWELL & SWELL PRESSURE

PROJECT:	704/13/330: 2565 TIGER VALLEY	INITIAL DRY DENSITY (kg/m <sup>3</sup> )	1508
SAMPLE NR:	FV2	INITIAL MOISTURE (%)	26.4
DEPTH (m):	1.0	MOISTURE AFTER TEST (%)	30.8
INITIAL HEIGHT OF SAMPLE (mm)	19.1	RELATIVE DENSITY	2.553
SAMPLE CONDITION	UNDISTURBED	INITIAL VOID RATIO	0.892
SOILLAB SAMPLE No :	S05-445-01	VOID RATIO AFTER SOAKING	0.807
		% FREE SWELL	8.75
		SWELL PRESSURE (kPa)	330.0

LOAD (kPa)	0	1	2	5	10	20	50	100	200	400
HEIGHT (mm)	18.100	18.072	20.744	20.856	20.598	20.402	20.128	19.512	18.908	
VOID RATIO	0.692	0.698	0.857	0.832	0.824	0.807	0.793	0.728	0.675	

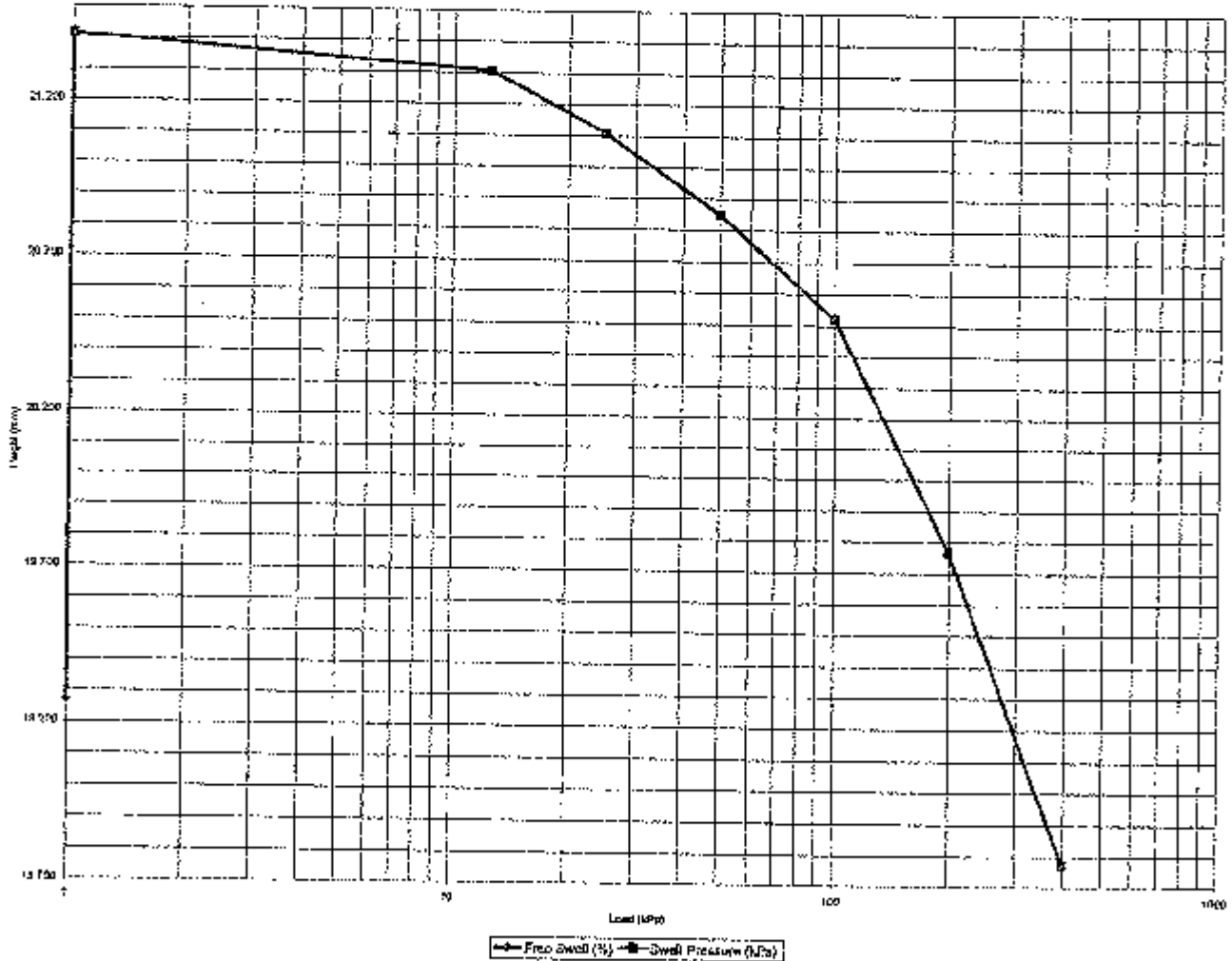


FORM REF 57ALLO/64

## FREE SWELL & SWELL PRESSURE

PROJECT:	761/15/380.2565 TIGER VALLEY	INITIAL DRY DENSITY (kg/m <sup>3</sup> )	1750
SAMPLE NR.	TV5	INITIAL MOISTURE (%)	19.4
DEPTH (m):	1.5	MOISTURE AFTER TEST (%)	20.3
INITIAL HEIGHT OF SAMPLE (mm)	19.3	RELATIVE DENSITY	2.575
SAMPLE CONDITION	UNDISTURBED	INITIAL VOID RATIO	0.472
SOILLAB SAMPLE No.:	S05-445-03	VOID RATIO AFTER SOAKING	0.685
		% FREE SWELL	11.18
		SWELL PRESSURE (kPa)	283.0

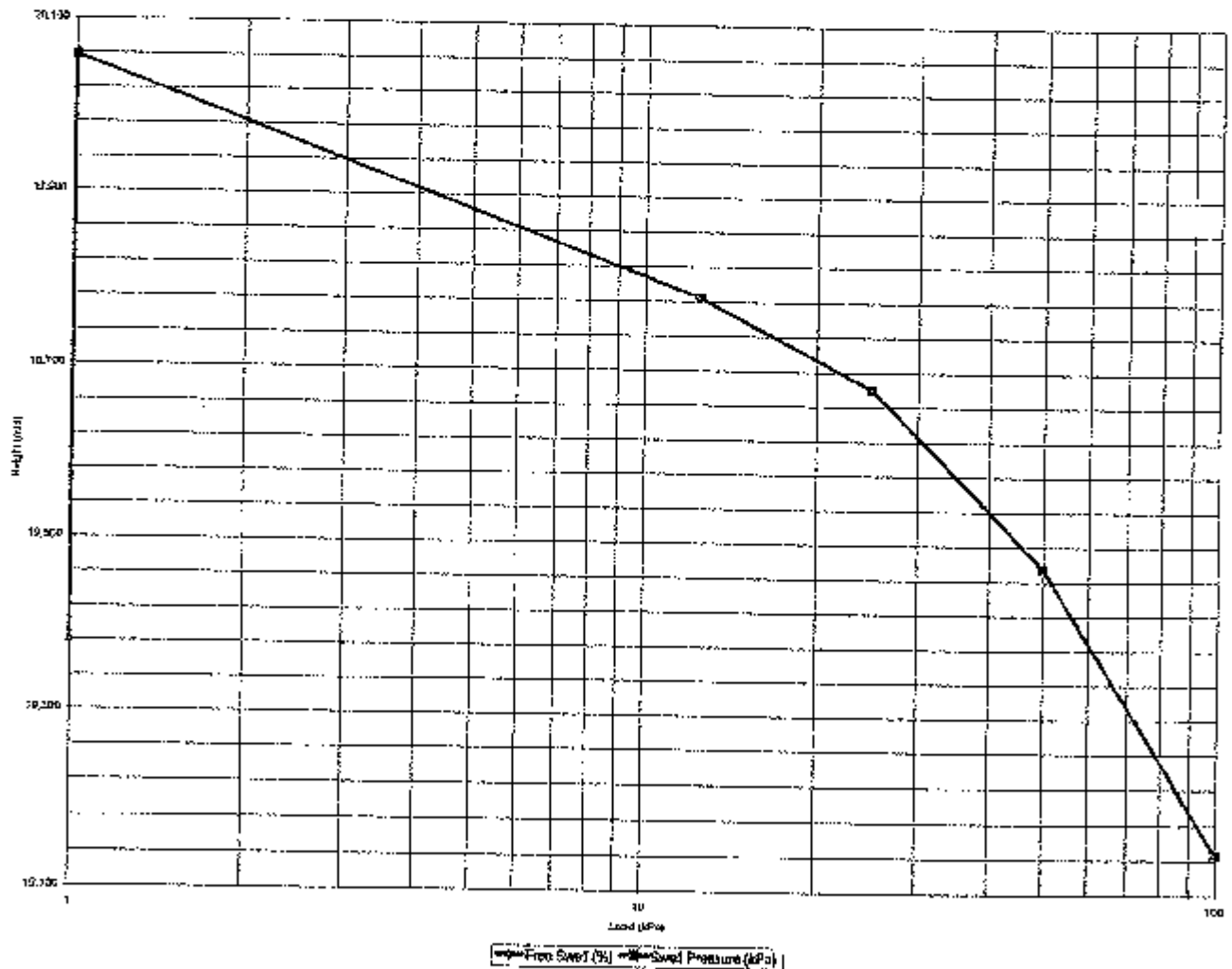
LOAD (kPa)	0	1	2.5	12.5	25	50	100	200	400
HEIGHT (mm)	19.300	19.270	21.414	21.305	21.108	20.846	20.516	19.766	18.770
VOID RATIO	0.472	0.465	0.633	0.624	0.609	0.589	0.564	0.507	0.431



## FREE SWELL & SWELL PRESSURE

PROJECT:	704/13/990/2565 TIGER VALLEY	INITIAL DRY DENSITY (kg/m <sup>3</sup> )	1681
SAMPLE NR.	TV11	INITIAL MOISTURE (%)	17.0
DEPTH (m):	1.0	MOISTURE AFTER TEST (%)	21.5
INITIAL HEIGHT OF SAMPLE (mm)	19.4	RELATIVE DENSITY	2.82
SAMPLE CONDITION	UNDISTURBED	INITIAL VOID RATIO	0.577
SCILLAB SAMPLE No.:	S05-446-04	VOID RATIO AFTER SOAKING	0.630
		% FREE SWELL	3.48
		SWELL PRESSURE (kPa)	61.0

LOAD (kPa)	1	2	5	12.5	25	50	100
HEIGHT (mm)	19.400	19.390	19.058	18.784	18.680	18.474	18.146
VOID RATIO	0.577	0.575	0.630	0.608	0.600	0.583	0.558

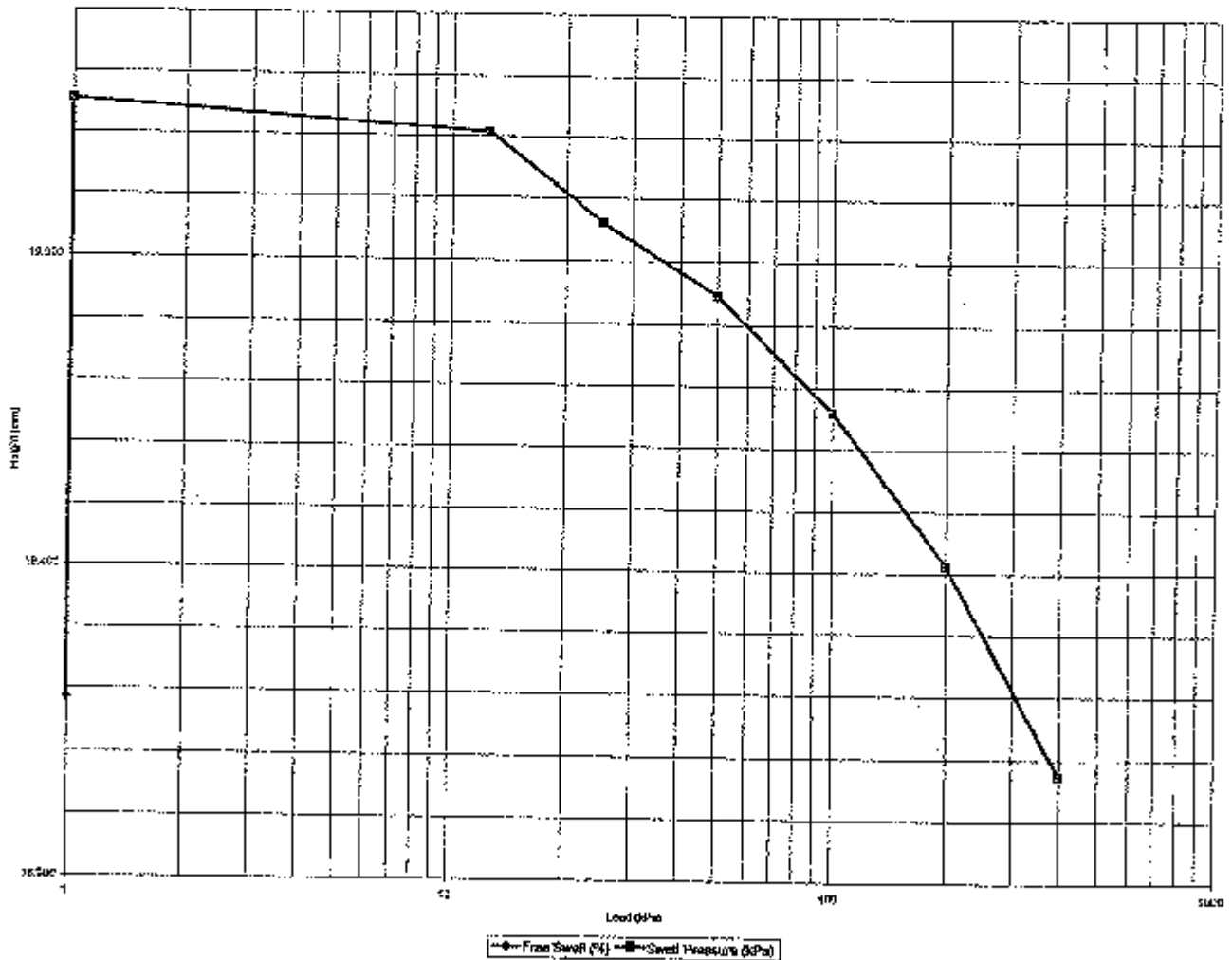


SCILLAB SWELL/SHRINK

## FREE SWELL & SWELL PRESSURE

PROJECT:	704/11/99/2585 TIGER VALLEY	INITIAL DRY DENSITY (kg/m <sup>3</sup> )	2014
SAMPLE NR.	TV13	INITIAL MOISTURE (%)	10.4
DEPTH (m):	1.0	MOISTURE AFTER TEST (%)	13.8
INITIAL HEIGHT OF SAMPLE (mm)	19.2	RELATIVE DENSITY	2.533
SAMPLE CONDITION	UNDISTURBED	INITIAL VOID RATIO	0.259
SOIL LAB SAMPLE No.:	505-448-05	VOID RATIO AFTER SOAKING	0.321
		% FREE SWELL	5.05
		SWELL PRESSURE (kPa)	330.0

LOAD (kPa)	0	10	20	25	30	50	100	200	400
HEIGHT (mm)	19.200	19.188	20.156	20.108	19.960	19.848	19.660	19.412	19.074
VOID RATIO	0.268	0.267	0.331	0.326	0.319	0.311	0.299	0.282	0.260

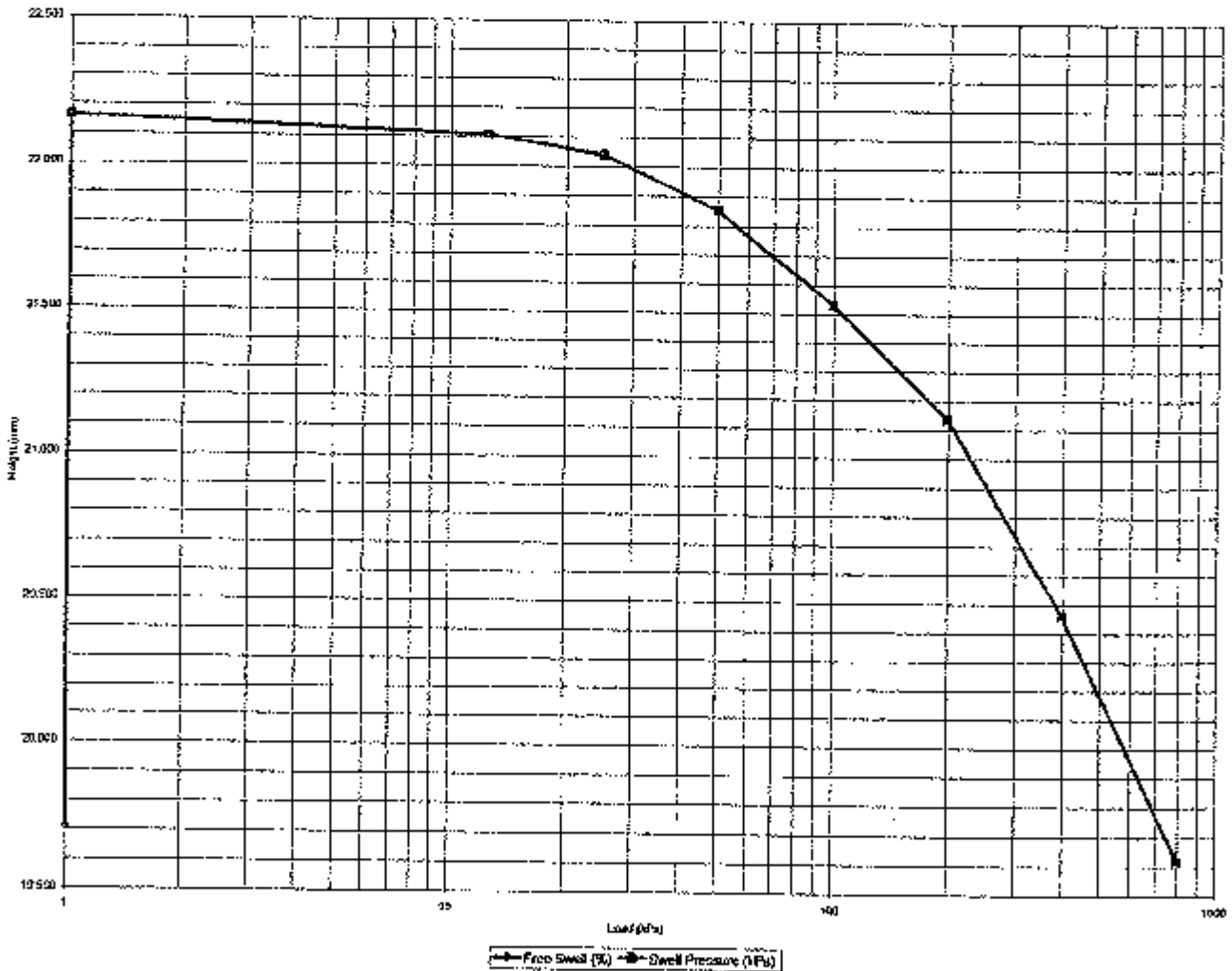


505-448-05

## FREE SWELL & SWELL PRESSURE

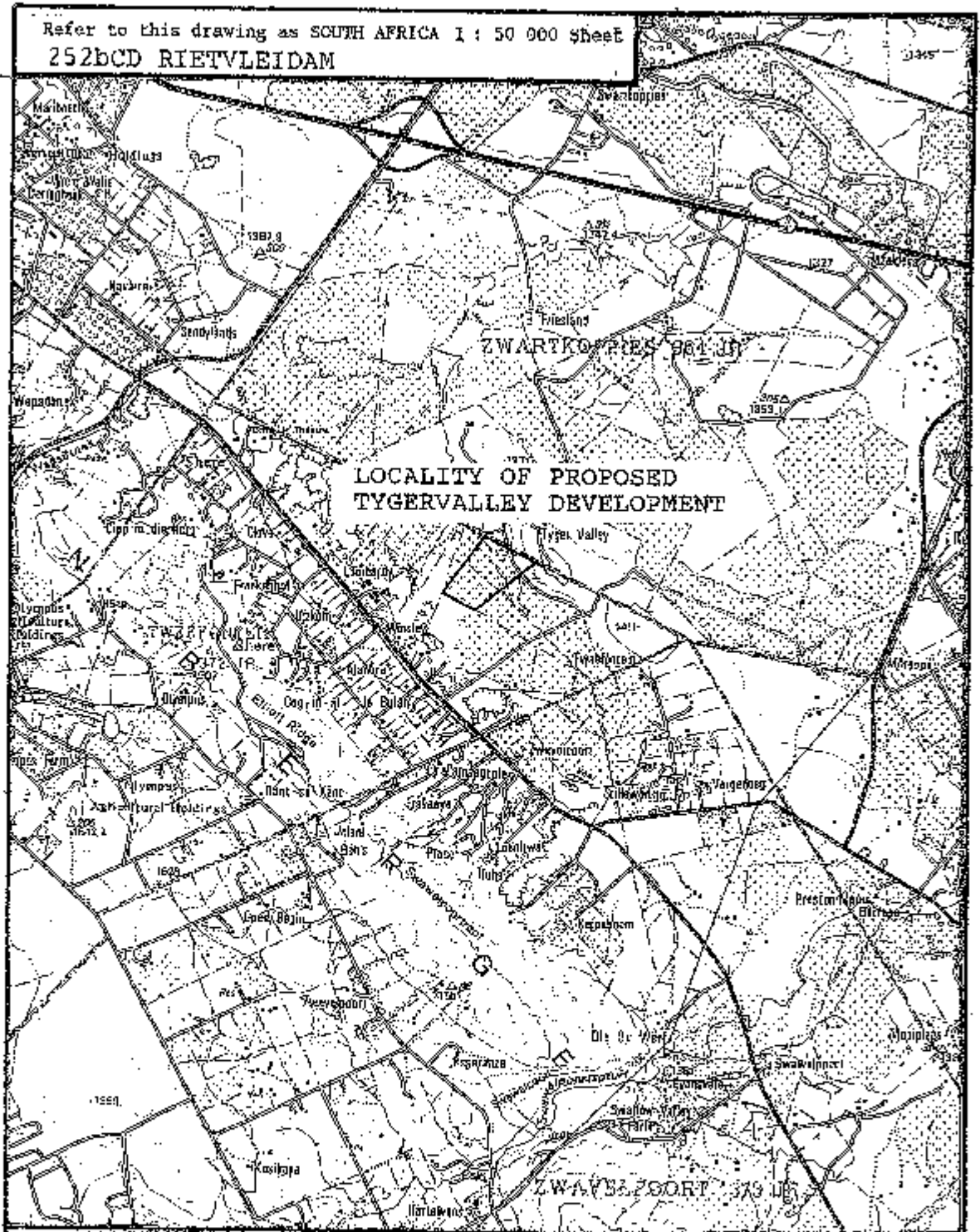
PROJECT:	794/13/390: 2565 TIGER VALLEY	INITIAL DRY DENSITY (kg/m <sup>3</sup> )	1940
SAMPLE NR.	TV25	INITIAL MOISTURE (%)	19.9
DEPTH (m):	1.0	MOISTURE AFTER TEST (%)	25.6
INITIAL HEIGHT OF SAMPLE (mm)	19.8	RELATIVE DENSITY	2.63
SAMPLE CONDITION	UNOBTURBED	INITIAL VOID RATIO	0.596
SOIL LAB SAMPLE No.:	503-146-06	VOID RATIO AFTER SOAKING	0.786
		% FREE SWELL	12.37
		SWELL PRESSURE (kPa)	740.0

LOAD (kPa)	0	1	5	12.5	25	50	100	200	400	800
HEIGHT (mm)	19.800	19.712	22.162	22.106	22.040	21.852	21.550	21.134	20.480	19.618
VOID RATIO	0.596	0.585	0.795	0.782	0.778	0.761	0.735	0.703	0.649	0.581



KINGFISHER SYDNEY/04/05

Refer to this drawing as SOUTH AFRICA 1 : 50 000 Sheet  
252bcd RIETVLEIDAM



LOCALITY OF PROPOSED  
TYGERVALLEY DEVELOPMENT

LOCALITY PLAN

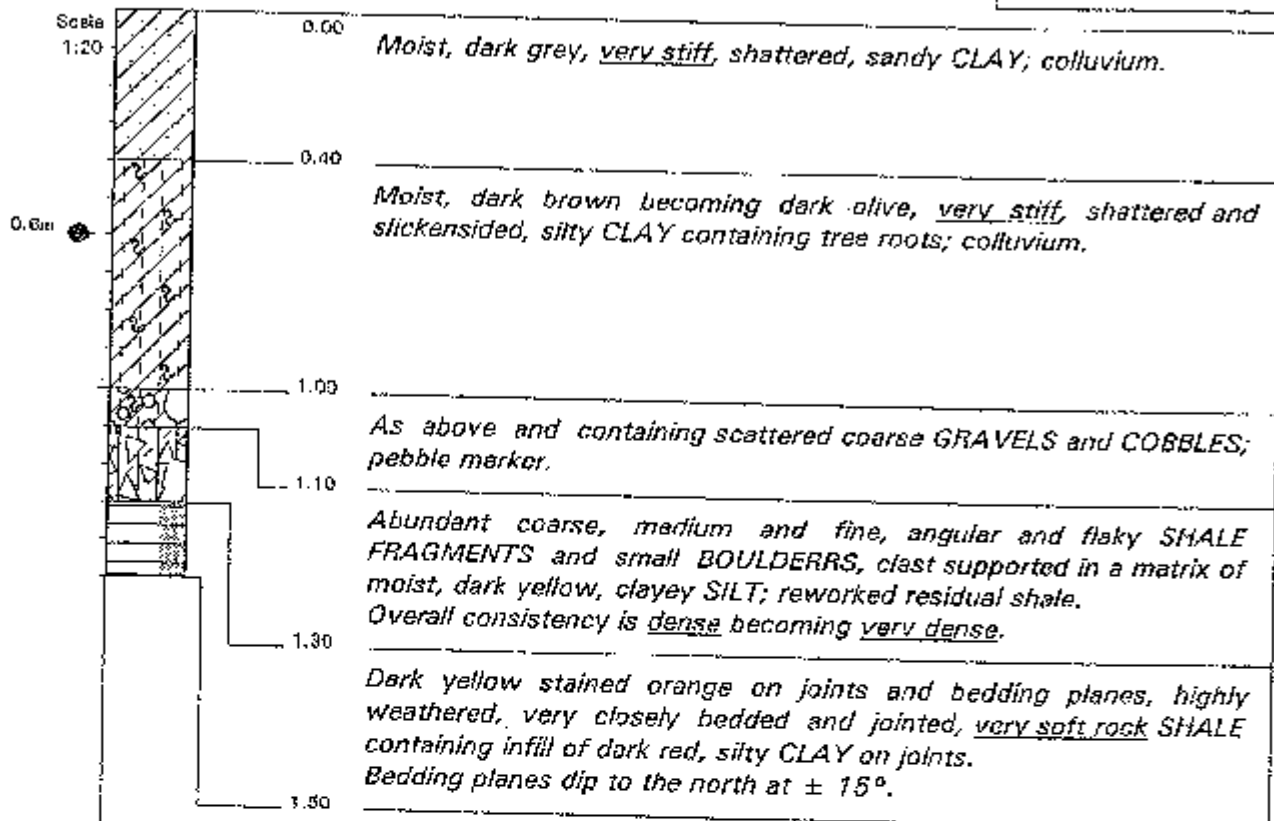
SCALE: 1:50 000



SYNERGISTICS, Environmental Services  
 Partion 5 of Tygervallei 334-JR, Pretoria  
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:  
**PROPOSED NEW TYGERVALLEY HOUSING DEVELOPMENT**

HOLE No: TV/24  
 Sheet 1 of 1

JOB NUMBER: M05/2568



**NOTES**

- 1) Gradual refusal of backactor at 1,5m in shale bedrock.
- 2) No water seepage encountered.
- 3) Disturbed soil sample taken at 0,6m.

CONTRACTOR : SNA Lab  
 MACHINE : John Deere 310  
 DRILLED BY :  
 PROFILED BY : jvdm  
 TYPE SET BY : jvdm  
 SETUP FILE : STANDARD SET

INCLINATION :  
 DIAM : Trench  
 DATE : 09/05/2005  
 DATE : 09/05/2005  
 DATE : 19/05/05 12:37

ELEVATION :  
 X-COORD :  
 Y-COORD :

HOLE No: TV/24



# Soil Investigation



Appendix G3

**REPORT**

For Synergistics Environmental Services

by

**INSTITUTE FOR SOIL CLIMATE AND WATER  
AGRICULTURAL RESEARCH COUNCIL**



Report Number *GW/A/2005/24*

**SOIL INVESTIGATION OF  
PORTION 5 OF THE FARM TYGERVALLEY 334~JR**

April 2005

By

**E.O. Jacobs**

Institute for Soil, Climate and Water, Private Bag X79,  
Pretoria 0001, South Africa

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1157  
e-mail: [emst@arc.agric.za](mailto:emst@arc.agric.za)

Fax: (012) 323

## **CONTENTS**

1. Terms of Reference
2. Study Area
3. Methodology
4. Soils
5. Agricultural Potential
6. Land Use Options

References

Appendix 1: Soil Map

## 1. TERMS OF REFERENCE

The Institute for Soil, Climate and Water of the Agricultural Research Council (ARC-ISCW) was requested by Synergistics Environmental Services to carry out a soil investigation of portion 5 of the farm Tygervalley 334-JR. The investigation was to describe and map the soils occurring, as well as to assess their broad agricultural potential.

## 2. STUDY AREA

### Site details

The study area comprised 21.41 ha in total, and lies east of Pretoria, south of Silver Lakes. The northern part is located on a steep south facing slope, while the middle and southern parts are virtually flat.

The site is at present bare grassland with partly demolished structures. Remnants of digging activities are still visible next to a dam. To the north and east, grassland of abandoned farms occurs. To the south, new developments (small holdings) have been established. In the west the area partially borders partly a rose nursery.

### Geology

The underlying geology consists of shales, carbonaceous in places with hornfels and chert of the Silverton formation (Pretoria Group) and bands of diabase (Geological Survey, 1978).

### Climate

The main characteristics (Koch, 1987) are shown in Table 1 below.

The climate of the area can be described as typical of the Highveld, with cool to cold, dry winters and moist, warm to hot summers. Most of the rainfall (85%) falls between October and March, and frost is common.

Table 1. Climate Data

Month	Rainfall (mm)	Min. Temp (°C)	Max. Temp (°C)	Average frost dates
Jan	121.2	15.0	21.0	Start date: 27/05 End date: 16/8
Feb	99.9	14.5	20.9	
Mar	84.7	13.0	19.5	Heat units (hrs > 10°C) Summer (Oct-Mar): 2047 Winter (Apr-Sept): 539
Apr	40.2	8.9	16.5	
May	19.9	4.2	12.8	
Jun	6.5	0.9	10.0	
Jul	8.0	0.6	9.8	
Aug	9.2	3.3	12.6	
Sep	18.0	7.5	16.2	
Oct	60.1	11.6	19.5	
Nov	107.3	13.2	20.1	
Dec	107.8	14.4	21.2	
Year	682.0 mm	13.7°C (Average)		

### 3. METHODOLOGY

The area was originally covered by existing soil maps, at 1:50 000 scale, of the PWV peri-urban soil survey (Yager, 1990). The soil map units from this map were then classified (Soil Classification Working Group, 1991) and grouped into map units.

However, this scale of investigation was deemed insufficient to accurately determine the soils occurring, so a site visit was carried out to map the soils and assess aspects of the site in more detail.

Augering was carried out in the middle and southern part to determine the uniformity of the area and to determine the depth to bedrock or boulders.

### 4. SOILS

The soils in the northern part of the area are situated on rather steep mid slopes and consist mainly of shallow medium fine structured clay loamy topsoil on weathered rock. Soils are usually not deeper than 300 mm. The most common soil family is Mispah 1100. Rock outcrops may occur.

Lower down on the footslopes the dominant soils consist of a medium fine structured clayey topsoil on strong structured subangular clayey subsoil. The dominant soil family is the Swartland 1111. In places, wet unconsolidated material may underlie the subsoil, with the Sepane 1110 soil form occurring.

The lower half of the survey area consists of the Sepane soil form. Around the dam, dark fine structured clayey top soils may occur giving the topsoil a melanic character. In those cases the Willowbrook soil form occurs.

The main characteristics are given in Table 1 below.

Table 1. Soil Legend

Map Symbol: Soil	Depth (mm)	Soil Characteristics
vsMs1110	200-300	Dark to very dark greyish brown, medium fine structured (30-40% clay), very shallow soils of the Mispah soil form (Ms1100 soil family)
sSw1111	300-500	Dark to very dark greyish brown, medium fine structured (35-45% clay) clay loam on dark greyish brown (40-50%) clay, underlain by saprolite. The Swartland soil form (Sw1111 family) is most common
sSe1110	300-500	Dark to very dark greyish brown, medium fine structured (35-45%) clay loam on dark greyish brown (40-50%) clay, underlain by unconsolidated material with signs of wetness. The Sepane soil form (Sp1110 soil family) is most common. The Willowbrook soil form (Wo 2000) may occur in places

## 5. AGRICULTURAL POTENTIAL

The soil units as listed above were allocated to a relevant class of agricultural potential. The second part of the symbol (in brackets) refers to the potential class. The limitations are given in Table 2 below.

Table 2. Soil limitations

Potential Class	Map Unit(s)	Soil limitations	Area (ha)
Low (l)	vsMs1110	Shallow soils and excessive steep slopes.	6.91
Low to moderate (l-m)	sSw1111 sSe1110	Heavy clay and structured subsoil restrict root growth and water penetration.	14.5

## 6. LAND USE OPTIONS

The low to moderate potential soils of the site (sSw1111, sSe1110) are moderately suited for arable agriculture, due to the soil, terrain and climate conditions. Grassland may be a good alternative.

The northern part of the area (vsMs1110) is only suitable for grazing.

## REFERENCES

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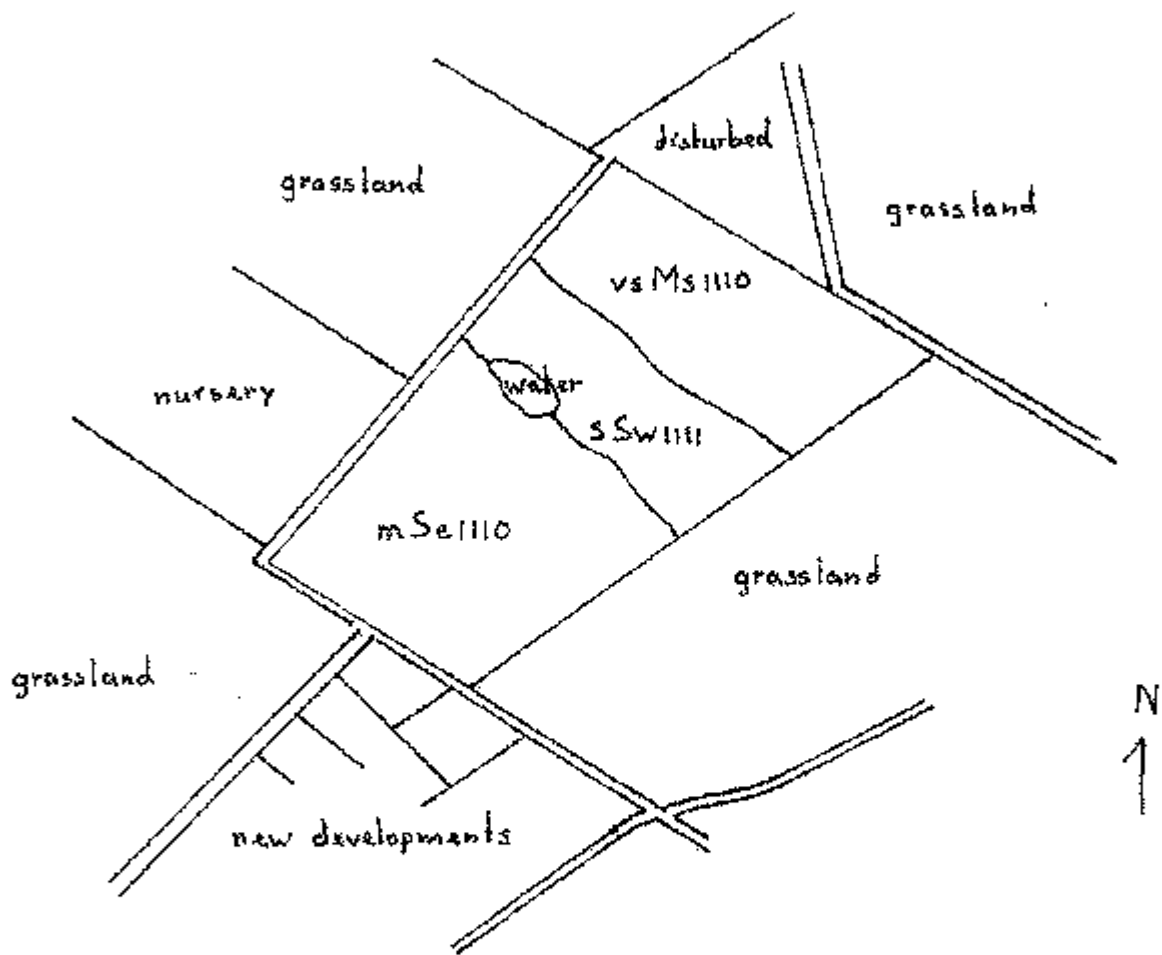
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**APPENDIX 1:**

**SOIL MAP**



Scale 1:8350

500 m